SUMMER 2025 | Grips

GLOBAL RESEARCH IMMERSION PROGRAM FOR YOUNG SCIENTISTS (GRIPS)

To Join 4 Top Chinese Universities in Yangtze River Delta

June – August 2025

Online Application Opens: January 6, 2025

Online Application Closes: March 9, 2025, at 11:59 pm (UTC+8)

ZHEJIANG UNIVERSITY | UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA | FUDAN UNIVERSITY | NANJING UNIVERSITY

OVERVIEW

Grips is the cutting-edge research program set against the vibrant backdrop of the Yangtze River Delta, hosted by four prestigious universities in China. Immerse yourself in an unparalleled research experience, discovering the region's innovative potential, and join a community of global thinkers who are actively shaping the future. Elevate your academic journey with Grips in summer 2025 – where discovery meets destination.

Program Date	June – August 2025
Research Language	English
Application Deadline	9 March 2025

PROGRAM HIGHLIGHTS

- Elite, multi-disciplinary research experience with leading professors from four top Chinese universities;
- Exciting glimpse of China through the Yangtze River Delta, home to eight world heritage sites and a jewel in the crown of China's economic transformation;
- Enriching industry visits to leading enterprises such as DEEP Robotics and Sinopec Nanjing Engineering etc ;
- Enchanting city tours to feel the blend of tradition and modernity in four metropolises;
- Waived tuition and registration fees, plus high-ratio scholarship covering international travel and local accommodation for excellent applicants.

ELIGIBILITY REQUIREMENTS

- Undergraduates or graduates who are registered full-time at their home university;
- Undergraduates should have completed at least two years of study at home university, preferably juniors or seniors in a related discipline;
- Academic Excellence with a CGPA (Cumulative Grade Point Average) of ‘B’ or above.

APPLICATION MATERIALS

For successful application, applicants need to submit the following materials:

- Online application form;
- Official transcript;
- Resume;
- Statement of purpose;
- One recommendation letter;
- 3 min self-introduction video;
- Additional supporting documents.

APPLY NOW

UNIVERSITIES AT A GLANCE

ZHEJIANG UNIVERSITY

Zhejiang University (ZJU) is a leading higher education institution in China, as well as one of its oldest. Its roots can be traced back to 1897 and the founding of the Qiushi Academy. Located in Hangzhou – "the City of Heaven" with a long history and a hub for innovation in the Yangtze River Delta – ZJU has 7 faculties, 39 colleges/schools and 7 affiliated hospitals. Internationally, ESI data show that ZJU is among the world's top 0.1% in ten fields, including Chemistry, Engineering and Clinical Medicine. Welcome to ZJU to seek truth and pursue innovation. It has something for everyone!

UNIVERSITY OF SCIENCE AND TECHNOLOGY OF CHINA

The University of Science and Technology of China (USTC), regarded as the Cradle of Creative Minds, was established by the Chinese Academy of Sciences (CAS) in 1958. Ever since then, it has continuously served the nation as an innovator in quality education and scientific research by focusing on exploring new frontiers in science and nurturing young talents with global perspectives. Now the University is home to 16245 gifted students and 2050 dedicated faculty members, and offers customizable programs and exceptional extracurricular activities and 2050 dedicated faculty members, and offers customizable programs and exceptional extracurricular activities to all students. USTC is the only university that operates two national laboratories on campus. In the Nature Index 2024, USTC was ranked Top 2 in the global universities.

UNIVERSITIES AT A GLANCE

FUDAN UNIVERSITY

Founded in 1905 as Fudan Public School, Fudan University is the first higher education institution founded by Chinese scholars to serve as an institutional space guaranteeing scholarly excellence and academic independence. Fudan University is a research-oriented comprehensive university renowned both at home and abroad for its humanities, sciences, social sciences, engineering and medical sciences, ranking within the top 5% of universities in the world with 34th in the QS ranking and 70th in THE ranking in 2021. Fudan boasts 4 campuses and 18 affiliated hospitals. It also provides 6 libraries and more than ten stadiums.

NANJING UNIVERSITY

Nanjing University (NJU) is situated in the UNESCO City of Literature, Nanjing, a major culture, education and arts hub in the Yangtze River Delta. Founded in 1902, NJU is one of the oldest and most prestigious institutions of higher learning in China. Today it sits with the world's top universities, reaching 73rd in the THE rankings 2024. NJU has four main campuses: Gulou, Xianlin, Pukou in Nanjing, and a new campus in Suzhou opened in 2023. As a comprehensive and research-intensive university, NJU offers multiple opportunities for international students, including degree programs, university-wide exchange, summer schools and visiting research student program. Welcome to Nanjing University and embrace a different learning experience!

PROGRAM LIST FOR GRIPS

Engineering & Technology

University	Lab Name	PI Name	Duration
Zhejiang University	Emerging AI Lab	Bruce Xinbo Yu	6.23-8.1
	ZJU Huzhou Institute Labs	Chao Xu	6.23-8.1
	State Key Laboratory of Fluid Power and Mechatronic Systems	Dong Han	6.23-8.1
	Institute of Smart Sensors and micro/nano Systems, Bioelectronics Research Center	Jikui Luo	6.23-8.1
	Networked Sensing and Control (NeSC)	Jiming Chen	6.23-8.1
	Lab of Flexible & Bioelectronics Manufacturing	Kaichen Xu	6.23-8.1
	Lab of Flexible & Bioelectronics Manufacturing	Kuang Sheng	6.23-8.1
	Ang Lab	Qianqian Yang	6.23-8.1
	ZJU Atomic lab	Rong Xiang	6.23-8.1
	The State Key Laboratory of Blockchain and Data Security	Wangze Ni	6.23-8.1
	System Defense Lab	Wenbo Shen	6.23-8.1

University	Lab Name	PI Name	Duration
Zhejiang University	Machine Intelligence and System Optimization (MISO) Lab	Xiang Li	6.23-8.1
	Group of Networked Sensing and Control	Yuanchao Shu	6.23-8.1
	Optoelectronics Group	Zongyin Yang	6.23-8.1
University of Science and Technology of China	material processing intellectualization	Bo Zhang	6.23-7.25
	Amorphous and high entropy alloys laboratory	Jianqiang Wang	6.23-7.25
	Advanced Metal Forming Technologies Joint Lab	Ming Cheng	6.23-7.25
	Wenwei Li's Group	Wenwei Li	6.23-7.25
	Lobratory of Advanced Energy Storage	Wenye Lin	6.23-7.25
Fudan University	6G Photonic Devices Lab	Chao Shen	6.23-7.25
	Code Security Research	Guangliang Yang	6.23-7.25
	DataNET Group	Yang Chen	6.23-7.25
	Intelligent Electronics and Systems Laboratory	Zhuo Zou	6.23-7.25
Nanjing University	Semiconductor Materials and Devices	Bin Liu	6.23-7.25
	Neuromorphic+	Changjin Wan	6.23-7.25

Interdisciplinary Science

University	Lab Name	PI Name	Duration
Zhejiang University	GU Lab	Baojing Gu	6.23-8.1
	3D Microfluidic Printing Lab	Dong Chen	6.23-8.1
	Eagle Lab	Haishuai Wang	6.23-8.1
	Environmental Biotechnology Lab	Heping Zhao	6.23-8.1
	Laboratory of Agricultural Information Intelligent Sensing	Jianfeng Ping	6.23-8.1
	Ecosystem Function, Integration and Simulation	Mingkai Jiang	6.23-8.1
	SAP-Geo Lab	Ni An	6.23-8.1
	Machine Intelligence Lab	Qiang Zhang	6.23-8.1
	Carbon Conversion Lab	Shaoqing Cui	6.23-8.1
	Soft Matter and Robotics	Tiefeng Li	6.23-8.1
	Intelligent Bioindustrial Equipment Innovation Team	Xiangjiang Liu	6.23-8.1
	BioMEMS Lab	Zhen Cao	6.23-8.1
University of Science and Technology of China	Nucleic acid self-assembly lab	Dongfang Wang	6.23-7.25
	Materials Physics Innovation Lab	Dongxue Chen	6.23-7.25
	Hybrid Imaging System Laboratory	Fei Gao	6.23-7.25
	Key Laboratory of Polymer Ecomaterials	Jianxun Ding	6.23-7.25
	Laser Integrated Nano-Engineering (LINE) Lab	Liang Yang	6.23-7.25

University	Lab Name	PI Name	Duration
University of Science and Technology of China	Key Laboratory of Polymer Ecomaterials	Wantong Song	6.23-7.25
	Photonics & Imaging Lab (π-lab)	Wenxuan Liang	6.23-7.25
	Lab for Multimodal Biomedical Imaging and Therapy (MBIT)	Xiaorong Ronald Xu	6.23-7.25
	Deng Research Group	Zhengyu Deng	6.23-7.25
Fudan University	Neural and Intelligent Engineering Centre at ISTBI	Shouyan Wang	6.23-7.25
	FDUVIS	Siming Chen	6.23-7.25
Nanjing University	Biological and Bioinspired Materials Lab	Haocheng Quan	6.23-7.25
	Dong lab	Hao Dong	6.23-7.25
	Nanozyme Lab	Hui Wei	6.23-7.25
	Chemical Biology_DNA Lab	Jingjing Zhang	6.23-7.25
	ATLAS, JUNO, BESIII	Lei Zhang	6.23-7.25
	Chem-Sustainability & Chem-Informatics Lab	Mengning Ding	6.23-7.25
	Environmental Chemistry Lab	Ran Yin	6.23-7.25
	Quantum Materials and Spectroscopy Group	Weigao Xu	6.23-7.25
	Neuromorphic Chemistry	Wei-Wei Zhao	6.23-7.25
	Biomech & Mechanochemistry Lab	Yi Cao	6.23-7.25
	SMS group	Yuxi Tian	6.23-7.25

Life Science and Medicine

University	Lab Name	PI Name	Duration
Zhejiang University	Perioperative and System Medicine	Daqing Ma	6.23-8.1
	Chan Lab	Francis Kaming Chan	6.23-8.1
	AgroOptics and Imaging Lab	Haiyan Cen	6.23-8.1
	Dynamics cell fate determination in stem cells and early embryogenesis	Hongqing Liang	6.23-8.1
	Laboratory of Plant Developmental Signaling	Juan Xu	6.23-8.1
	Lab of cancer biology & epigenetics	Liang Xu	6.23-8.1
	Molecular & Ecological Chemistry Lab for Plant-Microbe Interactions	Mengcen Wang	6.23-8.1
	Zhejiang Provincial Clinical Research Center for Oral Diseases	Mengjie Wu	6.23-8.1
	Zhejiang international Joint Laboratory of Regenerative and Aging Medicine	Songmin Ying	6.23-8.1
	Tissue Wound Repair and Regeneration Laboratory	Suhong Xu	6.23-8.1
	Pharmaceutical Informatics Institute	Yi Wang	6.23-8.1
	IMedication Lab	Zhen Gu	6.23-8.1
University of Science and Technology of China	Innovative Biomedicine and Materials Lab	Xianglong Hu	6.23-7.25
Fudan University	State Key Laboratory of Genetic Engineering	Chen Ling	6.23-7.25
	Auditory perception Lab	Liang Chen	6.23-7.25
		Lin Li	6.23-7.25
		Qian Li	6.23-7.25
	AI for Multi-Modal Medicine	Shuo Wang	6.23-7.25

University	Lab Name	PI Name	Duration
Nanjing University	Computational Biology	Dijun Chen	6.23-7.25
	Lab of Bioinformatics and RNA Genomics	Jiayu Chen	6.23-7.25
	Iron metabolism and Mitochondrial function	Kuanyu Li	6.23-7.25
	M3 Lab	Zhen Zhou	6.23-7.25

Natural Science

University	Lab Name	PI Name	Duration
Zhejiang University	Magneto+X	Chen Wu	6.23-8.1
	Solar Lab	Jingjing Xue	6.23-8.1
	Optoelectronic Semiconductor Material and Device (OSMD)	Zhenyi Ni	6.23-8.1
University of Science and Technology of China	Bioinspired high-performance materials laboratory	Chuangqi Zhao	6.23-7.25
	Light-X Catalysis Lab	Dong Liu	6.23-7.25
	Advanced electrochemical energy storage materials and devices	Feng Li	6.23-7.25
	State Key Laboratory of Electroanalytical Chemistry	Guobao XU	6.23-7.25
	Nanomaterials and Nanophotonics Lab	Jiangang Feng	6.23-7.25
	SCAI Lab	Jingrun Chen	6.23-7.25
	Quantitative Electron Microscopy on Metallic Materials	Kui Du	6.23-7.25
	Bionic Electrochemical Laboratory	Longsheng Cao	6.23-7.25

University	Lab Name	PI Name	Duration
University of Science and Technology of China	Lab of Bioinspired Functional Nanocomposites	Qunfeng Cheng	6.23-7.25
	Computational Materials Design	Peitao Liu	6.23-7.25
	Laboratory For Biomedical and Bionic Matetrials	Xing Zhang	6.23-7.25
	EX-nanocatalysis Lab	Yitao Dai	6.23-7.25
	Artifacial Intellegence for Materials Science	Zhicheng Zhong	6.23-7.25
Fudan University	Nanomembrane Lab	Gaoshan Huang	6.23-7.25
	Optical-Thermal-Electrical Laboratory	Guangzheng Zuo	6.23-7.25
	Nanomembrane Lab	Yongfeng Mei	6.23-7.25
Nanjing University	NJU GRID Lab	Binbin Zhang	6.23-7.25
	Environmental Interface Chemistry Research Lab	Cheng Gu	6.23-7.25
	Lab of Paleoecology and Environmental archaeology	Chunmei Ma	6.23-7.25
	Graphene and sensors	Geliang Yu	6.23-7.25
	Laboratory of AMS Dating and the Environment, Nanjing University (NJU-AMS)	Hongyan Zhang	6.23-7.25
	Atmospheric Greenhouse Gas Research Lab	Huilin Chen	6.23-7.25
	Key Laboratory of Mesoscale Severe Weather/ Ministry of Education	Huiling Yuan	6.23-7.25
	Yan Group	Hong Yan	6.23-7.25
	Pollutants biogeochemistry and environmental remediation	Jun Luo	6.23-7.25

University	Lab Name	PI Name	Duration
Nanjing University	Key Laboratory of Mesoscale Severe Weather	Lili Lei	6.23-7.25
	Water Lab	Long Yang	6.23-7.25
	School of Geography and Ocean Science	Qian Yu	6.23-7.25
	NJU MarGeoChem Group	Rong Hu	6.23-7.25
	Environmental Process and Global Change Lab	Rong Ji	6.23-7.25
	Nanjing-Helsinki Institute in Atmospheric and Earth System Sciences	Sandro F. Veiga	6.23-7.25
	Shaolin Zhu Lab	Shaolin Zhu	6.23-7.25
	Surface Engineering and 2D/3D Assembling of Nanocrystal and Nanoclusters	Yuanyuan Wang	6.23-7.25
	Dryland Environmental Change Lab	Zhiwei Xu	6.23-7.25

Social Science

University	Lab Name	PI Name	Duration
Zhejiang University	Emotion and Culture Lab	Xia Fang	6.23-8.1
Fudan University	Center for Information and Comm Studies	Ji Pan	6.23-7.25
Nanjing University	Liangren Lab	Liangren Zhang	6.23-7.25


浙江大学
ZHEJIANG UNIVERSITY
1897
中国科学技术大学
1958
University of Science and Technology of China
FUDAN UNIVERSITY
1905
NANJING UNIVERSITY
1902

Engineering & Technology

Bruce X.B. Yu, Assistant Professor

Zhejiang University

Lab Name:
Emerging AI Lab

Homepage: https://bruceyo.github.io/

Email: xinboyu@intl.zju.edu.cn

Biography

Dr. Bruce X.B. Yu earned his Ph.D. from The Hong Kong Polytechnic University. His primary research expertise focuses on vision-based human behavior understanding. His works have been published on top venues such as: TPAMI, ACM CSUR, Pattern Recognition, ICCV, AAAI, IJCAI, etc. His research outcomes also get international recognition such as best paper and best presentation awards. He has been actively conducting interdisciplinary in research topics such as driver behavior analysis, business intelligence, surgical robotics, etc. Besides application-driven research, he also works on fundamental research problems such as LLM-driven reasoning, multi-agent AI, and efficient fine-tuning.

Research

Human behavior understanding, Multi-agent AI, efficient fine-tuning

What You Can Expect in the Project

Based on your research or major background, you will select a topic related to my research expertise, which can be both applied or theoretical research around human behavior understanding. The exact applied research topic can be human action detection, anomaly prediction, etc. While, theoretical research can be domain generalization, domain shift, data efficiency, etc. Techniques or tools used to tackle the problem can be very open, such as LangGraph, AutoGen, Crew AI, etc. During the internship, you will gain useful research experience in AI such as: data collection, building a model, training or fine-tuning a model, writing research papers, presenting research outcome, etc.

Number of Participants

1-4 Students

Chao Xu, PhD, Professor

Zhejiang University

Lab Name:

ZJU Huzhou Institute Labs

Homepage:

https://person.zju.edu.cn/xu
http://hzi.zju.edu.cn/

Email: cxu@zju.edu.cn

Biography

Chao Xu is a professor and doctoral supervisor at the College of Control Science and Engineering, Zhejiang University. He holds a PhD in Mechanical Engineering from Lehigh University in the US and has made significant contributions to the fields of multidisciplinary robotics and physical intelligence (mrpai). He is currently serving as the Associate Dean of the College of Control Science and Engineering at Zhejiang University, Director of the Huzhou Institute of Zhejiang University, and Director of the Zhejiang Province Engineering Research Center for Intelligent Mobile Unmanned Systems. His research has been widely recognized, with publications in top-tier journals such as Science Robotics and Nature Machine Intelligence, and he has received the Frontier Science Award at the International Congress of Basic Science in 2024. Professor Xu is also actively involved in societal services, including being a member of the Huzhou Political Consultative Conference and the Standing Committee of the Huzhou Association for Science and Technology.

Research

AREA – Multidisciplinary Robotics and Physical Intelligence (MRPAI), including:

- Intelligent Flight Control Systems
- Complex Flow Visualization and Intelligent Computation
- Cybernetic Methods in Machine Learning
- Imaging Control Systems and Applications

What You Can Expect in the Project

- Smart Flight Control: flight dynamics, assemble drones, and implement control algorithms
- Flow Visualization: fluid mechanics basics, flow simulation, and data processing
- Machine Learning: ML concepts, optimization using control theory

  Imaging Systems: imaging physics, adaptive optics

Number of Participants

4 students

Dong Han, Professor

Zhejiang University

Lab Name:

State Key Laboratory of Fluid Power and Mechatronic Systems

Homepage:

https://person.zju.edu.cn/donghan

Email: dong_han@zju.edu.cn

Biography

Dong Han is a researcher under the "Hundred Talents Program," a Ph.D. advisor, and a recipient of the National High-Level Overseas Talents Youth Program. He serves as the Assistant Dean of the School of Mechanical Engineering at Zhejiang University. Han has led over 20 projects, including those funded by the National Natural Science Foundation of China, key research and development sub-projects, and projects supported by the Equipment Development Department and Zhejiang Province. He has published more than 40 high-quality SCI papers and holds over 40 authorized invention patents.

Research

1. Intelligent Tunnel Boring Equipment
2. Electromagnetic-Piezoelectric Innovative Drives

What You Can Expect in the Project

Conducting foundational research on the interaction and coordinated multi-system synchronous thrusting mechanism and hierarchical control technology for shield tunneling trajectory regulation in shield tunneling equipment.

Pursuing foundational research on cross-scale positioning closed-loop controller design and system development for piezoelectric drive systems.

Number of Participants

Anticipated number of student recruits: 2

Jikui Luo, Professor

Zhejiang University

Lab Name:

Institute of Smart Sensors and micro/nano Systems, Bioelectronics Research Center

Homepage:

https://person.zju.edu.cn/en/LuoJikui

Email: jackluo@zju.edu.cn

Biography

He worked in Cardiff University, UK, as a research fellow, in Newport Wafer Fab. Ltd., Philips Semiconductor Co. and Cavendish Kinetics Ltd as an engineer, senior engineer, manager and director respectively, and then in Cambridge University as a senior researcher from 2000, respectively. He then became a Professor in MEMS in University of Bolton, UK and a full professor at Zhejiang University in 2020, China. He has published over 350 papers in peer-reviewed international journals, and over 260 talks and presentations at international conferences, among them over 40 were the plenary or keynote speaks.

Research

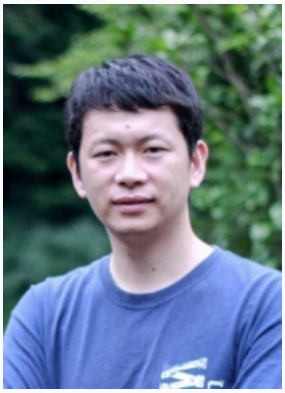
His current research interests include advanced nanomaterials and nanodevices, physical and biochemical sensors, Quantum mechanism-based sensors, flexible/wearable/implantable electronics, bioelectronics, energy harvesting technologies and self-powered wireless microsystems, passive wireless sensors, wireless power transfer.

What You Can Expect in the Project

The students will become a member of the group, and directly involve in the research. The students will do hand-on-experiments under the supervision of senior students or engineers, either material synthesis and characterization for the development of high performance triboelectric nanogenerators, or electronic circuits for wireless sensing etc.

Number of Participants

2-4 students



Jiming Chen, Chair Professor

Zhejiang University

Lab Name:

Networked Sensing and Control (NeSC)

Homepage:

https://person.zju.edu.cn/en/jmchen

Email: cjm@zju.edu.cn

Biography

Jiming Chen is a Changjiang Scholars at Zhejiang University. From 2008 to 2010, he was a visiting scholar at the University of Waterloo, Canada. He is currently the deputy director of the State Key Laboratory of Industrial Control Technology. He is the Editor-in-Chief of IEEE Network and also serves/served associate editors for premier journals of ACM TECS, IEEE TPDS, IEEE TCNS and the General Co-Chairs for multiple IEEE/ACM conference such as ACM Sensys'24. He is the Distinguished Lecturer/Speaker of the IEEE VTS, and the recipient of the JSPS Invitation Fellowship, the RS Newton Advanced Fellowships. He is a member of VTS Fellow evaluation committee (2020-2022) and a Fellow of IEEE.

Research

Intelligent Autonomous Systems, Robotics, Network Optimization and Control, AIoT for Industry, Robotic Perception and Control

What You Can Expect in the Project

In our lab, you can take part in the cutting-edge research. Under supervision of top advisors in the world, you will be trained how to do research and experience the joy of scientific achievements. The research topic includes but not limited to: teleoperated robots, UAV, computer vision, and autonomous driving.

Number of Participants

3

Kaichen Xu, ZJU-100 Professor

Zhejiang University

Lab Name:

Lab of Flexible & Bioelectronics Manufacturing

Homepage: http://xkczju.com/

Email: xukc@zju.edu.cn

Biography

Dr. Xu was awarded with the National Young Talent Program and Japan Society for the Promotion of Science (JSPS) program. He has published over 50 papers in Nature Electronics, Advanced Materials, etc. with 9 being recognized as hot/highly cited paper and 11 being selected as cover. He serves as the associate editor or editorial board for International Journal of Extreme Manufacturing, Bio-Design and Manufacturing, and Opto-Electronic Engineering. He serves as independent reviewers for over 80 SCI journals.

Research

Flexible bioelectronics; hybrid laser fabrication; textile hybrid electronics; conformal in-situ integrated sensing

What You Can Expect in the Project

The students will be involved in a couple of research projects, including laser-induced carbonization for bioelectronics, laser direct writing ceramics for extreme environment sensing and AI-assisted sensor design. The students will be expected to learn how to apply hybrid laser processing for sensors' fabrication, design a flexible printed circuit board for hybrid wearable electronics etc.

Number of Participants

1-4

Kuang Sheng, Professor

Zhejiang University

Lab Name:

Power Electronic Devices Laboratory

Homepage:

https://person.zju.edu.cn/en/shengkuang

Email: shengk@zju.edu.cn

Biography

Kuang Sheng is currently a distinguished professor at Zhejiang University and the Dean of Electrical Engineering College. He has pioneered the research on SiC super-junction devices. He has also worked on the design, processing, packaging and reliability of SiC power devices and modules. He has published over 300 papers in academic journals and international conferences. He holds 50 patents in power semiconductor devices. He was the general chair of ISPSD 2019 and is an AdCom member of the ISPSD. He is the associate editor of IEEE Transactions on Electron Devices and IEEE Transactions on Power Electronics.

Research

Discrete and Integrated Semiconductors

What You Can Expect in the Project

A. The Investigation of Advanced SiC Power Semiconductor Device

- The simulation, characterization and analysis of SiC power device

B. The Investigation of Advanced Heat Management of Power Device

- The measurement, simulation and design of heat dissipation equipment

Number of Participants

1-2

Qianqian Yang, Tenure-tracked Professor

Zhejiang University

Lab Name:

Ang Lab

Homepage:

https://person.zju.edu.cn/qianqianyang

Email: qianqianyang20@zju.edu.cn

Biography

Qianqian Yang received the Ph.D. degree in electrical and electronic engineering from Imperial College London, U.K. She has served as a Symposium Chair for IEEE ICCT 2023, a local Co-Chair for IEEE WCSP 2023, and a Finance Chair for IEEE ICCC 2024. She has co-chaired a number of workshops at top conferences, including IEEE ICC 2023, ICCC 2023, VTC 2022, WCNC 2022, and HPCC 2021. She is a founding member of the IEEE SIG on Qualitative and Semantic Communication. She is the recipient of the Science and Technology Innovation First Prize from the China Technology Industrialization Promotion Association, the Outstanding Young Researcher Award from Huawei, and the ICC 2024 Workshop Best Paper Award.

Research

AI enabled wireless communications; Distributed learning; metaverse

What You Can Expect in the Project

Distributed fine-tuning system for LLMs across edge devices including mobile phones, personal laptops, etc. and the application of LLMs

Semantic oriented communication systems for metaverse application, such as point cloud transmission

Students are expected to develop a practical application of the technologies of our group, which can potentially lead to startups

Number of Participants

4 students

Xiang Rong, Professor

Zhejiang University

Lab Name:

ZJU Atomic lab

Homepage:

https://person.zju.edu.cn/en/xiangrong

Email: xiangrong@zju.edu.cn

Biography

Prof. Xiang is the Qiushi Distinguished Professor at School of Mechanical Engineering, Zhejiang University. He has authored/co-authored over 130 papers, which have been published in journals such as Science, Nature Review, and PNAS. He reported the world's first one-dimensional van der Waals heterostructure in 2020. Upon publication, Science penned a themed outlook in the same issue, praising the work for opening up a whole new research area of one-dimensional heterostructure.

Research

- Atomic layer materials
- Atomic resolution characterization
- Atomic scale devices
- Atomic manufacturing and equipment

What You Can Expect in the Project

During the project, you will have the opportunity to personally synthesize atomic-scale materials and explore their physicochemical properties through Atomic resolution characterization. Additionally, you can attempt to fabricate electronic and optical device using atomic-scale materials, transforming theoretical research achievements into practical products for application.

Number of Participants

2 Students

Wangze Ni, Researcher of the Hundred Talents Program

Zhejiang University

Lab Name:

The State Key Laboratory of Blockchain and Data Security

Homepage:

https://person.zju.edu.cn/0024169

Email: niwangze@zju.edu.cn

Biography

Dr. Wangze Ni has served on the technical committees of top conferences such as VLDB, ICDE, and WWW, and has consistently been involved in reviewing papers for top journals/conferences including TPDS, TDSC, TKDE, CCS, SIGMOD, VLDB, ICDE, and KDD. Our laboratory boasts substantial achievements in AI security, undertaking many important projects funded by entities such as the Ministry of Science and Technology, and maintaining long-standing collaborative relationships with numerous companies, including Huawei, and Alibaba.

Research

AI Security, Blockchain, Spatio-Temporal Databases

What You Can Expect in the Project

Students are invited to engage in evaluating the security of AI models, encompassing tasks such as: 1) researching and implementing attack algorithms tailored for image processing, language processing, and NLP models; and 2) exploring and developing methods to bypass large models' defenses, prompting them to generate inappropriate content.

Number of Participants

4

Wenbo Shen, ZJU100 Young Professor

Zhejiang University

Lab Name:
System Defense Lab

Homepage:
https://wenboshen.org/

Email: shenwenbo@zju.edu.cn

Biography

Dr. Shen has published over 50 research papers at top-tier academic conferences. He is a recipient of 4 distinguished paper awards (ESORICS 24, ACSAC 22, AsiaCCS 17, NDSS 16). His research work on Real-time Kernel Protection (RKP) has been deployed on hundreds of millions of devices.

Research

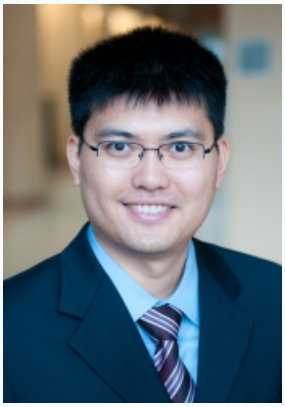
Intelligent system security, Software security

What You Can Expect in the Project

Students will research intelligent system security, focusing on AI model security and XPU security, aiming to develop robust defenses to secure AI systems.

Number of Participants

1-3



Xiang Li, Professor

Zhejiang University

Lab Name:

Machine Intelligence and System Optimization (MISO) Lab

Homepage:

https://person.zju.edu.cn/lix

Email: li.xiang@zju.edu.cn

Biography

Dr. Li is the Qiushi Distinguished Professor of Zhejiang University. He has proposed novel advanced optimization methods that can improve the solution efficiency by orders of magnitudes, allowing reliable and efficient decision-making for complex manufacturing and energy systems. Dr. Li received the NSERC discovery grant with early researcher supplement (Canada). In 2019, he was invited to give a short course on global optimization at the Fields Institute for Research in Mathematical Sciences.

Research

Industrial intelligence; Machine learning assisted advanced optimization; Optimal design and operation of energy systems

What You Can Expect in the Project

This project is to develop data-driven methods for wind farm optimization. Since first-principles wind turbine wake models are overly complicated, data-driven models will be developed for efficient optimization. The models will be integrated in derivative-free optimization frameworks that can ensure convergence to reliable solutions. The methods will be compared and assessed with the FLORIS simulator.

Number of Participants

2-4 participants are expected

Yuanchao Shu, Professor

Zhejiang University

Lab Name:

Group of Networked Sensing and Control

Homepage: https://yshu.org/

Email: ycshu@zju.edu.cn

Biography

Prof. Shu is a Qiushi Professor at Zhejiang University. Prior to joining academia, he was a Principal Researcher with the Mobility and Networking Research Group at Microsoft Research Redmond. He currently serves on the editorial board of IEEE TWC and ACM TOSN, and was a member of the organizing committee and TPC of top-tier conferences. He received ACM China Doctoral Dissertation Award (2/yr), IBM PhD Fellowship, and six best paper/demo awards. He is a Senior Member of ACM and IEEE.

Research

His research interests lie broadly in mobile, sensing, and networked systems, with a major focus on topics including edge computing, ML analytics and location-based systems.

What You Can Expect in the Project

In this project, you will work on cutting-edge research at the intersection of edge computing, large language and vision models, and networked systems. You can expect to gain hands-on experience in applying ML to mobile and wireless networks, exploring topics like on-device ML, federated learning, and decentralized ML. You'll collaborate on optimizing ML models for edge devices, enhancing the performance and scalability of networked systems for ML, and contributing to real-world applications including robotics and smart manufacturing.

Number of Participants

2

Zongyin Yang, Qiushi Distinguished Professor

Zhejiang University

Lab Name: Optoelectronics Group

Homepage: www.optoelectronicszju.com/

Email: yangzongyin@zju.edu.cn

Biography

Zongyin completed his B.S. in Mechanical Engineering and MSc in Optical Engineering at Zhejiang University. He was awarded his PhD in Electrical Engineering from University of Cambridge in 2019, following which he served as a postdoctoral researcher. He was selected as a Research Fellow at King's College, University of Cambridge.

Zongyin joined Zhejiang University as a Hundred-Talent Program Professor in September 2020. He got the National Science Fund for Excellent Young Scholars and was also selected as 'Innovators Under 35, China' by MIT Technology Review. He was selected as Alibaba DAMO Academy Young Scholars Award. He became a tenured professor and was selected as the Qiushi distinguished professor of Zhejiang University in 2024.

Research

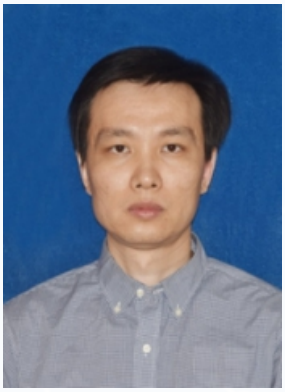
Miniaturization of optoelectronic devices

What You Can Expect in the Project

Work on spectrometers, AI in photonics, and so on

Number of Participants

2



Bo Zhang, Associate Professor

University of Science and Technology of China

Lab Name:

Materials science and engineering
Institute of Metal Research, Shenyang Campus

Homepage:

https://english.gs.imr.ac.cn/admission/faculty/202411/t20241126_251264.html

Email: zb@imr.ac.cn

Biography

Prof.Zhang has been in charge of 10 projects as the project leader in recently 3 years. Published professional papers more than 15 articles. He has been given 2 items of technological research finding prizes.

Research

1) intelligent material processing research on welding robot grinding robot inspection robot and surface strengthening robot
   - Automatic welding robot for the steel structure of the aircraft maintenance
   - Automatic grinding robot for the blade of aviation engine
   - Automatic surface strengthening robot for components with complex surface
   - Automatic ultrasonic inspection robot for large-scale complex curved surface parts
   - Automatic ultrasonic inspection system for the weld joint of oil/gas pipeline
2) intelligent data/image processing research on multi-source data fusion intelligent diagnosis algorithm data modeling
   - Automatic measurement for submarine pipeline deformation
   - Air bubble monitoring system in colloid
   - Pipeline leak detection system

What You Can Expect in the Project

Automatic ultrasonic inspection robot for large-scale complex curved surface parts

Number of Participants

1

Jianqiang Wang, Professor

University of Science and Technology of China

Lab Name:

Amorphous and high entropy alloys laboratory
Institute of Metal Research, Shenyang Campus

Homepage:

https://english.gs.imr.ac.cn/admission/faculty/202411/t20241125_251242.html

Email: jqwang@imr.ac.cn

Biography

Jianqiang Wang is a distinguished PhD Supervisor of Institute of Metal Research, CAS, and a high-level talent in Shenyang, China. Over the years, He has achieved significant accomplishments in the research of metallic glasses (MGs) and high entropy alloys (HEAs), publishing over 100 papers in prestigious journals such as Phy Rev Lett, Acta Mater, Corros Sci with more than 5000 citations. Additionally, he has been granted over 20 national invention patents. His team was the first to report on bulk Al-based MGs, achieving a breakthrough from 2D to 3D materials, wining the second prize for Natural Science in Liaoning Province. His work on "corrosion and wear-resistant amorphous alloy coating" was recognized as one of the top ten advances in China's amorphous alloy materials in 2015.

Research

- Composition and structural design of MGs, HEAs and corresponding coatings.
- High-throughput method and machine learning accelerate discovery of MGs and HEAs with high performance.
- 3D printing of conventional alloys, MGs and HEAs.
- Numerical simulation of gas atomization and laser cladding.

Ming Cheng, Professor

University of Science and Technology of China

Lab Name:

Advanced Metal Forming Technologies Joint Lab
Institute of Metal Research, Shenyang Campus

Homepage:

http://english.imr.cas.cn/

Email: mcheng@imr.ac.cn

Biography

Professor of Materials Processing Engineering in School of Materials Science and Engineering, USTC (Institute of Metal Research, Chinese Academy of Sciences). My research primarily focuses on the deformation behavior of non-ferrous metals and hard deformed materials. I am particularly interested in the related metal forming processing developing. More than 40 papers have been published in international SCI journals. I have made significant contributions to metal forming field through the publication of three monographs. Academic Achievements and Honors include A.M. Strickland Prize at 2010 by IMechE, Unite Kingdom, and International Partnership Award for Young Scientists at 2021 by Chinese Academy Sciences, China.

Research

1) Basic research and technical development of plastic processing of non-ferrous metals and hard deformed materials.
2) Research on deformation behavior of non-ferrous metals and hard deformed materials.
3) Special rolling technology and multi physics field assisted metal forming technology.

What You Can Expect in the Project

During the project execution period, student will have the opportunity to participate in a series of cross wedge rolling experiments. These experiments are designed to provide hands-on experience in the deformation behavior of metals under various rolling conditions. Student will learn how to prepare metal samples, set up the rolling mill, and adjust key parameters such as temperature and rolling speed. The experiments will cover both hot rolling processes and the deformed samples treatment, enabling student to understand the differences in microstructure evolution and mechanical properties. Through data analysis, student will gain insights into the relationships between processing conditions and final product quality. This practical training will not only enhance his or her theoretical knowledge but also prepare for future careers in materials science and engineering.

Number of Participants

1

WenWei Li, Professor

University of Science and Technology of China

Lab Name:

Wenwei Li's Group
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/40.html

Email: wwli@ustc.edu.cn

Biography	Professor at Department of Environmental Science and Engineering, Fellow of International Water Association (IWA), Fellow of Royal Society of Chemistry (RSC); Management Committee Member of Specialist Group "Assessment and Control of Hazardous Substances in Water" (ACHSW), IWA; Member of Science & Technology Committee, China Urban Water Association; Editorial Board Member, ACS ES&T Water
Research	Low-carbon wastewater treatment and resource recovery; Upcycling of waste plastics & batteries.
What You Can Expect in the Project	Any project within the above research fields
Number of Participants	2~3
Desired skill and background	Environmental science and engineering; nanomaterials; heterogeneous catalysis

Wenye Lin, Professor, PhD

University of Science and Technology of China

Lab Name:

Lobratory of Advanced Energy Storage
Guangzhou Institute of Energy Conversion (GIEC), Guangzhou Campus

Homepage:

http://english.giec.cas.cn/

Email: linwy@ms.giec.ac.cn

Biography

Dr Wenye Lin is a professor from Guangzhou Institute of Energy Conversion (GIEC), Chinese Academy of Sciences. He jointed GIEC in 2023 after completing his AvH Fellowship in Fraunhofer Institute for Solar Energy Systems ISE, Germany. He has been working extensively on building energy efficiency, renewable energy utilisation in built environment, and optimisation of HVAC systems. In these sectors, he and his team have won the Overall 2nd Place in SDME 2018, and "Excellence in HVAC&R Research Award" granted by AIRAH in 2019 and 2024 etc.. He has published more than 50 journal papers, with a Google Scholar citation of 1644 and an H-index of 22.

Research

- Phase change materials (PCMs) and slurries;
- Sustainable buildings;
- Solar photovoltaic thermal (PVT);
- Heating, ventilation and air conditioning (HVAC);
- Integrated energy system;

What You Can Expect in the Project

- Fault detection and diagnosis (FDD) of building integrated PV systems using data mining technologies;
- Preparation and characterisation of salt hydrate PCM slurries for high-efficient heat and cold transportation in building HVAC;
- Development and optimisation of distributed integrated energy systems coupling Energy Bus and microgrid;
- Thermal management of PV system using novel PCM technologies.

Number of Participants

2-3 Master student or PhD candidates

Desired skill and background

- Software skills: TRNSYS, Anysis, R or Python;
- Background: Thermal power engineering & engineering physics; Material science.

Chao Shen, Professor

Fudan University

Lab Name:

6G Photonic Devices Lab

Homepage:

http://www.it.fudan.edu.cn/En/Data/View/3832

Email: chaoshen@fudan.edu.cn

Biography

PhD in EE (2017), KACST-KAUST-UCSB SSLP

Published 100+ papers, Nature Electronics, Nature Communications, Advanced Materials, Photonics Research, ACS Photonics, etc.

Recipient of Okawa Foundation Research Grant, IEEE ICAIT Young Scientist Award, ISA Innovation Top 100, SPIE Startup Challenge, etc.

Symposium Chair at IEEE Photonics Conference

YP Committee Member, IEEE Electron Device Society

Globalization Committee Member, IEEE Photonics Society

Research

Semiconductor Optoelectronic Devices, Visible Light Communications, LiFi, GaN Micro-PDs, Photonics Integrated Circuit for AI.

What You Can Expect in the Project

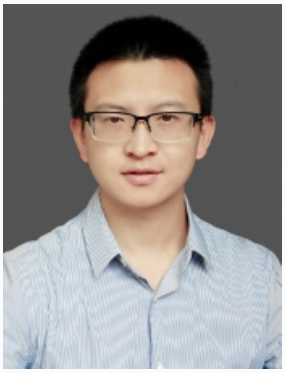
Well-equipped Lab for Photonics and Optoelectronics

Field-trials on VLC and LiFi transceivers and systems

Characterization of emerging devices and PICs

Number of Participants

2-4



Guangliang Yang, Assistant Professor at Fudan University

Fudan University

Lab Name:
Code Security Research

Homepage:
https://yang-guangliang.github.io/

Email: yanggl@fudan.edu.cn

Biography

I am an Assistant Professor at the School of Computer Science, Fudan University. I graduated from Texas A&M University in 2019 and subsequently worked as a postdoctoral fellow at Goerige Tech. I joined Fudan in 2021 and continued my computer security research. My work has been recognized with the Distinguished Paper Award at several top-tier conferences Security'22 and FSE'24. Additionally, I serve as a program committee member for top-tier security conferences, including CCS, S&P, and Security.

Research

My research mainly focuses on programming language and system security. My group is dedicated to exploring and developing effective and reliable security methods to address the ever-evolving challenges in computer security.

What You Can Expect in the Project

We are currently work on enhancing the security of C/C++, which is widely used but often suffers serious security exploits. With the design of a new memory safe language that is compatiable to C/C++, we are able to address the long-standing safety issues in C/C++ that have persisted for over 50 years.

In this project, we will guide you in exploring cutting-edge security research in this domain and help you establish foundational principles for thinking critically and solving complex problems.

Number of Participants

2

Yang Chen, Professor

Fudan University

Lab Name:

DataNET Group

Homepage:

https://chenyang03.wordpress.com/

Email: chenyang@fudan.edu.cn

Biography

Prof. Yang Chen received his B.E./Ph.D. from Tsinghua University, and did postdoc at the University of Goettingen and Duke University, respectively. Now he serves as the Associate EIC of Journal of Social Computing, and an AE of Computer Communications. He is a senior member of ACM/IEEE. He received Amazon Web Services (AWS) in Education Research Grant Award, Microsoft Azure Research Award, Nokia Visiting Professor Scholarship, Meituan Research Collaboration and Exploration Award, respectively.

Research

Social networks, computer networks, machine learning

What You Can Expect in the Project

You are expected to analyze massive user behavior data collected from different social networks. Also, building a practical Internet system would be another prospective topic.

Requirements

A strong passion to explore challenging problems in the field of online social networks / computer networks.

Good at C++ programming (knowledge of Python is a strong plus), and willing to build running Internet-based systems or discover useful patterns from tens of GBs of raw data.

Willing to use Linux for development, use git for collaboration, use Google to search and use LaTeX to write reports.

Number of Participants

4

Zhuo ZOU, Professor

Fudan University

Lab Name:

Intelligent Electronics and Systems Laboratory

Email: zhuo@fudan.edu.cn

Biography

Zhuo Zou received his Ph.D. degree in Electronic and Computer Systems from KTH Royal Institute of Technology, Sweden, in 2012. Currently, he is with Fudan University Shanghai as a Full Professor, where he is conducting research on intelligent chips and systems for AIoT. Prior to joining Fudan, he was the assistant director and a project leader at VINN iPack Excellence Center, KTH, Sweden. His current research interests include low-power circuits, energy-efficient SoC, neuromorphic computing, and their applications in AIoT and autonomous systems. Dr. Zou has also been an adjunct professor and docent at the University of Turku, Finland. He is vice chair of IFIP WG-8.12 and a senior member of IEEE.

Research

Low Power SoC Design for Edge AI, Embedded Intelligence, Brain-Like Computing, Neuromorphic Chips, AIoT, Robotics and Autonomous Systems

What You Can Expect in the Project

Students will be engaged in cutting-edge research including AI, intelligent electronics and systems, brain-inspired computing, and related applications in AIoT and Robotics.

Requirements

With solid background on EECS, or integrated circuits, or neuron science

Number of Participants

2-4 students upon project progress

Bin Liu, Professor

Nanjing University

Lab Name:
Semiconductor Materials and Devices

Homepage:
https://ese.nju.edu.cn/liubin_en/list.htm

Email: bliu@nju.edu.cn

Biography

Bin Liu received his Ph. D. in 2008 from Nanjing University(NJU), P. R. China. Now He is a professor at School of Electronic Science and Engineering, NJU. His research focuses on semiconductor materials and devices. He has published over 250 scientific papers, which have been widely cited by the community. He has also been awarded more than 70 patents on III-nitride based optoelectronics, and his several patents have been transferred to company in industry.

Research

- Micro-LEDs for solid state lighting and display applications;
- Development of soft-UV nanoimprint lithography(NIL) technique on nitride materials for novel nanostructured LEDs and LDs

Number of Participants

2-3

Changjin Wan, Assoc. Professor

Nanjing University

Lab Name:

Neuromorphic+

Homepage:

https://ese.nju.edu.cn/wcj/list.htm

Email: cjwan@nju.edu.cn

Biography

Changjin Wan was recognized by ScholarGPS as the top 0.5% scientists among all research areas. He has published more than 100 high impact papers with total citations over 8700 and a H-index of 43. He also published a book Electric-double-layer coupled oxide-based neuromorphic transistors studies by Springer Nature with more than 2200 downloads. He has a strong connection with research groups from Nanyang Technological University, University of Tokyo, Hong Kong Polytechnic University, etc.

Research

Neuromorphic computing, wearable electronics, oxide-based devices, thin-film transistor, memristor

What You Can Expect in the Project

You will have the opportunity to learn the fabrication, characterization, and analysis process of neuromorphic devices (e.g., electrolyte gated transistor, threshold switching memristor, memcapacitors). You can also explore the potential applications of these devices in such areas as brain-like computing, bionics, robotics.

Number of Participants

2-6

Interdisciplinary Science

Baojing Gu, Professor

Zhejiang University

Lab Name:

GU Lab

Homepage:

https://person.zju.edu.cn/en/bjgu

Email: bjgu@zju.edu.cn

Biography

Prof. Baojing Gu has published 41 first-author or corresponding-author papers in the last five years. Among these, he has published 2 papers in Nature, 2 paper in Science, and 15 papers in Nature sub-journals, reflecting his significant research impact with a 49 H-index. He has won the international champion of the Frontiers Planet Prize in 2023.

Research

Nitrogen cycle, Ecological economics, Environment and resource management, Sustainability

What You Can Expect in the Project

- Climate change impacts on the nitrogen cycle in terrestrial ecosystems
- Adaptation strategies for mitigating climate change
- Effects of climate change on water, air, and ecosystem boundaries

Number of Participants

2~3 participants

Dong Chen, Professor

Zhejiang University

Lab Name:

3D Microfluidic Printing Lab

Homepage:

https://person.zju.edu.cn/en/chen_dong

Email: chen_dong@zju.edu.cn

Biography

Dr Chen has led a number of national and provincial projects and published more than 120 SCI papers in authoritative international journals, with more than 5,800 citations and an H-index of 45. Dr Chen has been granted 26 Chinese invention patents, including 21 as the first inventor, and won the first prize of the Basic Research Achievement Award from the Chinese Chemical Society.

Research

Microfluidics; 3D printing; Intelligent materials

What You Can Expect in the Project

Microfluidics has unique advantages in the controlled preparation of droplets, particles and capsules, which could serve as the basic functional units for the design of intelligent materials. By combining microfluidics with 3D printing, you can design various intelligent materials with controlled functions and 3D structure.

Number of Participants

2~3

Haishuai Wang, ZJU100 Young Professor

Zhejiang University

Lab Name:
Eagle Lab

Homepage:
http://person.zju.edu.cn/haishuaiwang

Email: haishuai.wang@zju.edu.cn

Biography

Haishuai Wang is a faculty of Computer Science at Zhejiang University. Prior to that, he was a Research Fellow, Assistant Professor, and Associate Professor at Washington University in St. Louis, Harvard University and Purdue University Northwest. He has published more than 100 top-tier papers in the field of multimodal large models, health informatics, AI for science, and data mining. He serves as Associate Editor or program committee for prestige journals and conferences.

Research

Large Language Models, Multimodal Large Models, Health Informatics, AI for Science

What You Can Expect in the Project

Students in the project will work on developing multimodal models using large-scale biomedical data and advanced deep learning methods (e.g., large language models). The designed model will be deployed as a clinical decision support system in a real world scenario for disease diagnosis.

Number of Participants

1-2

Heping Zhao, Ph. D., Professor

Zhejiang University

Lab Name:

Environmental Biotechnology Lab

Homepage:

https://person.zju.edu.cn/en/zhaoheping

Email: zhaohp@zju.edu.cn

Biography

Prof. Zhao is the Vice Dean of the College of Environment and Resources Science, and the obtainer of National Outstanding Youth Funds . From 2007 to 2011, he finished postdoctoral researches in the German Water Technology Center and Arizona State University. Now he serves as the associate editor of Biodegradation, J Hazard Mater Adv, Frontiers in Microbiol, and guest editor of special issues of Water Res and Microorganisms. He has been authorized 14 patents and published more than 110 papers in Nature Geosci, The ISME J, Environ Sci & Technol and Water Res.

Research

His main research interests include biological treatment and resource reutilization of wastewater, focusing on the pollutant control process based on biofilm, the interaction mechanism of composite pollutants, the regulation of functional microbes, and the development of resource and energy recovery technologies.

What You Can Expect in the Project

Major Project of China Europe International Cooperation under the National Natural Science Foundation of China: Electrochemical enhanced in-situ bioremediation for contaminated sites, mechanism and technology. The main focus of this project is elucidating the interspecific collaboration and regulatory mechanisms of electrochemically enhanced bioremediation of chlorinated hydrocarbons (CAHs) composite pollution, and developing efficient in-situ bioremediation technologies with independent intellectual property rights.

Number of Participants

3-4

Jianfeng Ping, Professor

Zhejiang University

Lab Name:

Laboratory of Agricultural Information Intelligent Sensing

Homepage:

https://person.zju.edu.cn/en/jianfengping

Email: jfping@zju.edu.cn

Biography

Prof. Ping focus on the research of agricultural sensors and smart agriculture. He has published more than 150 academic papers in SCI journals such as Nature Food, Nature Communications, and PNAS, with an H-index of 62.

Research

Wearable sensors and in-body sensing technology for plants and animals.

What You Can Expect in the Project

Wearable electronics and artificial intelligence will be applied to smart agriculture, mining human-animal and plant dialogue technology, and looking for the development path of unmanned agriculture in the future.

Number of Participants

1-4 students

Mingkai Jiang, Professor

Zhejiang University

Lab Name:

Ecosystem Function, Integration and Simulation

Homepage:

https://person.zju.edu.cn/en/jiangmingkai

Email: jiangmingkai@zju.edu.cn

Biography	Using data-model integrated approach to investigate forest biogeochemical cycling responses to climate change. Publications in Nature, Science Advances, etc.
Research	Global change ecology
What You Can Expect in the Project	To investigate plant-soil carbon-nutrient interaction. Exciting field surveys + lab incubation experiments, with the additional opportunity to learn process-based modelling.
Number of Participants	1-2

An Ni, "ZJU 100" Young Professor

Zhejiang University

Lab Name: SAP-Geo Lab

Homepage:
https://person.zju.edu.cn/en/0021017

Email: anni2021@zju.edu.cn

Biography

Dr. An Ni is a Young Professor at Zhejiang University, specializing in Environmental engineering geology. Her research areas cover the coupled process of soil under extreme climatic conditions, AI application in geo-hazard prediction, development of nature based solution(NBS) in geo-hazard prevention, and other interdisciplinary research topics.

She holds a doctoral degree from École Nationale Des Ponts et Chaussée (IP Paris) and has served as a Research Associate at Cardiff University from 2017 to 2021. She has published over 30 academic papers, including 20 in JCR Q1 journals. As the editorial board member for several prestigious journals and the lifetime member of ICGdR, she actively contributes to the global research community. Her expertise and leadership are reflected in the successful running of over 10 research projects with total funding exceeding 7M RMB.

Research

Soil THM response to extreme climatic conditions, Soil-atmosphere-plant interaction, Shallow landslides, Soil carbon sequestration

What You Can Expect in the Project

Topic 1: AI-Driven geo-hazard prediction: You will be guided to use AI tools for the prediction of the hydrological responses of the vegetated slopes in Southeast China's landslide-prone areas, and to investigate the landslide susceptibility in the studied zones.

Topic 2: Nature-Based Solutions (NBS) and its role in the post-geo-hazard recovery and socio-economic resilience: You will participate in the research work on the soil-atmosphere-plant interaction and the development of nature-based solutions to reduce the landslide risk. It would be interesting to do some assessment of the impact of the proposed prevention strategies on the post-geo-hazard recovery, ecological and socio-economic resilience of the vulnerable areas in "Global South" countries.

Number of Participants

The expected number of students to be accepted is 3.

Qiang Zhang, Assistant Professor

Zhejiang University

Lab Name:

Machine Intelligence Lab

Homepage:

https://person.zju.edu.cn/en/zhangqiang

Email: qiangzhang@intl.zju.edu.cn

Biography

- Received PhD at University College London
- Published over forty articles in top-tier AI academic journals and conferences including Nature Machine Intelligence, Nature Communications, NeurIPS, ICML, ICLR, AAAI and ACL.
- Serves as the associate editor of the Big Data Research journal and PC members of AI conferences such as NeurIPS'19-24, ICML'19-24 and ICLR'18-25.
- Received a number of research fundings from National Natural Science Foundation of China, Ministry of Science and Technology, Tencent, Ant Group.
- Awarded the Great Britain-China Educational Trustee in 2020 .

Research

- Machine learning
- Natural language processing
- Knowledge graphs
- AI for science

What You Can Expect in the Project

Students will conduct cutting-edge research in large language models and knowledge graphs, with applications to biomedical and life sciences, such as medical diagnosis, protein function prediction and multi-agent collaborative frameworks. They are encouraged to publish in top-tier conferences or journals.

Number of Participants

1 student

Shaoqing Cui, ZJU-100 Young Professor

Zhejiang University

Lab Name:

Carbon Conversion Lab

Homepage:

https://person.zju.edu.cn/en/0022234

Email: scui1427@zju.edu.cn

Biography

Dr. Shaoqing Cui, ZJU-100 Young Professor, Dept of Biosystems Engineering, Zhejiang University. She used to be an Assistant Professor at the University of Tennessee – Knoxville (UTK) in the United States. Dr. Cui research focuses on carbon dioxide conversion and utilization, development of bio-based materials, and gas sensor materials. She has published 40 papers and received more than five USDA project awarded.

Research

- CO2 conversion and utilization;
- Development of functional bio-based materials;
- Development of gas sensing materials

What You Can Expect in the Project

- The development of algae-based chemicals and products;
- The synthesis of CO2-based polymers

Number of Participants

1-2 students

Tiefeng Li, Professor

Zhejiang University

Lab Name:
Soft Matter and Robotics

Homepage:
https://person.zju.edu.cn/en/tiefengli

Email: litiefeng@zju.edu.cn

Biography

Prof. Tiefeng Li aims at the key scientific issues of soft matter mechanics and robotic system. For the first time, the soft robotic fish operate in the deepest place in the world (Mariana Trench 10900m), which published on Nature cover paper. Prof. Li received the NSFC Extinguished Young Scientists Fund, 26th China Youth May Fourth Medal, the first Xplorer Prize (Frontier and interdisciplinary research) and the MIT TR35-China prize.

Research

Soft matter mechanics, Soft robot

What You Can Expect in the Project

Inspired by interesting creature, we do intellegent robotic design. Soft robotic fish, Soft robotic flying mechine, Soft wearable medical device.

Number of Participants

4

Xiangjiang Liu, Professor

Zhejiang University

Lab Name:

Intelligent Bioindustrial Equipment Innovation Team

Homepage: https://ibe.zju.edu.cn

Email: xjliu@zju.edu.cn

Biography

Prof. Liu graduated from the Technical University of Munich, Germany. His current focus is on bio-integrated wearable sensing devices for plants and animals, pushing the boundaries of agricultural monitoring. With 30 publications in high-impact journals such as Science Advances, Advanced Science, Advanced Functional materials, ACS Sensors, his work is widely recognized. Recently honored as the “Youth Changjiang River Scholar” by the Ministry of Education of China (2021), he has also received prestigious awards like the "First Prize of the 2022 Natural Science Award."

Research

Prof. Liu aims to bridge the gap in sensing technologies by developing continuous, non-destructive methods for measuring agricultural crop information. This innovative approach enhances crop growth, increases yield, and advances sustainable agriculture. Key innovations in his research include:

1. Tattoo-like Plant-Wearable Sensors: These sensors enable continuous monitoring of plant physiology, providing real-time data to optimize care.

2. Soft Robotics: Tailored for agricultural fields, these robots incorporate sensing capabilities that adapt to dynamic environments, improving efficiency and precision.

What You Can Expect in the Project

An exciting opportunity to engage in cutting-edge research on flexible electronics, essential for many sci-fi innovations like brain-machine interfaces and artificial sensory skins for humanoid robotics. Join us as we explore the future of sustainable agriculture while developing skills that open doors to groundbreaking technologies!

Number of Participants

2-3

Zhen Cao, Associate Professor

Zhejiang University

Lab Name:
BioMEMS Lab

Homepage:
https://person.zju.edu.cn/en/0016159

Email: eezcao@zju.edu.cn

Biography

Dr. Zhen Cao has first-authored many high profile publications in peer-reviewed journals such as ACS Nano, Small, Analytical Chemistry, presented many invited talks at the international conferences and symposia including MEMS, Transducer, MicroTAS. He has developed FET-based nanopore sensors and high sensitivity immunoassay chips for early diagnosis.

Research

Microfluidics, BioMEMS, Micro/Nanofabrication

What You Can Expect in the Project

1. Nanopore-based sensors for DNA/protein sensing
2. Microfluidic chips for pathogen separation/detection

Number of Participants

1-2

Dongfang Wang, Dr

University of Science and Technology of China

Lab Name:

Nucleic acid self-assembly lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1116.html

Email: dongfang_wang@ustc.edu.cn

Biography	Dr. Wang has received his PhD degree from Shanghai Institute of Applied Physics, Chinese Academy of Sciences in 2014. His research focus on DNA nanotechnology and dynamic DNA origami. He has published multiple scientific papers on high-level journals such as JACS, Nano Letters, etc.
Research	DNA self-assembly, DNA nanomachines
What You Can Expect in the Project	The participants will use multiple DNA strands to construct interesting DNA structures and observe their morphologies and
Number of Participants	1-2
Desired skill and background	Chemistry or biochemistry

Dongxue Chen, Professor

University of Science and Technology of China

Lab Name:

Materials Physics Innovation Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://faculty.ustc.edu.cn/chendongxue

Email: dxch@ustc.edu.cn

Biography

Dongxue Chen is a research professor at the University of Science and Technology of China. His main research interests in the study of physical properties and optoelectronic devices for two dimensional (2D) semiconductors, including 2D moiré superlattices, as well as electronics and spectroscopy research. Up to now, he has published over 30 papers and 2 patents, of which 8 papers have been published as first/co-authors in Nature Physics (1), Nature Communications (4), Nano Letters, Nanoscale and other international journals in the past five years.

Research

1) 2D Semiconductor Physics and Optoelectronic Devices;
2) 2D Moiré Superlattices Heterojunctions;
3) Nanoelectronics and Nanospectroscopy.

What You Can Expect in the Project

Moiré Superlattices Heterostructure Fabrication and Nanospectroscopy.

Number of Participants

1~2

Desired skill and background

We desire students majored in Physics, photonics or optoelectronics.

Fei Gao, Professor

University of Science and Technology of China

Lab Name:
Hybrid Imaging System Laboratory
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage: www.hislab.cn

Email: fgao@ustc.edu.cn

Biography

Dr. Fei Gao, PhD (Nanyang Technological University). He is currently serving as associate editors of several journals, including Photoacoustics, Medical Physics, Ultrasound in Medicine and Biology, IEEE Photonics Journal. He also serves as TPC member of IEEE Ultrasonics Symposium. He has published over 170 journal and conference papers with 3400+ citations.

Research

Biomedical photoacoustic imaging, synergizing physics, hardware, algorithm and AI, to address unmet clinical needs.

What You Can Expect in the Project

Research experience in a multidisciplinary team.

Number of Participants

2~3

Desired skill and background

Engineering or medical background interested in medical device innovation.

Jianxun Ding, Professor

University of Science and Technology of China

Lab Name:

Key Laboratory of Polymer Ecomaterials
Changchun Institute of Applied Chemistry,
Changchun Campus

Homepage:

https://orcid.org/0000-0002-5232-8863

Email: jxding@ciac.ac.cn

Biography

Dr. Ding received his B.S. degree from USTC in 2007 and obtained his Ph.D. at CIAC, CAS, in 2013. From 2017 to 2019, he worked in Brigham and Women's Hospital, Harvard Medical School, as a Postdoctoral Research Fellow. Now, he serves as an Associate Editor of Exploration and Editorial Board Members of over 10 journals. He has published more than 150 academic articles and has applied for over 70 patents in China. He has won more than 10 awards. In addition, he has undertaken more than 20 grants.

Research

Biodegradable bioactive polymers for immunomodulation and regenerative medicine

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What You Can Expect in the Project

Controlled synthesis of bioactive poly(amino acid) hydrogels for skin injury repair

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Number of Participants

1-2 participants

Desired skill and background

Chemistry, biology, or medicine

Liang Yang, Professor

University of Science and Technology of China

Lab Name:

Laser Integrated Nano-Engineering (LINE) Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1117.html

Email: ygliang@ustc.edu.cn

Biography

Prof. Liang Yang is a doctoral advisor at the Suzhou Institute for Advanced Research, University of Science and Technology of China. He has been selected into the National High-level Youth Talent Program (2024). Prof. Yang has conducted research in laser micro-nano printing at institutions including the University of Science and Technology of China, Leibniz University Hannover, and Karlsruhe Institute of Technology. He has published more than 40 high-impact papers in renowned international journals and conferences such as Nature Communications, Advanced Materials, Advanced Functional Materials, and ACS Nano.

Research

High-precision biomedical microelectronics and micromechanics.

What You Can Expect in the Project

During their internship, students are expected to engage in research on the printing of microelectronics and their applications in BioMEMS and single-cell physiology.

Number of Participants

1-2 students.

Desired skill and background

Students with a strong foundation, keen interest in scientific research, and excellent hands-on skills are welcome to join the Laser Micro-Nano Engineering Research Group.

Wantong Song, Professor

University of Science and Technology of China

Lab Name:

Key Laboratory of Polymer Ecomaterials
Changchun Institute of Applied Chemistry,
Changchun Campus

Homepage:

https://www.x-mol.com/groups/song_wantong

Email: wtsong@ciac.ac.cn

Biography

Dr. Song obtained his Ph.D. degree from the University of Chinese Academy of Sciences in 2013, and had his postdoc training in Dr. Leaf Huang's lab at the University of North Carolina at Chapel Hill from 2016 to 2018. He has published more than 100 papers in Nature Nanotechnology, Nature Communications, et al., and is the winner of USCACA&AFCR Research Scholarship Award (2018), CASNN Rising Star Award (2019)

Research

Developing polymeric materials for innovative biomedical applications, including cancer immunotherapy, vaccines, mRNA delivery and gene therapy

What You Can Expect in the Project

Nanomedicine, cancer vaccine, mRNA delivery carrier

Number of Participants

3~5

Desired skill and background

Polymer chemistry, nanotechnology, immunology

Wenxuan LIANG, PhD

University of Science and Technology of China

Lab Name:

Photonics & Imaging Lab (π-lab)
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://faculty.ustc.edu.cn/liangwenxuan/en/index.htm

Email: liangwenxuan@ustc.edu.cn

Biography

Wenxuan Liang earned his B.S. and M.S. degrees in Biomedical Engineering (BME) from Tsinghua University (Beijing, China) and subsequently completed his Ph.D. in BME at Johns Hopkins University (Maryland, USA). Following his doctoral studies, he conducted postdoctoral research at Columbia University (New York, USA). In 2022, he joined the University of Science and Technology of China (USTC), where he is affiliated with both the School of Biomedical Engineering (Suzhou, Jiangsu, China) and the School of Physical Sciences (Hefei, Anhui, China). He has published over 25 peer-reviewed journal articles, holds more than 10 patents, and serves as an academic editor for PLOS ONE and BMC Biomedical Engineering. In recognition of his academic excellence, he was inducted into the Phi Betta Kappa (ΦBK) Society in 2018, and selected for the “100 Talents Project” of Chinese Academy of Sciences in 2021.

Research

Dr. Liang’s research centers on advancing innovative optical microscopy techniques and instrumentation for in vivo imaging of live biological tissues. His work spans a wide range of applications, ranging from high-throughput neuronal imaging in diverse animal models to depth-resolved in situ histopathological imaging for early disease detection (screening) and therapy (surgery) guidance.

What You Can Expect in the Project

Engage in inspiring brainstorming sessions, thoughtful design and instrumentation, and hands-on experiments that bring ideas to life.

Explore the wonders of Nature through your own efforts, from the intricate microscopic marvels of biology to the grand, timeless beauty of Suzhou's classical gardens.

Number of Participants

2-6

Desired skill and background

We are looking for individuals with academic training in Optical Engineering, Biomedical Engineering, Electronics and Computer Engineering, Applied Physics, Precision Instrumentation, or related disciplines. Ideal candidates should also exhibit strong intellectual curiosity, a collaborative spirit, and a readiness to tackle challenges.

We are especially excited to welcome students with interdisciplinary backgrounds or those seeking cross-disciplinary training. If you are passionate about developing cutting-edge, innovative tools to drive advances in life sciences research and clinical applications, we warmly encourage you to join our team!

Xiaorong (Ron) Xu, Professor

University of Science and Technology of China

Lab Name:

Lab for Multimodal Biomedical Imaging and Therapy (MBIT)
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage: www.mbit.ustc.edu.cn

Email: xux@ustc.edu.cn

Biography

Dr. Xu is Professor of BME and Precision Eng at USTC. He earned his PhD from MIT, followed by postdoctoral training at Stanford University and startup company experience in Silicon Valley. Before joining USTC, he held a tenured faculty position at The Ohio State University. Dr. Xu is fellow of Institute of Physics, senior member of SPIE, and awardee of multiple research awards, such as Coulter Early Career Award in Translations Research, "Inventor of the Year" in Ohio, OSU Lumley Research Award, and CAS mentorship award.

Research

Dr. Xu has published over 130 SCI papers and about 20 patents. His MBIT lab focus on the following 4 directions:

1) Microencapsulation (M): encapsulating biological, pharmaceutical and imaging agents in micro and nanodroplets for biomedical applications;
2) Bioprinting(B): 3D printing of engineering and biologic materials and systems;
3) Imaging and intelligence (I): multimodal imaging and AI analysis;
4) Tissue vascularization (T): establishing perfusable vascular networks for organoids and tissues.

What You Can Expect in the Project

By joining Dr. Xu's lab, students will be able to explore state-of-the-art research topics in the fields of biomedical engineering, teamwork with students and faculty researchers at MBIT, and gain hands-on experiences in engineering and biology.

Number of Participants

3

Desired skill and background

Science and engineering educational background, research experience, good communication skills, self motivation

Zhengyu Deng, Dr.

University of Science and Technology of China

Lab Name:

Deng Research Group
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1163.html

Email: zydeng@ustc.edu.cn

Biography

Zhengyu Deng obtained his Ph.D. degree under the guidance of Prof. Shiyong Liu at USTC. He conducted postdoctoral training with Prof. Weihong Tan at Hunan University and Prof. Elizabeth R. Gillies at University of Western Ontario, respectively. He is currently a professor at USTC. He has published more than 30 peer-reviewed papers in esteemed journals, including Nat. Chem., J. Am. Chem. Soc., Angewandte Chemie, with a H-index of 21.

Research

Functional biomaterials; drug delivery systems; biobased degradable materials

What You Can Expect in the Project

You can learn how to design and synthesize sustainable polymers from biobased resources to tackle sustainability issue in an active research group. Alternatively, you can learn how to create drug delivery systems to tackle healthcare problems.

Number of Participants

1-2

Desired skill and background

Background on chemistry or biochemistry

Shouyan Wang, Professor

Fudan University

Lab Name:

Neural and Intelligent Engineering Centre at ISTBI

Homepage:

https://istbi.fudan.edu.cn/lnen/info/1157/1632.htm

Email: istbi_ic@fudan.edu.cn

Biography

Received BSc degree in Biomedical Engineering, and the Msc and PHD degree in Physiology. Postdoctoral Research Fellow in the Neurosurgery Department of JR Hospital and Department of Physiology, Anatomy and Genetics at University of Oxford. Lecturer in the institute of Sound and Vibration Research at University of Southampton. Professor at Suzhou Institute of Biomedical Engineering and Technology of Chinese Academy of Sciences, and the Directors of the Biomedical Electronics Department, Key Lab of Neural Engineering and Technology at Suzhou. Joined Fudan University in 2017 and has been the Director of Neural and Intelligent Engineering Centre at ISTBI. Works toward integrating engineering, neuroscience, neurology and neurosurgery to advance the translational research from deep brain stimulation technology to neurological disease treatment.

Research

Research focuses on the intelligent neuromodulation of deep brain stimulation for neurological diseases, including identification of biomarkers from human deep brain local field potentials, technology development of miniaturized adaptive electrical or optical stimulator, and monitoring of motor or sensory behaviors with wearables devices.

What You Can Expect in the Project

Understand fundamental concepts and interdisciplinary approaches in brain science. Gain knowledge of neuroanatomy, neurophysiology, and brain function. Gain hands-on experience with various data acquisition techniques in neuroscience, including fMRI, MEG, and TMS. Learn data preprocessing and analysis techniques for neuroimaging data.

Explore the application of artificial intelligence and machine learning in brain science research. Develop proficiency in data analysis and machine learning tasks using Python/R. Understand the challenges and opportunities of big data in neuroscience research. Learn about data sharing ethics and collaborative research practices in the field. Gain insight into advanced data analysis techniques for large-scale neuroimaging datasets. Explore interdisciplinary research opportunities at the intersection of brain science, big data, and artificial intelligence. Identify future directions and career paths in brain-inspired intelligence research.

Number of Participants

10

Siming Chen, Associate Professor

Fudan University

Lab Name:
FDUVIS

Homepage:
http://fduvis.net
http://simingchen.me

Email: simingchen@fudan.edu.cn

Biography

He leads FDUVIS at Fudan University. Prior to this, he worked at Fraunhofer IAIS and University of Bonn in Germany. He got his Ph.D. at Peking University and B.S. at Fudan University. He has published more than 100 papers, more than 40 of which are in top conferences and journals, including IEEE VIS, IEEE TVCG, ACM CHI, ACM UIST, etc. He served as multiple organizing chairs, associate editors, and program committees of main-stream international journals and conferences. He was awarded 10+ best paper/poster awards and honorable mentioned awards in multiple conferences.

Research

Human-AI Collaboration, Visual Analytics, Visualization for Social Science, Digital Twin.

What You Can Expect in the Project

1) Participate/lead a project towards paper submission.
2) Collaborate with my students and learn the basics of research.
3) Hands-on experiences of developing Human-AI Collaborating tools, designing LLM for visual analytics.

Number of Participants

3-5

Haocheng Quan, Professor

Nanjing University

Lab Name:

Biological and Bioinspired Materials Lab

Homepage: https://quanlabnju.com/

Email: hquan@nju.edu.cn

Biography

Prof. Haocheng Quan is an Associate Professor at Nanjing University, holding a Ph.D. from UC San Diego and completing postdoctoral research at INM in Germany. Driven by curiosity about biological materials and structures, his research in bioinspiration has led to extensive publications in high-impact journals such as Nature Reviews Materials, PNAS, and Matter, receiving nearly 1,000 citations. He has also mentored over 10 students across different continents, contributing significantly to various disciplines..

Research

Mechanisms: Mechanical behavior of biological materials and hydration-induced deformations.

Applications: Bioinspired design, sustainable materials, and additive manufacturing technologies for medical devices.

What You Can Expect in the Project

You can choose from research projects that explore the mechanical behavior of biological materials like fungi, marine invertebrates, and insects, investigating the evolutionary convergence of structural traits. You can also engage in application-oriented research involving chitin- and keratin-based sustainable materials and bio-3D printing of skin and cartilage. Mentorship will support your research journey and foster growth in a collaborative academic environment.

Number of Participants

1~5

Hao Dong, Professor

Nanjing University

Lab Name:
Dong lab

Homepage: https://donghaolab.com/

Email: donghao@nju.edu.cn

Biography

My research field is the chemical physics of complex systems, which focuses on the development of multi-scale theoretical computational methods combined with machine learning methods to accurately and efficiently deal with the structure, properties, patterns of change and regulatory mechanisms of complex systems. We have published more than 60 papers in Science, JACS, PNAS, Nat Commun, Angew Chemie, and other important journals, and has been granted three copyrights for computer software related to the development of algorithms.

Research

1) The development of multi-scale simulation methods;
2) Calculation-driven design and application of functional materials;
3) Application of machine learning in complex systems.

What You Can Expect in the Project

You will have the opportunity to participate in one of the following two research projects:

1) Study of functional molecular self-assembly using molecular simulation techniques.
2) Combining machine learning and quantum chemistry computing to study chemical synthesis pathway design.

Number of Participants

1~5

Hui Wei, Professor

Nanjing University

Lab Name:

Nanozyme Lab

Homepage: https://weilab.nju.edu.cn/

Email: weihui@nju.edu.cn

Biography

Dr. Wei is a Fellow of Royal Society of Chemistry, a Highly Cited Researcher (Clarivate), and a recipient of numerous prestigious awards, including the Dalton Horizon Prize (2023). His group focuses on nanozymes, emerging enzyme mimics, which were highlighted as one of the Top 10 Emerging Techniques by IUPAC. He has publications in Nature Reviews Methods Primers, Nature Communications, Science Advances, etc.

Research

Nanozymes

What You Can Expect in the Project

Data-informed design of nanozymes.

Biomedical applications of nanozymes.

Number of Participants

2-4

Jingjing Zhang, Associate Professor

Nanjing University

Lab Name:
Chemical Biology_DNA Lab

Homepage:
https://www.x-mol.com/groups/JJZ_DNA

Email: jing15209791@nju.edu.cn

Biography

Dr. Zhang is an associate professor in the School of Chemistry and Chemical Engineering in Nanjing University. He received his Ph.D. degree from Nanjing University in 2010, and then moved to Prof. Yi Lu's group in UIUC as a postdoctoral research associate (2012-2019). Dr. Zhang has received several research and teaching awards, including the National Major Talent Project Category A (Youth Program), the "Purple Gold Scholars" at Nanjing University, and a member of the "National Huang Danian style Teacher Team" at the Ministry of Education. Dr. Zhang also serves as an international editorial board member for Scientific Reports and Processes. He has published 74 SCI papers, and four Patents, and was selected as one of the top 2% of global scientists in 2024.

Research

Dr. Zhang's research interests lie at the interface between chemistry and biology, particularly Nucleic Acids in Chemical Biology: 1) CRISPR-based diagnostic devices; 2) Biomedical Applications of Nucleic Acids-based PROTACs

What You Can Expect in the Project

The "central dogma" of molecular biology refers to the process by which genetic information is transmitted from DNA to RNA, and then from RNA to proteins, completing the transcription and translation of genetic information. This course "Quantitative analysis of ultra trace proteins and nucleic acids in biological samples" includes three aspects: (1) extracting and quantifying RNA from different biological samples, (2) detecting target DNA using gel electrophoresis imaging, and (3) detecting target protein using fluorescence quantitative PCR. This experiment involves the introduction of basic theoretical knowledge of the quantitative principle of protein and nucleic acid using CRISPR, covering the basic principles and operation methods of spectrophotometer, gel electrophoresis system and PCR instrument, guiding students to think scientifically, find rules, understand biological macromolecules and their detection methods more deeply, and improve students' interest in learning chemical biology related knowledge.

Number of Participants

2-4 students

Lei ZHANG, Professor

Nanjing University

Lab Name:

ATLAS, JUNO, BESIII

Homepage:

https://lezhang.web.cern.ch/lezhang

Email: leizhang1801@nju.edu.cn

Biography

I am a physicist and intrigued by the fundamental law of the nature. I like what Immanuel Kant said, to wonder "the starry heavens above me and the moral law within me". Most of my time, I am studying physics, including reading books and papers, tuning the instruments, coding to analyze data, etc. I enjoy it very much but there is hard times. At those moments, I always recall what Friedrich Nietzsche said "That which does not kill me, makes me stronger".

Research

Working on three high energy physics experiments: ATLAS, JUNO and BESIII, to understand the following big questions: e.g. what is the nature of Higgs boson, why and how Electroweak Spontaneous Symmetry Breaking happens, whether (or where) there is a more fundamental theory beyond the particle physics Standard Model, etc. To understand these big questions, we have to sharpen our tools. My group has substantial expertise on data analysis, Statistics, machine learning, etc. I am also developing the novel detector for the future experiments, e.g. High Luminosity (HL-) LHC, Higgs factory (CEPC), etc.

What You Can Expect in the Project

- Physical data analysis on the aforementioned three experiments
- Particle detector and fast electronics R&D, simulation and test
- Students expected to have longer commitment after leaving the lab

Number of Participants

3

Mengning Ding, Professor

Nanjing University

Lab Name:

Chem-Sustainability & Chem-Informatics Lab

Homepage: https://mdinglab.weebly.com

Email: mding@nju.edu.cn

Biography

Dr. Mengning Ding received his PhD degree in physical chemistry from University of Pittsburgh in 2013. He then continued his research as a postdoc scholar at UCLA. He joined Nanjing University as a Professor in School of Chemistry and Chemical Engineering in 2017.

Research

Our group focuses on the interface between multiple disciplines including electrochemistry, electronic engineering and cheminformatics. Specific topics include on-chip chemical signaling for surface/catalytic studies; 2) novel cheminformatic tools for in silico analysis; 3) high performance semiconductor/sensory devices and 4) green synthesis.

What You Can Expect in the Project

Electro-catalysis and Green Electro-synthesis

Micro-electrocatalytic Devices

Cheminformatics and AI for green chemistry

Number of Participants

2

Ran Yin, Associate Professor

Nanjing University

Lab Name:
Environmental Chemistry Lab

Homepage: https://ceryin.people.ust.hk/

Email: yinran@nju.edu.cn

Biography

Dr. Yin has over 9 years experience studying and teaching at HKUST and Stanford University. He was the recipient of the NSFC Excellent Young Scientist Award (Overseas) and the IUVA "Rising Star" Award. He has been ranked among the World's Top 2% Scientists by Stanford University for research impact in 2024.

Research

Dr. Yin's research explores links between public health, engineering, and sustainability, with particular focuses on employing fundamental photochemistry to improve water treatment and reuse engineering.

What You Can Expect in the Project

The students will participate in the projects relevant to public health and sustainability. They will also gain knowledge about using AI in water reuse engineering.

Number of Participants

3–4 students

Weigao Xu, Professor

Nanjing University

Lab Name:
Quantum Materials and Spectroscopy Group

Homepage: https://itcc.nju.edu.cn/interface/

Email: xuwg@nju.edu.cn

Biography

Professor, Ph.D. supervisor. He got his Ph.D. from SCME of Peking University in 2013. In 2013-2018, he conducted postdoctoral research at Nanyang Technological University in Singapore . He won the National Youth Talents of China (2018), Program for Innovative Talents and Entrepreneurs of Jiangsu Province (2019) and Zijin Scholar of Nanjing University (2023). Xu group mainly focuses on the regulation, characterization and functionality of interface interactions between nanomaterial units, representative works including development of mechanical Raman spectroscopy (Nat. Photon. 2023) and discovery of the correlated fluorescence blinking effect in two-dimensional semiconductors (Nature 2017), etc.

Research

1. Assembly of low-dimensional heterostructures and crystals
2. Optical spectroscopy and microscopic imaging at the interfaces
3. Development of new functionalities and optoelectronic devices

What You Can Expect in the Project

1. Hands-on experience with a variety of advanced spectroscopic equipment
2. Exposure to groundbreaking research in 2D heterostructures
3. Opportunities to collaborate in a dynamic, team-based environment

Number of Participants

2-4

WeiWei Zhao, Professor

Nanjing University

Lab Name:
Neuromorphic Chemistry

Homepage:
https://sklac.nju.edu.cn/43/c7/c35024a476103/page.htm

Email: zww@nju.edu.cn

Biography

Prof. Zhao works at Nanjing University as a full professor and his project involves nanofluidic memristor, photoelectrochemical sensing, organic photoelectrochemical transistor (OPECT), and neuromorphic engineering. He proposed the concept of OPECT and explored its neuromorphic application (see: Adv. Mater. 2024, 2405887 Adv. Mater. 2024, 2407654). Using nanofluidic, he realized the novel nanofluidic synapses (see: Proc. Natl. Acad. Sci. U.S.A. 2024, 121, e2403143121 J. Am. Chem. Soc. 2024, 146, 27022)

Research

neuromorphic engineering

What You Can Expect in the Project

1) Know the basic knowledge about chemical synapse, memristor and transistor;
2) Preparation of memristor and transistor;
3) Emulation of the electrical patterns using your own device etc.

Number of Participants

2

Yi Cao, Professor, Ph.D. supervisor

Nanjing University

Lab Name:
Biomech & Mechanochemistry Lab

Homepage:
https://biomech.nju.edu.cn

Email: caoyi@nju.edu.cn

Biography

Yi Cao, Professor and Ph.D. supervisor at the School of Chemistry and Chemical Engineering, Nanjing University, is primarily dedicated to developing new materials with high biocompatibility and functionality, promoting innovation in biomedical engineering and flexible electronic technologies. He has led projects including the National Science Fund for Distinguished Young Scholars and key R&D programs by the Ministry of Science and Technology. To date, he has published over 200 SCI papers, with more than 10,000 citations and an H-index of 57.

Research

His primary research focus is on the design and fabrication of bio-soft materials, with an emphasis on advanced fields such as flexible electronics, energy materials, and tissue engineering scaffolds. The research team explores the structural optimization and functionalization of biomaterials by expressing and utilizing large quantities of proteins as foundational materials, aiming to meet the diverse application needs in electronic devices, energy storage, and biomedical fields.

What You Can Expect in the Project

The design and fabrication of bio-soft materials, with a focus on flexible electronics and tissue engineering scaffold materials. Students will learn techniques for the expression and application of protein-based materials, exploring optimizations in biocompatibility and mechanical properties, laying the groundwork for future applications in flexible devices and biomedical fields.

Number of Participants

4-6 students

Yuxi Tian, Professor

Nanjing University

Lab Name:
SMS group

Homepage:
http://itcc.nju.edu.cn/sms/index_eng.html

Email: tyx@nju.edu.cn

Biography

Yuxi Tian received his B.S. from Peking University in 2003 and his Ph.D in 2008 from Institute of Chemistry, Chinese Academy of Science. Then he continued postdoctoral research in Lund University, Sweden and Leiden University, Netherlands. In 2015, he joined School of Chemistry and Chemical Engineering, Nanjing University as a professor. His main research interest is single molecule spectroscopy on topics including single molecule sensing, photophysics of optoelectric materials and development of new technologies. He has published more than 100 papers in international journals such as Nature Commun., J. Am. Chem. Soc., Phys. Rev. Lett., Light Sci. Appl., and Nano Lett.

Research

Single molecule spectroscopy; ultra sensitive vibration detection by a single molecule; photothermal investigation on single nanoparticles; chemical reaction at single molecule level.

What You Can Expect in the Project

Most of the single molecule spectroscopic techniques are based on fluorescence detection due to its high sensitivity. However, there are only small fraction of the materials that has quantum yield high enough for single molecule detection. To achieve the investigation on non-fluorescence materials at single molecule or single particle level, we have built a photothermal microscope with sensitivity high enough for single molecule detection. In this project, nanometer catalyst will be investigated at single particle level using the photothermal detection.

Number of Participants

2-3

Life Sciences & Medicine

Daqing Ma, FRCA, MAE, Qiushi Chair Professor

Zhejiang University

Lab Name:

Perioperative and System Medicine

Homepage:

http://itm.zju.edu.cn/teachers/details-aboutus-1084.html

Email: daqingma91@zju.edu.cn

Biography

Professor Daqing Ma is a distinguished scholar recognized for his extensive contributions to perioperative and system medicine. He holds prestigious academic positions, including: Member of Academia Europaea (MAE), Fellow of the Royal College of Anaesthetists (FRCA), Lifetime Chair Professor at Imperial College London, Qiushi Chair Professor at Zhejiang University. He has authored over 400 publications in leading journals such as The Lancet, PNAS, BMJ, Annals of Neurology, and Anesthesiology, with an h-index of 82 and over 24,000 citations. He also holds five international patents.

Research

1. Organoprotection (Stroke, neonatal asphyxia and kidney transplant)
2. Postoperative delirium/cognitive dysfunction and Alzheimer's disease
3. Cancer growth and metastasis

What You Can Expect in the Project

Pioneering research on xenon's protective effects on the brain and kidneys, which has led to new therapeutic strategies for neonatal hypoxic-ischemic encephalopathy, perioperative organ protection, and cognitive disorders.

Establishing a world-leading platform for perioperative cancer intervention studies, defining how anesthetics influence tumor cell behavior and providing a theoretical foundation for preventing postoperative cancer recurrence.

Number of Participants

4

Francis Kaming Chan, Professor

Zhejiang University

Lab Name:

Chan Lab

Homepage:

https://person.zju.edu.cn/en/0822212

Email: fkchan@zju.edu.cn

Biography

Our lab is interested in how cell death impacts innate inflammation and immune responses. The PI identified one of the first cell cycle inhibitors, INK4d-p19 (Mol Cell Biol. 1995, cited over 300 times), and discovered the "pre-ligand assembly domain (PLAD)" that mediates TNF receptors signal transduction (Science 2000, cited over 800 times). In 2009, my group identified RIPK3 as a central mediator of necroptosis (Cell, 2009, cited 2239 times). This discovery has revolutionized the field of cell death research, leading to an avalanche of recent work on necroptosis and inflammation. My work is widely credited by others to have “created” the field of necroptosis research. Our work is internationally recognized in the form of publications in top-tiered journals (Cell, Science, Nature, Molecular Cell, Immunity and others), speaker invitation at international conferences, and as reviewer for top-tiered journals.

Research

Cell death, inflammation and immunology

What You Can Expect in the Project

During the summer internship, students will participate in cutting edge research on immune regulation of inflammation. The PI will develop an 6-week work plan with the student. The student will have opportunities to learn new research techniques and work with other senior members of the lab. In addition to wet lab research, the student will participate in weekly group meetings and journal club discussion. At the end of the internship, the student will present a summary of his/her work to the research group.

Number of Participants

1

Haiyan Cen, Professor

Zhejiang University

Lab Name:

AgroOptics and Imaging Lab

Homepage:

https://person.zju.edu.cn/en/chy

Email: hycen@zju.edu.cn

Biography

Dr. Haiyan Cen is currently a Professor and Vice Dean of College of Biosystems Engineering and Food Science at Zhejiang University (ZJU). She was selected as Chang-Jiang Scholar Distinguished Professor in 2021 and China's 1000 Young Talent in 2015, and is listed among the Top 2% Scientists worldwide 2024 by Stanford University. Her research focuses on Intelligent sensing and optical imaging for plants to develop high-throughput plant phenotyping technologies and systems towards crop design breeding and precision farming. Dr. Cen has published more than 100 scientific papers in peer-reviewed top journals. She holds 18 Chinese invention patents, one US patent, and one Japanese patent. Dr. Cen has received awards and recognitions for her research work, including First Prize of Science and Technology of MOE, DA-BEI-NONG Agricultural Science and Technology Award, and American Society of Agricultural and Engineers (ASABE) Annual Meeting Paper Awards. She serves as the Chair of ASABE-ITSC Forward Planning & Structure, ZJU Representative of International Plant Phenotyping Network (IPPN), and Associate Editor of Computers and Electronics in Agriculture.

Research

We focus on developing advanced sensing and automation technologies for plant breeding and precision agriculture, contributing to making the food and agricultural system more efficient and sustainable. Specific research areas include:

- Investigation of complex light interaction with plant materials;
- Development of high-throughput robot- and drone-based plant phenotyping systems from greenhouse to open-field
- Development of machine learning and mechanistic methods for improving big phenotypic data processes

What You Can Expect in the Project

- Development of AI-based models for high-throughput plant phenotyping with drone imagery
- Development of tomato growth monitoring platform with plant phenotyping robot

Number of Participants

1-3 students

Hongqing Liang, Principle Investigator

Zhejiang University

Lab Name:

Dynamics cell fate determination in stem cells and early embryogenesis

Homepage:

https://person.zju.edu.cn/en/0018026

Email: lianghongqing@zju.edu.cn

Biography

Dr Liang joins Zhejiang Universtiy under "Hundred Talents Program“ and is a Ph.D. supervisor. She is a recipient of China High-Level Overseas Talent Award and Zhejiang Province High-Level Overseas Talent Award, She also won the NSFC Foreign Excellent Young Scientist Award. She has long interested in studying the relationship between stem cell heterogeneity and cell fate decisions during early embryonic development. Related work has been published in journals such as Cell, Nature Communications, EMBO Journal, Cell Reports, Stem Cell Reports, and eLife etc.

Research

Dr Liang’s lab focuses on understanding the regulatory mechanisms driving cell fate heterogeneity during early embryonic development,. Using techniques like cell tracing and multi-omics sequencing, we aim to reveal how dynamic changes in gene expression, signaling pathways, and non-coding elements in the genome can influence and coordinate stem cell proliferation, differentiation during embryogenesis.

What You Can Expect in the Project

Approximately 40% of the human genome is composed of transposable elements (Tes). In somatic cells, TEs are typically suppressed, and their abnormal expression leads to the activation of the innate immune pathways. However, during early embryonic development, TEs are purposely up-regulated in stem cells and play important roles in regulating the developmental process. The mechanism and functional distinctions of TEs under normal and abnormal conditions remain unclear. We plan to use systems established in our lab to explore the differences in TE regulation and function in these two contexts.

Number of Participants

1 student

Juan Xu, Ph.D, Professor

Zhejiang University

Lab Name:

Laboratory of Plant Developmental Signaling

Homepage:

https://person.zju.edu.cn/en/xujuan

Email: xujuan@zju.edu.cn

Biography

Prof. Juan Xu research focuses on the molecular signaling mechanisms that regulate plant growth, development, and stress adaptation. Relevant findings have been published in prestigious journals such as Nature Plants, Molecular Plant, Plant Cell, and Trends in Plant Science, with several of these studies receiving recommendations from Faculty 1000. In 2019, She was honored with the Outstanding Youth Foundation Award from the National Natural Science Foundation of China. Additionally, She received the Youth Changjiang Scholar Award from the Ministry of Education and the Wei Zhiming Youth Innovation Award from the Chinese Society of Plant Physiology and Molecular Biology.

Research

Mitogen-activated protein kinase (MAPK) cascades are highly conserved signaling modules in eukaryotes. By understanding, at molecular and cellular levels, how MAPK cascades function as molecular switches in response to receptors/sensors and transduce signal from extracellular stimuli to downstream responses, we could eventually identify suitable targets for genetic engineering of crops.

What You Can Expect in the Project

In the model organism Marchantia, a representative of early terrestrial plants, we aim to elucidate the functions and molecular mechanisms of the MAPK cascades, with particular attention to its role in the transition of plants from aquatic to terrestrial environments. This study will shed new light on the stress adaptation mechanisms in plant from an evolutionary perspective.

Number of Participants

1-2

Liang Xu, PhD, Principal Investigator

Zhejiang University

Lab Name:
Lab of cancer biology & epigenetics

Homepage:
https://person.zju.edu.cn/en/XL

Email: xuliang.phd@zju.edu.cn

Biography

Dr Xu obtained his PhD from National University of Singapore and postdoctoral training in Cancer Science Institute of Singapore and City of Hope Comprehensive Cancer Center. His lab has been working on the cancer genomics and cancer epigenetics, with a strong interest in transcriptional dysregulations and proteolysis-targeting chimeras. He has published over 30 peer-reviewed papers in high-profile journals including Nature Genetics, Nature Communications, Science Advances and PNAS. He received various recognitions including Chinese Government Award for Outstanding Self-financed Students Abroad, HOPE fellow (Japan Society for the Promotion of Science), and American Association for Cancer Research scholar-in-training award.

Research

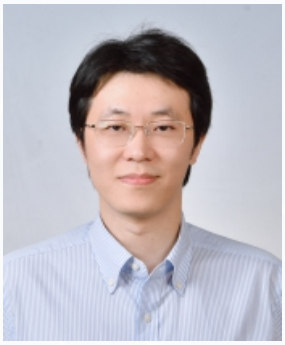
- Biology of sarcoma and brain cancer
- Protein degraders and innovative experimental therapeutics

What You Can Expect in the Project

Students will have the opportunity to engage in cutting-edge research in the molecular mechanisms driving sarcoma and glioma. The project typically involves hands-on experience in various bioinformatics analyses and experimental techniques such as cell culture, drug screening and Western blotting. Students will work closely with the senior to address research questions related to cell signalling pathways and drug response.

Number of Participants

2



Mengcen Wang, Professor

Zhejiang University

Lab Name:

Molecular & Ecological Chemistry Lab for Plant-Microbe Interactions

Homepage:

https://person.zju.edu.cn/en/wangmengcen

Email: wmctz@zju.edu.cn

Biography

Dr. Mengcen Wang, professor and director at the Institute of Pesticide and Environmental Toxicology, Zhejiang University, is a renowned expert in plant-microbe interactions and the development of innovative plant disease control strategies. With over 80 peer-reviewed publications in top-tier journals such as Nature Microbiology, Nature Plants, and Nature Food, his research has significantly advanced the understanding of plant-microbe interactions. Dr. Wang's work is internationally recognized, and he also serves as a fellow in Hokkaido University's Global Education Program for AgriScience Frontiers.

Research

Plant-Microbe Interactions, Plant microbiome

What You Can Expect in the Project

During the internship, students will participate in research focused on plant-microbe nteractions, specifically exploring how microbial communities influence plant immunity and disease resistance. They will assist in experimental designs to identify key microbial species that promote plant health and contribute to the development of eco-friendly biocontrol methods. The project will also involve using advanced molecular techniques and bioinformatics tools to analyze microbial dynamics, providing hands-on experience in cutting-edge plant pathology research.

Number of Participants

3

Mengjie Wu, DMD, PhD,
Professor, Senior Consultant

Zhejiang University

Lab Name:
Zhejiang Provincial Clinical Research Center for Oral Diseases

Homepage:
https://person.zju.edu.cn/wumengjie

Email: wumengjie@zju.edu.cn

Biography

Prof. Mengjie Wu is Executive Deputy Director, Department of Orthodontics of Stomatology Hospital, Zhejiang University School of Medicine. She did postdoctoral work and engaged in clinical research at Harvard University from 2016-2018. Prof. Wu was selected as one of the National Outstanding Young Doctors and Zhejiang Health High-level Innovative Talents. She is a fellow of the International College of Dentistry, a member of the Standing Committee of the Temporomandibular Disorders (TMD) & Occlusion Committee and the Orthodontics Committee of Chinese Stomatological Association. She has published over 40 research papers in high level journals.

Research

1. Oral health and stomatology education
2. Artificial intelligence and oral disease diagnosis
3. Pathological mechanism and treatment strategy of TMD
4. Orthodontic biomechanics and alveolar bone remodeling

What You Can Expect in the Project

1. Investigation on clinical education of stomatology
2. Clinical research of orthodontics and TMD
3. Biomechanics and pathological mechanism of TMD

Number of Participants

1-2

Songmin Ying, MD PhD

Zhejiang University

Lab Name:

Zhejiang international Joint Laboratory of Regenerative and Aging Medicine

Homepage:

https://person.zju.edu.cn/en/yings

Email: yings@zju.edu.cn

Biography

Prof. Songmin Ying (MD, PhD) is Executive Dean of the School of Medicine at Zhejiang University. He obtained his PhD from Technical University of Munich, Germany, in 2007. Following postdoctoral work at the University of Oxford, UK for 6 years, he became a Principal Investigator and Professor at the Institute of Respiratory Diseases at Zhejiang University in China. He is Vice President for the Youth Committee of Chinese Thoracic Society (CTS), and Vice President for the Youth Committee of Chinese Association of Chest Physicians (CACP).

Research

His research focuses on inflammation and aging in contribution to the pathogenesis of chronic airway diseases. He has published quality research articles in top journals (i.e. Nature, Nature Cell Biology, Nature Chemical Biology, Molecular Cell, Cell Research, Nature Communications, Science Advances, Advanced Science, Cell Discovery, etc.), with an H-index of 38.

What You Can Expect in the Project

Chronic Disease Research/ Translational Medicine/ Infectious Diseases/ Research on Behavioral Science and Positive Psychological Interventions for Active Aging in County-Level Communities/ Exploring Protein Phase Separation in Cancer and Neuroscience/ Therapeutic potential and epigenomic mechanism of opioid agonists in hepatocellular carcinoma/ Immune cell engineering for cancer therapy

Number of Participants

4

Suhong Xu, Tenured Associated Professor

Zhejiang University

Lab Name:
Tissue Wound Repair and Regeneration Laboratory

Homepage:
https://person.zju.edu.cn/en/suhongxu

Email: shxu@zju.edu.cn

Biography

Professor Suhong Xu earned his bachelor's degree from Wuhan University and completed his PhD at the Institute of Genetics and Developmental Biology, Chinese Academy of Sciences. He then pursued postdoctoral training at the University of California, San Diego, before joining the Zhejiang University School of Medicine in 2016. Xu's laboratory investigates the molecular and cellular mechanisms underlying tissue traumatic stress, repair, and regeneration. Our research primarily employs the classic genetic model organism Caenorhabditis elegans, utilizing techniques such as genetics, rapid in vivo microscopy, molecular biology, optogenetics, CRISPR-Cas9 genome editing, and biochemistry to explore how epidermal cells rapidly sense and respond to stress, and how they initiate repair and remodel tissue structure and function. Significant findings from our laboratory have been published in prominent international journals, including Developmental Cell, Nature Communications, Journal of Cell Biology, and Cell Reports.

Research

1. membrane damage sensation and repair
2. Mitochondrial Ca2+ uptake and ROS homeostasis
3. The rapid and dynamic response to tissue damage

What You Can Expect in the Project

1. The mathematic modeling of phospholipid responds to wounding
2. The genetic screen of regulators of membrane damage

Number of Participants

1-4

Yi Wang, Professor

Zhejiang University

Lab Name:
Pharmaceutical Informatics Institute

Homepage:
https://person.zju.edu.cn/en/yiwang_en

Email: zjuwangyi@zju.edu.cn

Biography

Prof. Yi Wang is a recipient of the National Excellent Young Scientists Fund and a member of the interdisciplinary innovation team in traditional Chinese medicine. He has conducted visiting research at the U.S. FDA and Harvard Medical School. His research achievements include one first-class National Science and Technology Progress Award and six provincial and ministerial-level awards. He has published over 80 academic papers in journals such as Nature Computational Science, Nature Communications, and The Innovation. His AI + high-content screening method has gained international attention and was specially recommended and introduced by the Nature website.

Research

Prof. Yi Wang's research interests focus on the discovery of active substances in traditional Chinese medicine and R&D of new drugs.

What You Can Expect in the Project

Participants will learn how to 1) use multimodal analysis-based chemical characterization including but not limited to quantitative NMR and LC-Ms to identify compounds in complex mixtures; 2) conduct AI-driven bioactive compound screening through in vitro and in vivo assays; 3) integrate chemical and biological data by data fusion strategy to target lead compounds.

Number of Participants

1-4

Zhen Gu, Distinguished Chair Professor and Dean

Zhejiang University

Lab Name:
Imedication Lab

Homepage:
http://www.imedlab.net/

Email: guzhen@zju.edu.cn

Biography

Dr. Gu has published over 300 research papers and applied over 150 patents. He is the recipient of the Felix Franks Medal of the Royal Society of Chemistry (2020), Young Investigator Award of Controlled Release Society (2017), Sloan Research Fellowship (2016) and Pathway Award of the American Diabetes Association (2015). MIT Technology Review listed him in 2015 as one of the top innovators under the age of 35. He was elected to the College of Fellows of the American Institute for Medical and Biological Engineering (AIMBE) in 2019 and the International Academy of Medical and Biological Engineering (IAMBE) in 2021.

Research

Our iMedication Lab is interested in integrating biomaterials design, biomacromolecules engineering, and micro/nano-fabrication towards new drug delivery strategies, which apply stimuli-responsive systems for delivering and/or releasing therapeutics in dose-, spatial- and temporal-controlled manners. Our current focus is to leverage physiology for bioresponsive drug delivery through cellular carriers or biomimetic synthetic vehicles.

What You Can Expect in the Project

Students will learn to use the common scientific research software (eg. Solid Works and Prism) and scientific research instruments (eg. Microplate Reader). After training, they could make an independent article research report, and design creative drug-loaded microneedle patch. Depending on the student's productivity and success in lab, they may receive an acknowledgment on a paper.

Number of Participants

1-4 students

Xianglong Hu, Dr.

University of Science and Technology of China

Lab Name:

Innovative Biomedicine and Materials Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://scholar.google.com/citations?user=UZTxY5gAAAAJ&hl=zh-CN

Email: huxlong@ustc.edu.cn

Biography

Our group focuses on the design and biomedical applications of polymers, pioneering the "polyprodrug" concept to achieve high drug loading, controlled release, and real-time visualization, gaining global recognition. Published 50+ papers as the first/corresponding author in top journals like J. Am. Chem. Soc. and Angew. Chem. Int. Ed. , with 6,400+ citations and an H-index of 40. Our work has been highlighted by Nature publication group, JACS, and others. Three international PhD students are present in our lab now.

Research

Functional Polymers, Biomedicine, Drug delivery

What You Can Expect in the Project

Interns will engage in the synthesis and biomedical applications of functional polymers, focusing on the design and synthesis of polyprodrugs, functional proteins, and liposomes, as well as purification and characterization techniques. They will also participate in cell experiments and animal studies using model organisms like nematodes and mice to explore the potential applications of polyprodrugs in aging and cancer models. This project provides lab experience in both polymer science and biomedical research.

Number of Participants

One

Desired skill and background

We extend a warm welcome to students hailing from Chemistry, Biology, Pharmacy, and Materials Science, to become part of our team.

Chen Ling, Principal Investigator

Fudan University

Lab Name:

State Key Laboratory of Genetic Engineering

Homepage:

https://life.fudan.edu.cn/66/cb/c31279a353995/page.htm

Email: lingchenchina@fudan.edu.cn

Biography

Dr. Chen Ling is a Professor in the Department of Genetics, School of Life Science at Fudan University since 2016. He is primarily engaged in adeno-associated virus vector as well as precise induction of its transgene expression, and gene therapy of genetic diseases. In 2011, he received his Ph.D. in Medical Genetics from the University of Florida and stayed at the university as a postdoctoral fellow, assistant professor, and associate professor. He serves as the associate editor of journal such as "Molecular Therapy Nucleic Acids" and "Frontiers In Pharmacology". He has won the 2016 Shanghai Sailing Plan Award, the 2016 Shanghai Oriental Scholar Distinguished Professor, and was successfully re-appointed in the Oriental Scholar Tracking Program in 2020. He has presided over 3 projects of the National Natural Science Foundation of China, 1 Shanghai Key R&D Project, and participated in 3 National Key R&D Programs of the Ministry of Science and Technology. He has published more than 40 SCI papers as the first or corresponding author.

Research

1) Basic biological research on adeno-associated viruses and their vectors;
2) Precise induction of rAAV vector gene expression;
3) Gene therapy combining traditional Chinese and Western medicine.

What You Can Expect in the Project

A novel technology system of vector gene expression regulation is needed for safe and efficient gene therapy requirements in clinicals. As that rAAV vectors are currently one of the most promising vehicles for therapeutic gene delivery system. So, aiming to achieve precise induction of rAAV vector gene expression and highly efficient gene therapy through nutrients. Main purposes of this research project: 1) Elucidate the molecular mechanism by which the rAAV vector protein capsid inhibits transgene transcription, 2) systematically reveal the molecular mechanism by which cellular iron ions and iron chelators regulate gene expression and 3) to analyze the effect of iron chelators on stability and efficacy of rAAV vectors by cyclic voltammetry.

Number of Participants

2

liang Chen, Principal Investigator

Fudan University

Lab Name:

Auditory perception Lab

Email: liangchen@fudan.edu.cn

Biography

PI in the Department of Anatomy and Histology at the School of Basic Medical Sciences, Fudan University. Their research focuses on the neural circuitry mechanisms of auditory decision-making, neural encoding of auditory information, and the integration mechanisms of perception and action. Through exploring how the brain processes sensory input and transforms it into decisions and actions, their work aims to uncover the fundamental neural circuits of sensory perception and consciousness. The research specifically focuses on auditory stimuli and the integration of sensory and motor systems.

Research

Neural Encoding of Auditory Information: How the brain encodes sounds.

Perception-Action Integration: How the brain integrates auditory information with actions.

What You Can Expect in the Project

When we walk at a crossroads, we determine whether we can cross smoothly based on cues like traffic lights or the sound of car horns. So, how does the brain deeply process and interpret the sensory information it receives? How does it implement and execute appropriate action strategies? We aim to elucidate the neural circuit mechanisms underlying perceptual decision-making and identify the material basis of how the brain perceives auditory information.

Number of Participants

3-6

Lin Li, Professor

Fudan University

Email: linli@fudan.edu.cn

Biography

Professor Lin Li received her Ph.D. from Fudan University, and received her postdoctoral training in the field of plant molecular genetics at the Salk institute, where she identified the transcription factor PIF7 in Arabidopsis as key regulator for shade avoidance responses, a set of responses that plants display when subjected to the shade of nearby neighbors. Since 2013, Li's lab explored several genetic and epigenetic regulators involved in shade avoidance response, which have been published in Dev Cell, Nat. Commun., Mol Plant et al. She got National high-level talents special support, and organized the projects funded by National natural Science Foundation of China.

Research

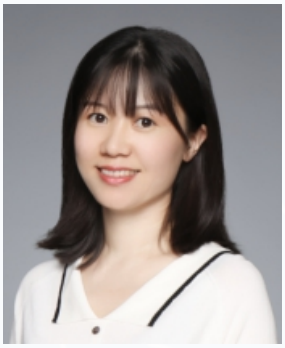
Plant development is very plastic and is constantly modulated by environmental fluctuations. Being photoautotrophic plants are particularly sensitive to their light environment. We use molecular genetics in the model plant Arabidopsis thaliana to decipher the signaling events occurring upon light capture.

What You Can Expect in the Project

1) Detect the phenotype of Arabidopsis seedlings under the different wavelengths of light conditions.
2) Purify the recombinant protein from E.coli.

Number of Participants

1-2



QIAN LI, associate professor

Fudan University

Homepage:
https://basicmed.fudan.edu.cn/c7/c3/c28577a444355/page.htm

Email: qianli_fd@fudan.edu.cn

Biography

My research focuses on adipose tissue development and its role in obesity and metabolic disorders. Using human adipose tissue samples, we've developed techniques for studying mature adipocytes, integrating clinical data with lab research. In collaboration with Kirsty Spalding's group at Karolinska Institutet, we identified how adipocytes enter the cell cycle and regulate metabolism. Our work also revealed that cellular aging in adipocytes drives metabolic dysregulation in obesity (Nature Medicine, 2021). Additionally, collaborations with Mikeal Ryden's and Carolina Hargberg's groups have led to publications in top journals such as Cell Metabolism, Cell Reports, and International Journal of Obesity.

Research

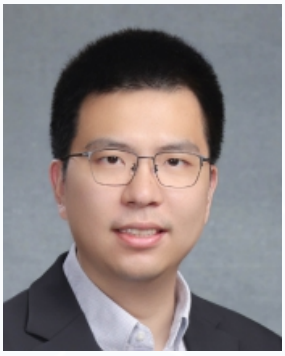
Currently, our research focuses on adipose tissue metabolism in obesity and diabetes, which has been identified as a major factor in the development of type 2 diabetes and other systemic metabolic disorders. Aging-related changes in tissue function are also gaining attention as key contributors to organ dysfunction. Building on previous work, our group is exploring the cellular changes in adipose tissue during the development of obesity and metabolic imbalance, and how these changes affect overall metabolic homeostasis. We are also investigating the impact of clinical treatments, including medications and surgical interventions, on adipose tissue function to develop targeted therapies for reversing obesity and metabolic disorders.

What You Can Expect in the Project

Students will have the opportunity to explore the characteristics of human adipocyte aging and its impact on multiple organs. They will contribute to ongoing research projects related to obesity, adipose tissue, and diabetes, and gain hands-on experience in key techniques, such as adipocyte isolation, organoid culture, PCR, Western blotting, and bioinformatics analysis of adipose tissue. Students with backgrounds in bioinformatics, cell culture, and image analysis are particularly encouraged to apply. The lab also fosters an open academic environment, offering both academic guidance and support for students' daily life.

Number of Participants

We invite 2-3 enthusiastic and motivated individuals to join us in this exciting research with the potential to produce meaningful results and contribute to the field of metabolic disease.



Shuo Wang, Dr

Fudan University

Lab Name:

AI for Multi-Modal Medicine

Homepage:

https://swang.miccai.cloud/

Email: shuowang@fudan.edu.cn

Biography

I am a Principal Investigator at the Digital Medical Research Center, Fudan University, where I lead pioneering research in medical image analysis. I earned my Ph.D. in Radiology from the University of Cambridge in 2018 and served as a Research Associate at Cambridge (2018–2019) and Imperial College London (2019–2021). My research focuses on AI for multi-modal medicine, developing efficient algorithms for clinical applications and large-scale population studies to bridge data analysis with healthcare solutions. I have published in top journals such as Nature Medicine and Radiology, and presented at leading AI conferences including CVPR and AAAI.

Research

AI for Multi-Modal Medicine

What You Can Expect in the Project

- Developing State-of-the-Art Foundation Models: Creating advanced algorithms for disease diagnosis and treatment decision-making.
- Population-Level Imaging Studies: Engaging with large-scale datasets involving over 100,000 subjects.

Number of Participants

2

Dijun Chen, PI/Dr.

Nanjing University

Lab Name:

Computational Biology Group

Homepage:

https://compbio.nju.edu.cn/

Email: dijunchen@nju.edu.cn

Biography

Dr. Dijun Chen received his PhD in Bioinformatics from Martin Luther University of Halle-Wittenberg, Germany, in 2017. Currently, he serves as an Associate Professor in Bioinformatics at the School of Life Sciences, Nanjing University. Leading a research group specializing in large-scale computational regulatory genomics and employing statistical and machine learning methods (AI), his team is dedicated to exploring the fundamental molecular principles and evolutionary diversity of gene regulation in the development, growth, and diseases of eukaryotic organisms.

Research

Bioinformatics; Regulatory Genomics; Single Cell Genomics; Translational Genomics

What You Can Expect in the Project

In the project, students will actively engage in functional genomic research, utilizing advanced artificial intelligence (AI) techniques and cutting-edge single-cell omics methods. They will have the opportunity to participate in large-scale computational genomics analyses, contributing their efforts to unlocking mysteries in the field of life sciences.

Number of Participants

4 students

Jiayu Chen, Investigator

Nanjing University

Lab Name:

Lab of Bioinformatics and RNA Genomics

Homepage:

https://life.nju.edu.cn/cjy2/list.htm

Email: jiayuchen@nju.edu.cn

Biography

Dr. Jiayu Chen obtained his Ph.D. from PKU, conducted postdoctoral training at UCSD, and joined NJU as an independent PI in 2021. His research group employs interdisciplinary approaches for functional genomics study on noncanonical nucleic acid structures and regulatory RNAs, with the goal of understanding their molecular functions and developing innovative nucleic acid-based therapeutic strategies. His research accomplishments have been published in high-impact journals such as Cell, Nat Chem, Mol Cell, Nat Protoc, Nucleic Acids Res, eLife, and etc.

Research

- Development of bioinformatics tools
- Functional genomics of noncanonical nucleic acid structures
- Regulation of transcription and RNA processing

What You Can Expect in the Project

- Skills in bioinformatics analysis
- Participation in the development of deep-learning models to predict cell fate-determining factors
- Hands-on experience in the development of genomics technologies for RNA-DNA triplex formation, noncanonical RNA capping, and subcellular RNA localization

Number of Participants

2-6

Kuanyu Li, Professor

Nanjing University

Lab Name:

Iron metabolism and Mitochondrial function

Homepage:

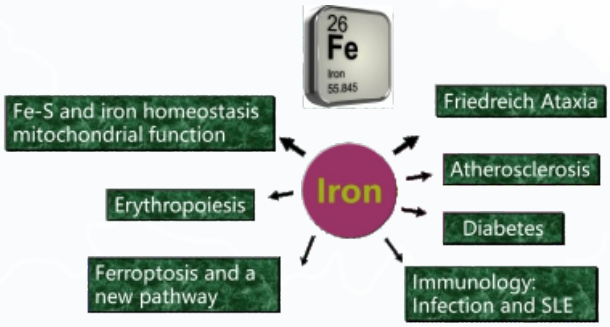
https://med.nju.edu.cn/lky1/main.htm (Chinese)
https://med.nju.edu.cn/medenglish/68/f4/c55098a616692/page.htm (English)

Email: likuanyu@nju.edu.cn

Biography

Dr. Kuanyu Li obtained her PhD degree majoring in Genetics and Breeding in 1995 and then joined the Department of Biology at Nanjing University. From 1999 to 2009, she underwent further scientific training at the University of Giessen, Germany and at the National Institute of Child Health and Human Development (NICHD), NIH, USA. Subsequently, Dr. Li returned to Nanjing University as a principal investigator at the Medical School. Her research interests are centered on how iron-sulfur proteins regulate mammalian mitochondrial, cellular, and systemic iron metabolism; how interplay between iron metabolism and energy metabolism occurs through hypoxia inducible factors; how the organelle Golgi is involved in ferroptosis; and how erythropoiesis is regulated, with a particular focus on iron-related diseases.

Research



What You Can Expect in the Project

In principle, all ongoing projects that interest students are accessible. They can make a decision after coming to the lab and talking to the team members. We welcome thoughts, exchanges of ideas, and inspiration. Adhering to laboratory regulations is essential.

Number of Participants

1-2

Zhen Zhou, PI/Dr.

Nanjing University

Lab Name:

M³ Lab

Email: zhenzhou@nju.edu.cn

Biography

Engaged in long-term research in the fields of bioinformatics and molecular biology, with a focus on non-coding RNA, the relationship between non-coding RNA and traditional Chinese medicine, as well as the association of non-coding RNA with cancer and other diseases. Published over 20 papers in authoritative journals such as Cell Research, JASN, and Molecular Cancer.

Research

The application of artificial intelligence technology in the modern interpretation of traditional Chinese medicine theory, modeling of important biological processes, and medical image analysis.

What You Can Expect in the Project

1. Research on the miRNA regulatory mechanisms of traditional Chinese medicine.
2. Imaging genomic research on interstitial pneumonia.

Number of Participants

2-3 participants

Natural Sciences

Chen Wu, Professor

Zhejiang University

Lab Name:

Magneto+X

Homepage:

https://person.zju.edu.cn/en/chenwu

Email: chen_wu@zju.edu.cn

Biography

Prof. Wu graduated from the University of Oxford with a DPhil degree and has published over 80 peer-reviewed papers and first-authored in one book (Frontiers in Magnetic Materials, CRC Press) and one book chapter (published by Springer). Prof. Wu has also been granted nearly 40 Chinese/Japanese/US/European patents and won the National Award for Technological Invention (Second Prize) and the Provincial Award for Science and Technology Progress (First Prize).

Research

Prof. Wu focuses on the development of high-performance soft magnetic composites for wide-frequency applications. She is also interested in interdisciplinary directions combining magnetism and magnetic materials with sensing, catalysis and health care.

What You Can Expect in the Project

You are very welcome to join an open and supportive group and work with members who are enthusiastic in the important field of soft magnetic materials. Some possible project directions may involve the flexible electromagnetic devices, magnetic-field-assisted catalysis. etc.

Number of Participants

1-3 participants.

Jingjing Xue, Professor

Zhejiang University

Lab Name:

Solar Lab

Homepage:

https://person.zju.edu.cn/en/jingjingxue

Email: Email:jjxue@zju.edu.cn

Biography

Prof. Jingjing Xue holds an appointment in the School of Materials Science and Engineering at ZJU since 2021. She has been named to MIT Technology Review "Innovators Under 35" (Asia Pacific, 2022), and Forbes 30 under 30 (China, 2021). Prof. Xue's group now pursues innovations in energy and environmental technologies, particularly new-generation materials and devices for photovoltaics. She has published papers on prestigious journals such as Nature, Science, and Nature family journals as a first or corresponding author. Her scientific achievements have been widely reported by famous international social medias such Scientific American and Forbes. She also served as a peer reviewer for many impactful journals such as Nature, Nat. Comm., Adv. Mater. etc.

Research

Photovoltaic materials and devices

What You Can Expect in the Project

Perovskite solar cell device fabrication and materials characterization. Good opportunity to learn the detailed structure of a perovskite-based photovoltaic, how a solar cell is made, what is affecting the power conversion efficiency of a photovoltaic device and what leads to the device degradation.

Number of Participants

2

Zhenyi Ni, Researcher

Zhejiang University

Lab Name:

Optoelectronic Semiconductor Material and Device (OSMD)

Homepage:

https://person.zju.edu.cn/en/zyni

Email: zyni@zju.edu.cn

Biography

Dr. Zhenyi Ni graduated from the Department of Material Science and Engineering at Zhejiang University with a Bachelor's degree in Material Science and Engineering in 2011. He obtained his Ph.D. in Material Physics and Chemistry from Zhejiang University in 2016. After that, he worked as a post-doctoral researcher in the Department of Material Science and Engineering at Zhejiang University, and the University of North Carolina at Chapel Hill (UNC). His research focused on Silicon and perovskite materials and devices. Dr. Zhenyi Ni published more than 80 SCI journal papers, including Science (2), Nature Energy (2), Nature Communications, Science Advances, Advanced Materials, ACS Nano and IEDM (2).

Research

Optoelectronic semiconductor materials and devices

What You Can Expect in the Project

We offer cutting-edge research programs tailored to each intern's unique background and interests. Through these projects, you will gain a deep understanding of the physical principles behind the operation of solar cells and photo/radiation detectors, as well as hands-on experience in fabricating prototype devices for both technologies.

Number of Participants

2

Chuangqi Zhao, Research professor

University of Science and Technology of China

Lab Name:

Bioinspired high-performance materials laboratory
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1143.html

Email: zhaochuangqi@ustc.edu.cn

Biography

Dr. Chuangqi Zhao is a research professor at the University of Science and Technology of China (USTC) and member of the Chinese Academy of Sciences' Hundred Talents Program B. In recent years, he has published over 20 SCI papers in high-level academic journals, including 9 papers as the first or corresponding author in high-level journals such as Nature, Angew. Chem. Int. Ed., Matter, ACS Nano and etc.. He has also been granted 5 invention patents. His research group focuses on the development and applications of bioinspired high-performance nanocomposites.

Research

- Biomimetic preparation of high-performance biomaterials
- Biomimetic high strength and toughness mineralized materials
- Genetic material

What You Can Expect in the Project

- Based on the superspreading strategy, prepare nanocomposite films, study their strength and toughness, and explore how to enhance mechanical properties
- Inspired by the structure and function of organisms in nature, biomimetic preparation of high-performance biomaterials

Number of Participants

Five doctors and six masters

Desired skill and background

- Strong independent research and thinking ability, good reading and writing ability of English scientific papers, integrity, hard work, good team spirit.
- The research group is highly interdisciplinary, specializing in polymer physics and chemistry, engineering polymer, and major in biopolymer is preferred.

Dong LIU, Professor

University of Science and Technology of China

Lab Name:

Light-X Catalysis Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://faculty.ustc.edu.cn/dongliu/en/index.htm

Email: dongliu@ustc.edu.cn

Biography

Dr. Liu Dong is currently a Professor of Chemistry (PI) at the USTC. He joined the Suzhou Institute for Advanced Research and School of Chemistry and Materials Science at the USTC in May 2021. Up to now, he has published more than 40 papers in important academic, such as Science Advances, Nature Communications, Angewandte Chemie, JACS, Advanced Materials, and has been cited more than 3,000 times, with a Google Scholar h-factor of 26. He currently serves as a Youth Editorial Board Member of Chin. Chem. Lett. (2022-) and J. Energy Chem. (2024-).

Research

1. Controllable synthesis of inorganic solid materials and precise regulation of surface and interface structures.
2. Photocatalytic/photoelectrochemical small molecule activation and its application in the production of high value-added chemicals.
3. Rational design of artificial photosynthesis system and related devices.

What You Can Expect in the Project

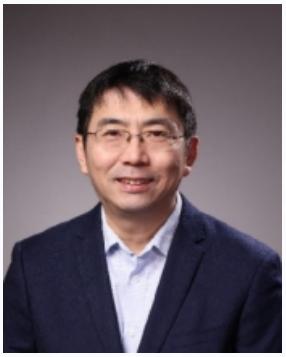
1. Gain expertise in the controllable synthesis of single-atom based materials, focusing on atomic layer deposition (ALD).
2. Learn to design and establish artificial photosynthesis systems, monitor the reaction progress and analyze the catalytic products.
3. Work on cutting-edge topics, including energy conversion and sustainable chemical production.

Number of Participants

1-2

Desired skill and background

Chemistry, Materials Science and Technology, Nanoscience



Feng Li, Professor

University of Science and Technology of China

Lab Name:

Advanced electrochemical energy storage materials and devices
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://scholar.google.com/citations?user=5K6WAdMAAAAJ&hl=en
http://imr.cas.cn/sourcedb/zw/rck/yjy_imr/201309/t20130904_3925527.html

Email: fli@imr.ac.cn

Biography

Prof. Feng Li's group focuses on developing advanced electrochemical energy storage materials and devices from mechanism to application, especially reaction kinetics and application under extreme condition. Our group's scientific achievements have been well recognized world-wide and more than 380 papers have been published so far on Nature Energy, Chem. Soc. Rev., Adv. Mater., J. Am. Chem. Soc., Angew. Chem., et al. with more than 70,000 citations. Prof. Feng Li has been involved in Clarivate Highly Cited Researchers List for 8 times from 2016 to 2023 with an H-index of 114.

Research

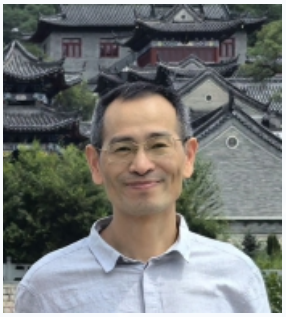
1. Materials and Lithium-sulfur battery
2. Solid-state electrolyte and solid-state battery
3. Lithium- and sodium-based batteries
4. Materials and electrolyte design for batteries under extreme conditions

What You Can Expect in the Project

1. Advanced cathode materials/solid-state electrolytes design for lithium-sulfur battery
2. Cathode materials/anode material/electrolyte design for lithium/sodium battery

Number of Participants

2



Guobao XU, Professor

University of Science and Technology of China

Lab Name:

State Key Laboratory of Electroanalytical Chemistry Changchun Institute of Applied Chemistry & School of Applied Chemistry and Engineering, Changchun Campus

Homepage:

https://teacher.ucas.ac.cn/~guobaoxu?language=en

Email: guobaoxu@ciac.ac.cn

Biography	He is Chairperson of Organization Committee of 20th International Symposium on Electroanalytical Chemistry & Co-Chair of 40th ISE Topical Meeting (12-17 August, 2025), Editor of J Electroanal Chem, Guest Editor of more than 10 special issues, Division Co-Chair of ISE, and symposium organizer/co-organizer of about 10 international conferences. He has published more than 370 papers in journals, such as Nano Today, Acc Chem Res, and Chem Soc Rev.
Research	Nanomaterial synthesis, electrochemiluminescence, chemiluminescence
What You Can Expect in the Project	Synthesis of metal nanomaterials; Electrochemiluminescence/chemiluminescence analysis including imaging analysis based on nanomaterials; Development of new devices.
Number of Participants	1-2
Desired skill and background	Chemistry, Material Sciences, Electronics, Biochemistry, Physics.

Jiangang Feng, Professor

University of Science and Technology of China

Lab Name:

Nanomaterials and Nanophotonics Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1164.html

Email: jgfeng@ustc.edu.cn

Biography

Jiangang Feng is presently a profressor at the USTC. Before joining USTC, he was a research fellow at the National University of Singapore and Nanyang Technological University from 2019 to 2024. Prof. Feng earned his Ph.D. degree in 2019 from the Technical Institute of Physics and Chemistry, Chinese Academy of Sciences. He has authored 67 peer-reviewed journal papers, including Nature Materials (1), Nature Electronics (1), Nature Review Materials (1), Nature Communications (5), Science Advances (1), etc. These papers have attracted 3,300 citations, leading to a h-index of 30. He has been honored with awards including 2023 Rising Stars of Light, and the Chinese Academy of Sciences Presidential Scholarship (Special Prize).

Research

Emerging quantum materials, self-assembly for nanofabrication, nanophotonic devices

What You Can Expect in the Project

I warmly welcome international students and young researchers to join this exciting project. Participants will have the opportunity to engage in research activities in my lab and collaborate closely with my group members. We offer several fascinating short-term research programs, including: (1) Nanofabrication of Photonic Crystals: Gain hands-on experience with cleanroom facilities and advanced nanofabrication techniques, (2) Optical Measurements of Nanomaterials and Photonic Structures: Access a cutting-edge optical lab equipped with femtosecond lasers, spectrometers, and home-built imaging spectroscopy systems, (3)Theory and Simulation Training in Nanophotonics: Learn to design photonic devices guided by principles of symmetry and topology.

Number of Participants

1-2 students

Desired skill and background

I welcome students and young researchers with backgrounds in physics, optics, material science, and electrical and electronic engineering.

Jingrun Chen, Professor

University of Science and Technology of China

Lab Name:

SCAI Lab
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1090.html

Email: jingrunchen@ustc.edu.cn

Biography

Jingrun Chen is currently a professor at the School of Mathematical Sciences and the Suzhou Advanced Research Institute at the University of Science and Technology of China, specializing in scientific computing and artificial intelligence. He has published over 50 academic papers in related fields. His research is supported by the National Natural Science Foundation of China, the National Key R&D Program of China, the Overseas High-level Youth Talent Plan, and the National Science Foundation of USA.

Research

Scientific Computing and Artificial Intelligence, Computer Vision, Machine Vision

Kui Du, Professor

University of Science and Technology of China

Lab Name:

Quantitative Electron Microscopy on Metallic Materials
Institute of Metal Research, Shenyang Campus

Homepage:

http://english.imr.cas.cn/

Email: kuidu@imr.ac.cn

Biography

Prof. Kui Du earned his Ph.D. at the Institute of Metal Research, Chinese Academy of Sciences. Before joining in Institute of Metal Research, CAS in 2006, he held two research fellowships in Max-Planck-Institute for Metals Research, Germany, and Case Western Reserve University, the United States. He has developed several quantitative high-resolution electron microscopy techniques and published more than 80 papers on structures of metals and ceramics in journals such as Physical Review Letters, Journal of the American Chemical Society, Nature Materials, Nature Communications, Matter and Acta Materialia. He has been a full professor in Institute of Metal Research, CAS/ Department of Materials Science and Engineering, University of Science and Technology of China since 2010, and his recent research interest is focused on quantitative electron microscopy, atomic-resolution electron tomography and structures of superalloys and titanium alloys. He is an editor of Acta Metallurgica Sinica.

Research

Atomic-resolution Electron Tomography; Quantitative Electron Microscopy; Structure, Properties and Performance of Metallic Materials.

1) Quantitative Electron Microscopy on Deformation and Phase Transformation Mechanisms of Titanium Alloys and Superalloys
2) 3D Electron Tomography Study on the Dislocation Structure Evolution in Superalloys
3) Machine Learning aided Atomic-resolution Electron Tomography

What You Can Expect in the Project

Hands-on training of transmission electron microscopy, TEM experiment and analysis

Machine learning aided image processing

Number of Participants

2-3 participants

Longsheng Cao, Distinguished Professor

University of Science and Technology of China

Lab Name:

Bionic Electrochemical Laboratory
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1165.html

Email: caolsh@ustc.edu.cn

Biography

Prof. Longsheng Cao has been primarily engaged in the research of chemical power sources and energy storage technologies, with a focus on key scientific and technological issues in hydrogen fuel cells, zinc batteries, and electrochemical ammonia compression systems. His work has significantly contributed to the development of high-safety, low-cost chemical power and energy storage systems, with over 20 publications in international journals, including Nature Nanotech., Angew. Chem. Int., JACS, Chem, and Nature Com. He has also filed 16 Chinese patents, with 5 granted.

Research

Zinc batteries; Electrolytic seawater hydrogen production

What You Can Expect in the Project

As a research intern, you will have the opportunity to:

- Contribute to cutting-edge research in zinc batteries and electrolytic seawater hydrogen production.
- Work on projects that address critical challenges in the field of energy storage and conversion.
- Collaborate with a team of international researchers and gain exposure to state-of-the-art facilities and methodologies.

Number of Participants

We are seeking 1-2 highly motivated and talented students to join our research team.

Desired skill and background

We are looking for students with a strong background in:

- Chemistry, Materials Science, or a related field.
- Experience in electrochemical techniques and battery technologies is a plus.
- A keen interest in contributing to sustainable energy solutions.
- Good communication skills and the ability to work in a multicultural environment.

Qunfeng Cheng, Professor

University of Science and Technology of China

Lab Name:

Lab of Bioinspired Functional Nanocomposites
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://sz.ustc.edu.cn/en/en_research_show/1141.html

Email: chengqf@ustc.edu.cn

Biography

Professor Qunfeng Cheng is a professor in the School of Nano Science and Technology of Suzhou Institute for Advanced Research, USTC in China. He is the Senior Member of the Chinese Chemical Society and the standing Deputy Director of the Nano Composites Society of the Chinese Society for Composite Materials. He has published more than 100 papers including 3 papers in Science, 1 paper in Nature, 1 paper in Nat. Mater., 4 papers in Nat. Commun., 5 papers in PNAS. with over 4300 citations, and a Google Scholar h-index of 35.

Research

Bioinspired Functional Nanocomposites.

What You Can Expect in the Project

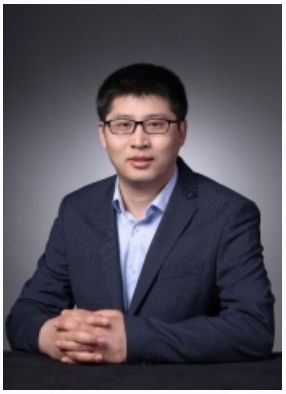
Students can learn about the strategies of structural modulation of 2D nanomaterials, design, preparation, and characterization of bioinspired functional nanocomposites.

Number of Participants

1-2

Desired skill and background

The majors of the students involved in the project are expected to be chemistry, chemical engineering, materials, etc.



Peitao Liu, Professor Dr.

University of Science and Technology of China

Lab Name:

Computational Materials Design Department
Institute of Metal Research, Shenyang Campus

Homepage:

https://scholar.google.com/citations?hl=zh-CN&user=w0C8TV4AAAAJ

Email: ptliu@imr.ac.cn

Biography

My research focuses on the methods developments and theoretical understanding and computational modeling of complex materials with novel structural (phase transition, phase diagram…), electronic (metal-insulator transition), magnetic (non-collinear spins) and optical properties by means of advanced first-principles methods, effective model Hamiltonians, ab initio molecular dynamics as well as machine learning. In particular, I am interested in developing models and software for constructing accurate and efficient machine learning interatomic potentials. I have been awarded the National Natural Science Foundation for Excellent Young Scientists, the 'Hundred Talents Program' by the Chinese Academy of Sciences, and the Chinese Academy of Sciences Pilot Project.

Research

- Develop machine learning potentials for atomistic simulations
- Develop advanced sampling techniques
- Machine learning structure-property relationship to accelerate the materials design

What You Can Expect in the Project

The student will participate in the development of training structure sampling methods to efficiently construct accurate machine learning potentials for high-entropy alloys, which will be utilized for molecular dynamics simulations. A specific high-entropy alloy will be chosen as the target system. The developed machine learning potential will help to investigate the effects of chemical and structural disorders on the properties. Findings will be consolidated and potentially form the basis of a publishable scientific paper.

Number of Participants

1

Xing Zhang, Professor

University of Science and Technology of China

Lab Name:

Laboratory For Biomedical and Bionic Matetrials
Institute of Metal Research, Shenyang Campus

Homepage: http://english.imr.cas.cn/

Email: xingzhang@imr.ac.cn

Biography

Dr. Xing Zhang is a Professor at Institute of Metal Research, Chinese Academy of Sciences. He obtained his undergraduate degree in Materials Science and Engineering from the University of Science and Technology of China in China, and Ph.D. in Materials Science and Engineering from the University of California, San Diego in USA. Dr. Zhang has published over 60 peer-reviewed journal articles. Dr. Zhang is a member of Tissue Engineering and Regenerative Medicine International Society, Chinese Materials Research Society, Chinese Society For Biomaterials, and Society For Biomaterials (USA). He also serves as editorial board member for multiple journals.

Research

Artificial bone materials; Polymeric heart valve; Additive manufacture

What You Can Expect in the Project

The applicants will carry out research on high-strength and high-toughness biomimetic materials. Biomimetic valve leaflets will be prepared by layer-by-layer assembly of the hydrogels, which will be used for heart valve tissue engineering.

Hierarchical assembly of ion clusters and protein fibers will be performed to obtain biomimetic composite materials with high strength, high toughness and good biological functions, which likely provide an effective solution for the repair of large bone defects under load-bearing conditions.

Number of Participants

1-2

Yitao Dai, Professor

University of Science and Technology of China

Lab Name:

E_x-nanocatalysis Lab (E_xNano-Lab)
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage:

https://faculty.ustc.edu.cn/daiyitao/en/index.htm

Email: yitaodai@ustc.edu.cn

Biography

Yi-Tao Dai received his Ph.D. of nanoscience in 2018 from Aarhus University in Denmark. Later, he worked as a Post-doc. (Alexander von Humboldt Fellow) at MPI-KOFO, Germany. From 2021 till now, he has joined USTC as a PI. His research focuses on nanocatalysis and biocatalysis, involving stable isotopes synthesis. He has published >30 papers (e.g., Nat. Commun., J. Am. Chem. Soc., Angew. Chem. Int. Ed., and Appl. Catal., B) with an H-index of 24. He is awarded as Nanoscale 2023 Emerging Investigator. He has been invited as a Youth Editor in The Innovation and Chinese Chemical Letters journals.

Research

Nanocatalysis or biocatalysis for chemical and material synthesis: (1) Green Organic Synthesis; (2) Isotope Synthesis; (3) Novel Vesicles Systems

What You Can Expect in the Project

The projects will be carried out at the ExNano-Lab in collaboration with internal/international groups. The research aims at developing novel and efficient nanocatalytic or biocatalytic systems to produce stable isotope chemicals. Several instruments/tools (e.g., photoreactors, surface acoustic-wave reactors, microbial culture setups, genome editing, PCR, HPLC, GC, in-situ MS, UV-Vis, IR) can be accessed. Fundamental understanding of catalysis, synthetic biology and isotope synthesis can be gained.

Number of Participants

2-3

Desired skill and background

Basic knowledge of chemistry or nanomaterials or molecular biology

Zhicheng Zhong, Professor

University of Science and Technology of China

Lab Name:

Artifacial Intellegence for Materials Science (AI4MS)
Suzhou Institute for Advanced Research, Suzhou Campus

Homepage: https://ai4s.work/

Email: zczhong@ustc.edu.cn

Biography

Professor Zhong Zhicheng completed his undergraduate studies at the Shanghai Jiao Tong University Youth Class, earned his master's degree at Peking University, and received his PhD from the University of Twente, Netherlands. In 2017, he was recruited through the Overseas High-Level Talent Introduction Program and joined the Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences, as a researcher. Since 2024, he has served as a tenured professor at the School of Artificial Intelligence and Data Science, University of Science and Technology of China. With a long-standing focus on theoretical calculations of material surfaces and interfaces, he has collaborated with international experimental teams, successfully explaining numerous anomalous phenomena and validating theoretical predictions. In recent years, he has been pioneering the integration of artificial intelligence with materials science, establishing a new paradigm for AI-driven materials research. He has published over 110 papers, including in Science, Nature Physics/Mater./Catal./Comm., with 8 papers cited more than 100 times and 2 papers cited over 300 times.

Research

AI for Materials Science

What You Can Expect in the Project

Crystal Structure Generation Model Using Machine Learning

This project applies machine learning to generate crystal structures that meet stability and performance needs, leveraging graph neural networks (e.g., NequIP) to capture interatomic interactions, ensuring physical consistency and chemical rationality. Students will learn research skills by studying crystal generation theory, using public databases (e.g., Materials Project), and preprocessing data. They will build a knowledge graph of crystal properties, embedding priors like bond lengths and electronegativity, and develop crystal generation models optimized for physical constraints. Finally, students will map physical properties to models and test generated crystals, mastering machine learning in materials design and delivering an optimized model.

Number of Participants

3~5

Desired skill and background

- Academic background in materials science, physics, or chemistry, with a basic understanding of crystal structures and physical properties.
- Familiarity with fundamental concepts in computational materials science, such as density functional theory (DFT) and principles of crystal symmetry.
- A foundational knowledge of mathematics, particularly linear algebra, probability, statistics, and calculus, to comprehend machine learning algorithms.

Preferred Qualifications:

- A strong interest in machine learning or materials design, with a willingness to dedicate time to learning new concepts.
- Experience in high-performance computing (e.g., working in a Linux environment) or software development (e.g., implementing optimization algorithms).

Gaoshan Huang, Professor

Fudan University

Lab Name:

Nanomembrane Lab

Homepage:

https://iiinn.fudan.edu.cn/8f/27/c35379a429863/page.htm

Email: gshuang@fudan.edu.cn

Biography

Gaoshan Huang obtained his BS and PhD degrees in 2002 and 2007 respectively at Physics Department of Nanjing University (China). He had subsequently worked in Leibniz Institute for Solid State and Materials Research (IFW Dresden, Germany) as a Guest Scientist for 2 years. From 2009 to 2010, he worked in Institute of Materials Research and Engineering (IMRE, Singapore) as a Research Engineer. In 2010, he joined Fudan University, China. Currently, he is a professor of Department of Materials Science and International Institute for Intelligent Nanorobots and Nanosystems at Fudan University. So far he has authored/co-authored more than 200 peer-reviewed journal papers and 3 book chapters.

Research

Nanomaterials, micro-/nano-robotics, sensing materials, opto-electronics

What You Can Expect in the Project

The student recruited in the project will firstly fabricate a unique MOF film via an atomic layer deposition-assisted approach on flexible substrate. Then sensing device will be produced on the basis of this MOF film to detect bio-molecules, motion, etc. With the help of machine learning in data analyses, precise recognition of the signal and meanwhile differentiation of multiple stimuli will be achieved to realize a multi-functional bio-sensor for real-time health monitoring. The student will involve in all the steps including synthesis and characterization of material, device fabrication, and data analysis.

Number of Participants

2 participants

Guangzheng Zuo, Professor

Fudan University

Lab Name:

Optical-Thermal-Electrical Laboratory

Homepage:

https://www.x-mol.com/groups/OTE_Zuo?lang=en

Email: gzzuo@fudan.edu.cn

Biography

Prof. Guangzheng Zuo is a Research Professor at Fudan University. He earned his Ph.D. in Applied Physics from Linköping University, Sweden. From 2019 to 2021, he was an Alexander von Humboldt Fellow at the University of Potsdam, Germany. His research focuses on thermoelectric and optoelectronic materials, charge transport models, and Monte Carlo simulations. He has published as the first or corresponding author in prestigious journals such as Nature Materials and Advanced Functional Materials. His work has been featured by Science Daily and Phys. Org.

Research

- Organic thermoelectric materials and devices
- Charge transport in organic semiconductors

What You Can Expect in the Project

Thermoelectric technology enables the direct conversion of thermal energy into electrical energy, offering extensive application potential and representing a cutting-edge area of research in the field of new energy. Through studying this topic, one can gain insights into the latest advancements in organic thermoelectric research, learn the fabrication techniques and performance characterization methods for organic thermoelectric devices. Additionally, it allows for a deeper understanding of the physical mechanisms behind charge transport processes that govern device performance.

Number of Participants

2-3 people

Yongfeng Mei, Professor

Fudan University

Lab Name:

Nanomembrane Lab

Homepage:

https://iiinn.fudan.edu.cn/8f/3f/c35379a429887/page.htm

Email: yfm@fudan.edu.cn

Biography

Yongfeng Mei received his B.S. and M.S. degree form Nanjing University, and Ph.D. degree from the City University of Hong Kong. Following the post-doctoral position at the Max Planck Institute for Solid State Research, as well as group leader and staff scientist at the Leibniz Institute for Solid State and Materials Research Dresden, he joined the Department of Materials Science of Fudan University as a professor in materials physics, and currently serves as deputy department head. He has an affiliate appointment in the International Institute of Intelligent Nanorobots (Executive Director) and Nanosystems and the Yiwu Reserch Institute of Fudan University. He has published >300 peer-reviewed journal papers with >15000 citations. He also serves Associate Editor of Applied Physics Letters and Editorial Advisory Board of Chemistry of Materials and International Journal of Extreme Manufacturing and etc.

Research

Thin film materials, micro-photonics, micro-/nano-robotics, smart materials

What You Can Expect in the Project

In this project, the student will prepare three-dimensional tubular optical microcavity and corresponding composite structures by engaging a unique nanomembrane origami technology. The photon control within the three-dimensional tubular structure will be studied both experimentally and theoretically. Precise photon control in important optical components like single-mode light emission device, photodetectors at communication bands, three-dimensional vertical optical waveguide coupler, etc. will be studied and corresponding high-performance on-chip devices will be achieved. The project provides a novel idea for 3D integration of photonic chip integration, and therefore has great potentials in the field of photonic IC.

Number of Participants

2 participants

Binbin Zhang, Professor

Nanjing University

Lab Name:

NJU GRID Lab

Homepage:

https://astronomy.nju.edu.cn/EN/People/Professors/20200707/i113754.html

Email: bbzhang@nju.edu.cn

Biography

Ph.D. in Astronomy from the University of Nevada, Las Vegas. Research focuses on high-energy astrophysics, especially Gamma-ray Bursts. With over 150 publications in top journals like Nature and Science, Prof. Zhang's work has over 13,000 citations and an H-index of 52.

Research

High-Energy Astrophysics, Gamma-Ray Bursts

What You Can Expect in the Project

Students will learn detection principles high-energy astrophysics telescopes, and GRB data analysis through lectures and ground GRB simulation lab experiments. They will develop hands-on data skills, explore GRB science, and conduct research projects, culminating in discussions and presentations.

Number of Participants

2-6 students.

Cheng Gu, Ph. D.

Changjiang Scholar Distinguished Professor

Nanjing University

Lab Name:

Environmental Interface Chemistry Research Lab

Homepage:

https://hjxy.nju.edu.cn/English/Faculty/FulltimeTeacher/DepartmentofEnvironmentalSciences/Professors/20230328/i240945.html

Email: chenggu@nju.edu.cn

Biography

Prof. Cheng Gu is a University Distinguished Professor. He obtained his B.Sc. and M.Sc. from Nankai University and Ph.D from University of Wisconsin-Madison. He is the recipient of Changjiang Scholar (Ministry of Education), National Science Fund for Excellent Young Scholars, etc.. He is also the Chief Scientist for National Key Research and Development Plans. Currently, he has published over 160 papers in high impact journals and was issued 18 national and international patents.

Research

- Surface catalysed transformation of organic contaminants in natural environment
- Development of nanomaterials for environmental remediation
- Surface characterization and reactions on microplastics

What You Can Expect in the Project

Our lab welcomes motivated undergraduate students, who are eager to explore the underlying mechanisms of contaminants on the surface of different environmental compartments, and develop advanced techniques to remove the pollutants. In my lab, you will have hands-on experience on sophisticated instruments and learn the latest knowledge, such as AI application in environmental research.

Number of Participants

3~5

Chunmei Ma, Professor

Nanjing University

Lab Name:

Lab of Paleoecology and Environmental archaeology

Homepage:

https://www.researchgate.net/profile/Chunmei-Ma-2

Email: chunmeima@nju.edu.cn

Biography

After graduating with a PhD from Nanjing University in 2006, Dr. Ma stayed on as a teacher. Previously served as a visiting scholar at Louisiana State University in the United States, the Alfred Wagner Institute at the Helmholtz Center for Polar and Oceanic Studies in Germany, and the University of Hull in the United Kingdom. She is the theme editor of Anthropocene currently, serving as a member of Paleo-DCN, president of Nanjing University Women's Geoscience Federation, member of the Ecological System Evolution Committee of the Chinese Quaternary Research Association, member of the Environmental Change and Environmental Archaeology Committee of the Chinese Geographical Society, and member of the Biogeography Professional Committee. Hosted 3 sub projects of the National Key Projects, 1 major social science project, and 5 National Natural Science Foundation Projects. Already Published over 100 academic papers in journals in Geophysical Research Letters, Journal of Geophysical Research: Atmospheres、Quaternary Science Reviews、Climate Dynamics、Palaeogeography, Palaeoclimatology, Palaeoecology etc.

Research

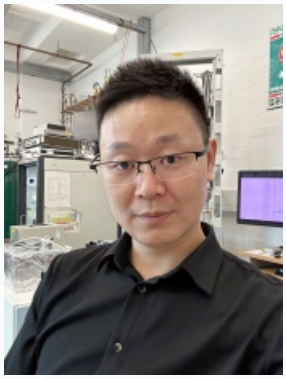
1. Climate and environmental changes since the late Quaternary
2. Environmental archaeology of Neolithic age

What You Can Expect in the Project

1. Through field research and geological sample experiments, we aim to understand the natural geography, climate environment, and ecological changes in the lower reaches of the Yangtze River over the past 10000 years, and explore the response mechanisms of this region to global climate and sea surface changes.
2. Through the investigation and stratigraphic research of typical Neolithic sites, you can explore the response characteristics of cultural development and transformation stages to important climate periods, extreme climate events, and sea surface changes.
3. Participating in research group meetings for communication and field/experimental work, as well as bringing samples for relevant experiments and establishing scientific research cooperation between the two universities.

Number of Participants

1-2



Geliang Yu, Professor

Nanjing University

Lab Name:

Graphene and sensors

Homepage:

https://physics.nju.edu.cn/szdw/qbmd/20240321/i262030.html

Email: yugeliang@nju.edu.cn

Biography

Professor Geliang Yu holds a PhD from the University of Manchester in the UK. His main research interests include graphene and other two-dimensional materials, and the development of new sensors. He has mand world-class discoveries in the research of new systems such as tunnel electronic devices, quantum capacitors, quantum dots, and Hall sensors. He has published articles in famous journals such as Nature Physics, Science and so on. he is also a member the American Physical Society (APS).

Research

New materials, functional sensors

What You Can Expect in the Project

We will try to discover/build new materials, and try to make novel nanostructures based on them, and to study their physical properties.

Number of Participants

3

Hongyan Zhang, PhD, Senior
Changjiang Scholar Distinguished Professor

Nanjing University

Lab Name:

Laboratory of AMS Dating and the Environment, Nanjing University (NJU-AMS)

Email: hongyan@nju.edu.cn

Biography

Dr. Hongyan Zhang is a senior Engineer at the School of Geography and Ocean Science, Nanjing University, and Director of the AMS Dating and Environmental Laboratory as well as the IRMS Stable Isotope Analysis Laboratory. As the leader, she successfully established the AMS and IRMS laboratories in the past several years. By implementing standardized laboratory processes and enhancing experimental techniques, these two labs have achieved internationally recognized high-precision and -accuracy in measurements. She is currently leading a subproject of major research plan of the National Social Science Fund and General Program of National Natural Science Foundation, while also actively contributing as a key member to several other National Natural Science Fund initiatives. Additionally, she has published over 40 papers related to stable isotope and radiocarbon dating techniques and Quaternary environment reconstruction.

Research

Accelerator Mass Spectrometry, Radiocarbon dating, paleoclimate isotopic studies, Quaternary climate change and chronologies, paleoenvironment and human living habitat reconstruction.

What You Can Expect in the Project

Students will receive comprehensive research training in field sampling and laboratory analysis within the Earth Science discipline throughout the experimental process. They will gradually develop essential laboratory research skills through hands-on experiments. Additionally, the laboratory offers training in data analysis, equipping students to effectively handle and interpret large volumes of complex data in their research. This training also aims to enhance their abilities in research reporting and communication.

Number of Participants

2-4

Huilin Chen, Professor

Nanjing University

Lab Name:

Atmospheric Greenhouse Gas Research Lab

Homepage:

https://as.nju.edu.cn/as_en/50/3f/c20738a544831/page.htm

Email: Huilin.Chen@nju.edu.cn

Biography

Prof. Huilin Chen is the PI of the National Key Research and Development Project of China “Evaluation of Methane Emissions estimates using Satellite and surface monitoring - methods and standards research (EMES)”, and has published more than 60 SCI papers, with more than 2000 WOS citations.

Research

- Atmospheric measurements of greenhouse gases
- Understanding gross carbon fluxes of terrestrial ecosystems
- Quantification of greenhouse gas emissions

What You Can Expect in the Project

The students are expected to participate in the atmospheric measurements of CO2, CH4, and N2O using a mobile van and an unmanned ariel vehicle (UAV), to analyze the collected data sets using atmospheric modeling, and compare the results with inventory estimates of CH4 and N2O.

Number of Participants

10

Huiling Yuan, Professor

Nanjing University

Lab Name:

Key Laboratory of Mesoscale Severe Weather/ Ministry of Education

Homepage:

https://as.nju.edu.cn/as_en/00/e6/c20738a327910/page.htm

Email: yuanhl@nju.edu.cn

Biography

Distinguished Professor, Ministry of Education of P.R. China (2021), Professor, School of Atmospheric Sciences, Nanjing University (2010-),

Research Scientist, NOAA/Earth System Research Laboratory (ESRL) (2006-2010),

Ph.D. in Civil Engineering, University of California, Irvine, USA (2005)

Research

Numerical modeling and severe weather forecasting, Machine learning/data science for Atmospheric Sciences, Hydrometeorology and land-atmosphere interactions

What You Can Expect in the Project

Conduct the project related to machine learning/data science for Atmospheric Sciences, Hydrometeorology, or Earth Science.

Number of Participants

1-2 students

Hong Yan, Dr. Professor

Nanjing University

Lab Name:

Yan Group

Homepage:

https://hysz.nju.edu.cn/yanhong/27826/list.htm

Email: hyan1965@nju.edu.cn

Biography

Prof. Yan Hong is a distinguished professor at Nanjing University, recognized for her influential contributions to organometallic chemistry, organic chemistry, and organic luminescent materials. After earning her doctorate from Nanjing University, she pursued postdoctoral research in Switzerland and Germany, followed by a research associate role in the United States. In 2005, she joined Nanjing University, where she advanced to significant leadership roles. She was awarded China's prestigious National Science Fund for Distinguished Young Scholars in 2009 and elected as a foreign member of the Russian Academy of Natural Sciences in 2015. Yan has published over 150 research papers.

Research

1) Organometallic synthesis and catalysis
2) Bioorganometallic chemistry
3) Synthesis of luminescent organic and organometallic compounds

What You Can Expect in the Project

1) The functionalization of carboranes via cage B–H activation
2) The design and synthesis of high efficient luminogens.

Number of Participants

2-3

Jun Luo, Professor

Nanjing University

Lab Name:

Pollutants biogeochemistry and environmental remediation

Homepage:

https://hjxy.nju.edu.cn/English/Faculty/FulltimeTeacher/DepartmentofEnvironmentalSciences/Professors/20230404/i241929.html

Email: esluojun@nju.edu.cn

Biography

Prof. Jun Luo focuses on the novel development and application of the diffusive gradients in thin-films technique:

- Application of multiple in-situ techniques (high-resolution DGT, planar optodes, and soil zymography) for investigating pollutant speciation and bioavailability in waters, soils, and sediments.
- Published over 100 papers in peer reviewed journals with >3680 citations in recent years with an h-index of 36.
- Associate Editor of the “Frontiers in Environmental Chemistry”.

Research

- Developing and applying novel in situ sensing technologies (e.g. DGT and planar optodes, etc.) for environmental regulatory monitoring of metals, nutrients, and organics in water/soil/sediment.
- Understanding the biogeochemical behavior of pollutants in micro-heterogeneous environments.
- New methods for environmental pollution remediation and the application of DGT techniques in the environmental risk assessment.

What You Can Expect in the Project

- Development and application of the DGT for measuring organics in water, soil and sediments.
- Combining multiple high-resolution in situ techniques to understand the speciation transformation and mechanisms of arsenic in rice rhizosphere during field fertilization.
- Specific work may include DGT preparation and performance test, rhizotron setup, deployment of DGT and planar optodes, sample analysis.

Number of Participants

2 PhD and 2 MSc students

Lili Lei, Professor

Nanjing University

Lab Name:

Key Laboratory of Mesoscale Severe Weather

Homepage:

https://as.nju.edu.cn/54/52/c11339a218194/page.htm

Email: lililei@nju.edu.cn

Biography

Prof. Lili Lei received her PhD in Meteorology from Penn State, then awarded the Advanced Study Program Postdocs, and joined Nanjing University in 2016. She has published more than 40 papers, and currently serves as member of WMO/WWRP/Data Assimilation and Observing Systems, editor of Adv. Atmos. Sci. and Sci. China, associate editor of J. Adv. Model Earth Sys. and Mon. Wea. Rev. She received the Kamide Lecture of AOGS, Editor's Award of ASL.

Research

- Data assimilation and deep learning
- Numerical weather prediction and predictability

What You Can Expect in the Project

The students are expected to participate in the ensemble data assimilation and prediction for typhoons, and reanalysis for last Millennium using data assimilation and deep learning.

Number of Participants

1–2 student(s)

Long Yang, Professor

Nanjing University

Lab Name:

Water Lab

Homepage:

https://scholar.google.com.hk/citations?user=P2gn7G4AAAAJ&hl=en

Email: yanglong@nju.edu.cn

Biography

Professor (2019-present), School of Geography and Ocean Science, Nanjing University, China P.R.

Research scholar (2011-2012, 2015-2019), Department of Civil and Environmental Engineering, Princeton University, USA

Research scholar (2014-2015), Department of Earth, Atmospheric, and Planetary Sciences, Purdue University, USA

Ph.D. student (2009-2014), Department of Hydraulic Engineering, Tsinghua University, China P.R.

Research

The goal of my research is to leverage societal resilience to extreme rainfall and floods through improved understandings of flood hydrology, urban hydrometeorology, and hydroclimatology under a changing environment.

What You Can Expect in the Project

Field trip to northern China that witnessed most extreme floods;

conduct flood modeling through state-of-art physical process-based model chains (atmospheric/hydrological/hydraulic models) and/or machine learning techniques.

Number of Participants

1-2 student(s)

Qian Yu, Associate Professor

Nanjing University

Lab Name:

School of Geography and Ocean Science

Homepage:

https://sgos.nju.edu.cn/yq/list.htm
https://www.researchgate.net/profile/Qian_Yu7

Email: qianyu.nju@gmail.com

Biography

Qian Yu earned his Ph.D. from the University of Bremen, Germany, and completed his postdoctoral research at Delft University of Technology, Netherlands. He is the sole author of the textbook Principles of Marine Sediment Dynamics and has published 31 SCI papers as the first or corresponding author. He currently serves as the editor-in-chief of the international journal Geo-Marine Letters.

Research

Marine Sediment Dynamics, Coastal Morphodynamics

What You Can Expect in the Project

Focus: Erosion processes of muddy coasts in Jiangsu, China.

Methods: Field observations (UAV, RTK GPS, hydrodynamic instruments, etc.), data analysis.

Profile: Passionate about fieldwork, physically fit and enthusiastic, with basic knowledge of data processing and oceanography.

Number of Participants

1 or 2

Rong Hu, Associate Professor

Nanjing University

Lab Name:
NJU MarGeoChem Group

Homepage:
https://sgos.nju.edu.cn/hr1/list.htm

Email: ronghu@nju.edu.cn

Biography

Prof. Hu received her PhD in Earth Sciences from University of Cambridge, and joined Nanjing University in 2017. Her research primarily focuses on the use of geochemical tools and carbonates (e.g., foraminifera) to investigate ocean circulation and marine carbon cycling on various timescales over the Cenozoic. As the first or corresponding author, she has published papers in prestigious journals such as Nature Communications, Earth and Planetary Science Letters, and Geophysical Research Letters.

Research

Paleoceanography and Paleoclimate

What You Can Expect in the Project

Investigate the oceanic carbon cycle responses to the intensification of Northern Hemisphere Glaciation. Lab training from sieving the sediments, picking, identifying and cleaning foraminifera species to perform elemental analysis on a mass spectrometer.

Number of Participants

1-2 student(s)

Rong Ji, Professor

Nanjing University

Lab Name:

Environmental Process and Global Change Lab

Homepage:

https://hjxy.nju.edu.cn/szdw/hjkxx/js/20210604/i201751.html

Email: ji@nju.edu.cn

Biography

Deputy Director of National Engineering Research Centre for Organic Pollution Control and Resource Reuse; Professor of environmental science, Chemistry in training with Ph.D. in microbial ecology (Konstanz University, Germany). Our team have published > 100 papers on high impact scientific journals, e.g., Nature Nanotechnol., Nature Geosci., Nature Commun., Environ. Sci. Technol., Water Res., Soil Biol. Biochem. More than 40 projects have been granted, including international projects supported by EU FP7 and H2020 projects, as well as Sino-German, Sino-Swiss, Sino-British, Sino-U.S., Sino-Finnish and Sino-Czech international cooperation projects.

Research

1) Environmental fate of organic pollutants and the formation mechanism of non-extractable residues;
2) Environmental behavior, bioaccumulation and toxicity of engineered nanomaterials and micro-nano plastics;
3) Impact of rising atmospheric CO2 concentration on the behavior and effects of pollutants in the Earth's Critical Zone;
4) Biological and chemical remediation of contaminated soil and waters.

What You Can Expect in the Project

1) Fate and distribution of organic pollutants in complex environmental matrices (e.g. soil, sediments, activated sludge, wastewaters, constructed wetlands): mineralization, metabolites, and residues by means of isotope labeled technique.
2) Analysis of non-extractable residues (bound residues) of organic pollutants in environmental matrices (soil, sediment, sludge) and in organisms (plants, animals): formation mechanisms, bioavailability, and stability.
3) (Bio)Remediation of soil and ground water (contaminated with organic and heavy metals) using animals, plants, and microorganisms.

Number of Participants

2

Sandro F. Veiga, Assistant Professor

Nanjing University

Lab Name:

Nanjing-Helsinki Institute in Atmospheric and Earth System Sciences

Homepage:

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Biography

Assistant Professor, Nanjing-Helsinki Institute in Atmospheric and Earth System Sciences, Nanjing University, China (2024 – present).

Research Scientist, School of Atmospheric Sciences, Nanjing University, China (2020 – 2024).

Postdoctoral Research Scientist, National Institute for Space Research (INPE), Brazil (2018 – 2020).

Ph.D. in Earth System Science, National Institute for Space Research (INPE), Brazil (2018).

Research

Regional Hydroclimatic Changes under Global Warming

Tropical Climate Variability and its Regional Impacts

What You Can Expect in the Project

The students are expected to conduct work using datasets from climate models (e.g., CMIP6 models) to study the impact of climate change (past changes and future scenarios).

Number of Participants

1-2 students

Shaolin Zhu, Professor

Nanjing University

Lab Name:
Shaolin Zhu Lab

Homepage:
https://chem.nju.edu.cn/zsl_en/list.htm

Email: shaolinzhu@nju.edu.cn

Biography

Shaolin Zhu obtained his B.S. degree from Nanjing University in 2005 and his Ph.D. degree from the Shanghai Institute of Organic Chemistry under the guidance of Prof. Dawei Ma in 2010. After that, he began his first postdoctoral study with Prof. David W. C. MacMillan at Princeton University (2010–2013). Then he moved to MIT, working with Prof. Stephen L. Buchwald (2013–2015). In late 2015, he started his independent research career at Nanjing University as a full professor. Currently his research focuses on organic synthesis and asymmetric catalysis.

Research

Asymmetric catalysis and organic synthesis.

What You Can Expect in the Project

Selective functionalization of ubiquitous C–H bonds based on earth-abundant 1, n-metal migration provides an attractive and sustainable route to access complex molecules from readily available precursors. In these processes, the design of ligands to promote both migration and the subsequent selective coupling is challenging, especially in asymmetric transformations. Our migratory functionalization platform based on ligand relay catalysis would allow access to a variety of useful synthons from available precursors.

Number of Participants

3-6

Yuanyuan Wang, Professor

Nanjing University

Lab Name:

Surface Engineering and 2D/3D Assembling of Nanocrystal and Nanoclusters

Homepage:

https://www.x-mol.com/groups/yywang

Email: wangyy@nju.edu.cn

Biography

Dr. Yuanyuan Wang is a full professor at the School of Chemistry and Chemical Engineering at Nanjing University. He completed both his bachelor's and master's degrees at Nanjing University and earned his doctorate from Washington University in St. Louis. He then continued his research as a research fellow at the University of Chicago. To date, Dr. Wang has published over 30 research papers in prestigious journals such as Science, Nat. Commun., J. Am. Chem. Soc., Angew. Chem. Int. Ed. and etc. His team's development of a photoresist-free lithography process, DOLFIN, is expected to become a key technology for high-resolution QLED manufacturing.

Research

1. Design of functional nanomaterials;
2. Development of DOLFIN techniques;
3. Construction of quantum dot displays

What You Can Expect in the Project

This project will begin with ligand design to propose a novel approach for the controlled synthesis of luminescent two-dimensional nanocrystals. Building on this, we will develop a photoresist-free lithography technique for printing nanocrystal arrays in industrially compatible solvents. Ultimately, the project aims to establish a comprehensive micro/nano-fabrication platform that integrates photosensitive inks, efficient patterning technologies, and micro/nano-device design.

Number of Participants

1-2 Student(s)

Zhiwei Xu, Professor

Nanjing University

Lab Name:

Dryland Environmental Change Lab

Homepage:

https://www.researchgate.net/profile/Zhiwei-Xu-5

Email: zhiweixu@nju.edu.cn

Biography

Xu holds the position of Professor at the School of Geography and Ocean Science, Nanjing University. With over a decade of experience and through active collaborations with experts from various disciplines, he possesses extensive knowledge of landscape dynamics and environmental processes within the arid regions of northern China, especially concerning their responses to past and recent climate change, as well as human activities. He has taken the lead on four projects supported by the National Natural Science Foundation of China and also engaged in several international projects, collaborating with researchers from USA, Israel, the Netherlands, and other countries. Dr. Xu's research findings are well-documented, with >50 papers published in international peer-reviewed journals.

Research

Earth surface dynamics and global environmental changes, with a particular emphasis on arid regions.

What You Can Expect in the Project

Field training opportunity in the deserts and dune fields of northern China, and the famous Chinese Loess Plateau;

Big-data analysis skills (remote sensing, climate models, drone images, etc.);

Laboratory experiment skills (soil and sediment analysis, geochemical analysis, dating, etc.)

Number of Participants

3

Social Science

Xia Fang, Hundred Talents Researcher

Zhejiang University

Lab Name:

Emotion and Culture Lab

Homepage:

https://person.zju.edu.cn/en/xfang

Email: x.fang@zju.edu.cn

Biography

Xia Fang's primary research interests revolve around the keywords of emotion and culture. She focuses on how individuals express and perceive emotions through bodily signals, such as facial expressions, as well as artistic forms like music. Additionally, she investigates how culture influences these processes of emotion communication. Xia Fang serves as an editorial board member for the Journal of Cultural Cognitive Science and is a certified expert in Facial Action Coding System (FACS). She has published as a first author or corresponding author in prestigious journals such as PNAS, Emotion, and the Journal of Experimental Social Psychology.

Research

Xia Fang's main line of research are in the fields of emotion science and cross-cultural psychology. She explores how individuals communicate emotion through various channels, including bodily signals (such as facial expressions, vocalizations, and body movements) as well as artistic forms (such as music, film, and painting). Additionally, she investigates how culture (specifically East Asian and North American/Western European cultures) influences the processes of emotion communication through these channels.

What You Can Expect in the Project

During your internship, you will primarily be involved in a cross-cultural study of emotions. You will participate in the preparation of experimental materials and procedures, data collection and analysis, and ultimately contribute to the writing of a research paper. Throughout this process, you will have the opportunity to learn firsthand about the practices of open science, cross-cultural communication and collaboration, as well as receive guidance on data analysis and scientific paper writing.

Number of Participants

2

Pan Ji, Professor

Fudan University

Lab Name:
Center for Information and Comm Studies

Homepage:
https://faculty.fudan.edu.cn/panji/zh_CN/index.htm

Email: panji@fudan.edu.cn

Biography

Dr. Pan Ji, PHD from the University of South Carolina, Columbia. Working experience in the new media research cluster of NTU. Singapore. Currently, he is a full Professor at Journalism School and associate director at the Center for Information and Communication Studies in Fudan University. His major research interests include social capital, urban communication and the uses of new media.

Research

social capital, urban communication and the uses/effect of new media in China

What You Can Expect in the Project

1. Brainstorming with focus on urban communication issues contextualized in Shanghai;
2. Discussion and literature reading sessions;
3. Collaborative design of research project
4. Timely feedback and discussion for research plan revisions
5. Field work to implement research
6. Mock research presentations and seminar with invited discussants.

Number of Participants

2-5

Liangren Zhang, Assistant Professor

Nanjing University

Lab Name:

Liangren Lab

Homepage:

https://history.nju.edu.cn/zlr/main.htm

Email: zhlr@nju.edu.cn

Biography

Archaeologist, with research focus on Bronze Age archaeology in Northwest China, Russia, and Iran. Prior to the outbreak of Covid-19 pandemic, he had directed a field project in Iran and Russia especially. Together with graduate students, he is exploring a number of frontier fields, including ceramics, economic archaeology, early use of soil, archaeology of food. He is currently running a major project "Ancient Ceramic Exchanges between China and West Asia: Trade, Imitation and Innovation", funded by the National Foundation for Social Sciences. He has published more than 50 papers in domestic and foreign journals, a monograph "Ancient Metallurgy and Society" and an anthology 东学西问 (Learn the East, Ask the East).

Research

Archaeology of Northwest China

Archaeology of Iran and Russia

Ceramics of China and West Asia

Early use of soil

What You Can Expect in the Project

Participation in archaeological excavation

Participation in ceramic research

Participation in study of the early use of soil

Number of Participants

2 students