GLOBAL RESEARCH IMMERSION PROGRAM FOR YOUNG SCIENTISTS (GRIPS)

To Join 4 Top Chinese Universities in Yangtze River Delta

June – August 2024

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 undergraduate journey with GripS in summer 2024 – where discovery meets destination.

Program Date	June – August 2024
Research Language	English
Application Deadline	17 March 2024

PROGRAM HIGHLIGHTS

- Research experience with high-caliber professors and researchers
- Waived tuition and registration fees
- Scholarship for excellent students
- Free access to campus facilities
- Certificate of Participation and Performance Evaluation
- International students who apply for degree programs in the future will be given priority for winning a sponsorship

ELIGIBILITY REQUIREMENTS

Undergraduates who are registered full-time at their home university;

Have completed at least two years of undergraduate 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;

English Proficiency of TOEFL iBT 85, IELTS (Ac) 6.0 or above, for non-native English speakers.

APPLICATION MATERIALS

Online application form

Official transcript

Resume

Statement of purpose

One recommendation letter

Other supporting materials

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 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	PI Name	Duration
Fudan University	Intelligent Software Engineering and System Lab	Xin Peng	4 Weeks
	DataNET Group	Yang Chen	4 Weeks
	Intelligent Electronics and Systems Laboratory	Zhuo Zou	4 Weeks
University of Science and Technology of China	Thermal Transport and Energy and Conversion Lab	Hao Ma	8 Weeks
	Soft Transducers and Intelligent Systems Lab	Hongbo Wang	8 Weeks
	LINKE - Lab for Intelligent Networking and Knowledge Engineering	Jiahui Hou	8 Weeks
	Lab of Soft Robotics	Liu Wang	8 Weeks
	Algorithms and Theory for Big Data and Graphs (AntBag)	Pan Peng	8 Weeks
	LINKE - Lab for Intelligent Networking and Knowledge Engineering	Qi Song	8 Weeks
	High Energy Density Fluid Physics Lab	Rui Yan	8 Weeks
	School of Computer Science and Technology	Shuai Shao	8 Weeks
	Robotics and Intelligent Equipment Lab	Shuaishuai Sun	8 Weeks
	Edge Computing Group	Xiaohua Xu	8 Weeks
	Randomized Algorithms Lab	Xue Chen	8 Weeks

University	Lab	PI Name	Duration
Zhejiang University	Institute of Smart Sensors and micro/nano Systems, Bioelectronics Research Center	Jikui Luo	8 Weeks
	Networked Sensing and Control (NeSC)	Jiming Chen	8 Weeks
	Power Electronic Devices Laboratory	Kuang Sheng	8 Weeks
	Lab Name: National Key Laboratory of Blockchain and Data Security	Kui Ren	8 Weeks
	Intelligent materials and processing Lab	Peng Zhao	8 Weeks
	Intelligent Robotics Laboratory	Rong Xiong	8 Weeks

❖ Interdisciplinary Science

University	Lab	PI Name	Duration
Fudan University	Neural Engineering Centre	Shouyan Wang	4 Weeks
Zhejiang University	GuLab	Baojing Gu	8 Weeks
	Smart Urban Future Lab	Der-Horng Lee	8 Weeks
	Environmental Biotechnology Lab	Heping Zhao	8 Weeks
	Soft Matter and Robotics	Tiefeng Li	8 Weeks
	3D Bioprinting Lab	Yong He	8 Weeks

❖ Life Science and Medicine

University	Lab	PI Name	Duration
Nanjing University	Computational Biology Group	Dijun Chen	6 Weeks
	Lab of Bioinformatics and RNA Genomics	Jiayu Chen	4 Weeks
	M3 Lab	Zhen Zhou	6 Weeks
Zhejiang University	Advanced MRI Technology	Dan Wu	8 Weeks
	Perioperative and Systems Medicine	Daqing Ma	8 Weeks
	Chan Lab	Francis Kaming Chan	8 Weeks
	Xu Lab	Haoxin Xu	8 Weeks
	Imedication Lab	Zhen Gu	8 Weeks

❖ Natural Science

University	Lab	PI Name	Duration
Fudan University	Laboratory of Advanced Materials, Department of Chemistry	Dongyuan Zhao	4 Weeks
	Institute of Atmospheric Sciences	Mu Mu	4 Weeks
	Mesoenergy Lab	Wei Li	4 Weeks
	Research Institute of Intelligent Complex Systems	Wei Lin	4 Weeks
	Zhang & Ruan Lab	Wei Ruan	4 Weeks
	Zhang & Ruan Lab	Yuanbo Zhang	4 Weeks

University	Lab	PI Name	Duration
Nanjing University	Environmental Interface Chemistry Research Lab	Cheng Gu	4 Weeks
	Atmospheric Greenhouse Gas Research Lab	Huilin Chen	4 Weeks
	Key Laboratory of Mesoscale Severe Weather	Huiling Yuan	6 Weeks
	Pollutants biogeochemistry and environmental remediation	Jun Luo	4 Weeks
	Key Laboratory of Mesoscale Severe Weather	Lili Lei	4 Weeks
	Joint International research Laboratory of Atmospheric and Earth System Sciences	Minghuai Wang	6 Weeks
	Environmental Process and Global Change Lab	Rong Ji	8 Weeks
	Eco-Toxicology and Health Risk Research Lab	Xiaowei Zhang	8 Weeks
	Climate dynamics	Yang Zhang	4 Weeks
University of Science and Technology of China	SCAI Lab	Jingrun Chen	8 Weeks
	Graphics&Geometric Computing Laboratory (GCL)	Juyong Zhang	8 Weeks
	Graphics & Geometric Computing	Renjie Chen	8 Weeks
	School of Mathematical Sciences	Shiping Liu	8 Weeks
	Graphics&Geometric Computing Laboratory	Xiao-Ming Fu	8 Weeks
Zhejiang University	Composites (InCSI)	Huaxin Peng	8 Weeks
	Nanosilicon Lab	Wei Sun	8 Weeks
	Peng Group	Xiaogang Peng	8 Weeks

❖ Social Science

University	Lab	PI Name	Duration
Zhejiang University	Brain Inspired Education Lab	Fengji Geng	8 Weeks
	Emotion and Culture Lab	Xia Fang	8 Weeks


AI

Engineering & Technology

Xin Peng, Professor
Deputy Dean, School of CS

Fudan University

Intelligent Software Engineering and System Lab

Homepage: https://cspengxin.github.io
Email: pengxin@fudan.edu.cn

Biography:

I am a co-editor of Journal of Software: Evolution and Process and serve on the editorial boards of several reputable journals such as ACM Transactions on Software Engineering and Methodology and Empirical Software Engineering. Our work won the Best Paper Award of ICSM 2011, the ACM SIGSOFT Distinguished Paper Award of ASE 2018/2021, the IEEE TCSE Distinguished Paper Award of ICSME 2018/2019/2020, and IEEE Transactions on Software Engineering Best Paper award for 2018.

Research:

Our research focuses on three aspects: software analytics and big data analysis for software development; intelligent software development by using AI technologies such as deep learning and knowledge graph; intelligent software technologies in mobile and cloud computing, including AIOps of microservice systems and situational composition of ubiquitous services.

What You Can Expect in the Project:

Software architecture and testing techniques for smart vehicle; large language model based intelligent software development; AIOps platform for microservice systems

Requirements:

- keen interests in software engineering and system software
- good basis in programming, computing system (e.g., operating system), or AI techniques

Number of Participants:

4

Yang Chen, Associate Prof.

Fudan University

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

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Zhuo ZOU, Professor

Fudan University

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

Hao Ma, Professor

University of Science and Technology of China

Thermal Transport and Energy and Conversion Lab

Homepage:

https://faculty.ustc.edu.cn/mahao/zh_CN/index.htm

Email: mhao@ustc.edu.cn

Biography:

I am a tenure-track full professor in the Department of Thermal Science and Energy Engineering at the University of Science and Technology of China (USTC). I was a postdoc at the Oak Ridge National Laboratory (ORNL) and a member of the seven-institutions Center for Thermal Energy Transport under Irradiation. I received my Bachelor's degree in Material Physics from USTC in 2014 and my PhD degree in Mechanical Engineering from Cornell University in 2020. I have published 20+ journal papers, 18 of which are first-authored, and most are in prestigious journals including *Physics Review Letters* and *Nano Letters*. My research has been highlighted by the American Institute of Physics (AIP) Scilight, and covered by the Cornell Chronicle and Argonne Science Highlight. I have received several highly competitive awards, including the Chinese government award for outstanding self-financed students abroad in 2020 (1/500 globally). I am now serving as an early career editorial board member for four journals: *Journal of Materials Science and Technology*, *Materials Research Letters*, *Engineering Reports* and *EcoEnergy*, and as a peer reviewer for many journals.

Research:

Micro-nano heat transfer, advanced thermal management, thermoelectric energy conversion, ultrafast-laser based thermal measurement, inelastic X-ray/neutron scattering, energy nanomaterials.

What You Can Expect in the Project:

A diverse spectrum of technology drivers such as improved thermal barriers, higher efficiency thermoelectric energy conversion, phase-change memory, heat-assisted magnetic recording, thermal management of nanoscale electronics, and nanoparticles for thermal medical therapies are motivating studies of the applied physics of thermal transport at the nanoscale. Developing advanced tools to accurately measure thermal properties of nanomaterials is highly desired. In this project, you will learn to build a ultrafast-laser based thermal measurement technique named Frequency-domain Thermorelectance (FDTR), which designed for measuring thermal conductivity and heat capacity of nanoscale thin films and bulk materials. You will get hands-on training on building a laser system and learn some basic knowledge on optics and thermal properties of materials.

Desired Skill and Background:

You need to have some basic knowledge on optics, and knowing how to use software such as Matlab and LabVIEW is a strong plus.

Number of Participants:

2-4

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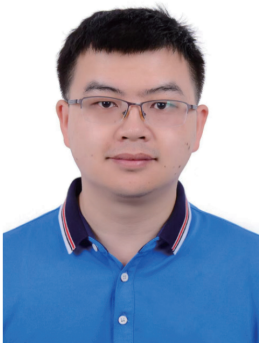


Prof. Hongbo Wang, PhD.

University of Science and Technology of China

Soft Transducers and Intelligent Systems Lab

Homepage:

http://staff.ustc.edu.cn/~whbyn/Publications-en.html

Email: wangh@ustc.edu.cn

Biography:

Hongbo Wang is a highly active researcher in sensing technologies and systems, has developed a world-class eddy-current displacement sensor (commercialized) and a few novel inductive soft sensors for wearables and soft robotics. Dr. Wang has published nearly 40 research papers in leading international journals and holds 9 innovation patents. He served as a session chair at the 2nd RoboSoft, and as guest editor for international journals. Before join USTC in 2021, he has worked at UK, and Italy for 5.5 years. He is awarded with the President's "Special Prize" of the CAS and is a grantee of the prestigious Marie Curie Individual Fellowship (MSCA-IF-2017).

Research:

- Novel Mechanism for sensors and actuators
- Multi-axis Force and Tactile Sensing
- Soft robotics perception
- Wearable and implantable sensors for healthcare

What You Can Expect in the Project:

We commit to provide individual training and cutting-edge research program for each intern student to meet his/her individual background and interests, within our research area. Here, you can learn to develop your first wearable sensor for hand gesture recognition, body posture sensing, or pulse wave monitoring, or build an intelligent soft crawling robot that can perceive the environment and dynamically change its gait for different terrains.

Candidates should have a solid background in mechatronics, electronic and/or mechanical engineering, mechanics, engineering materials, applied physics, automation or computer science.

Desired Skill and Background:

Applicants should have a background on electronic & mechanical engineering, applied physics, computer science or automation.

Desired skills: 3D CAD model, Finite Element Analysis Tools (COMSOL), PCB design, progranming (C, MALAB,or Python)

Number of Participants:

Maximum 4 internship posts

Jiahui Hou, Professor

University of Science and Technology of China

LINKE

Homepage:

https://cs.ustc.edu.cn/2022/0715/c23236a562665/page.htm

Email: jhhou@ustc.edu.cn

Biography:

Jiahui Hou is a professor of computer science at the University of Science and Technology of China. Jiahui's research interests center around Artificial Intelligence of Things, AI security, data privacy and mobile computing. Her research has been published in conjunction with several top conferences and journals, including ACM MobiCom, IEEE TIFS, TDSC, etc. She received a bachelor's in computer science from USTC in 2015 before completing a PhD (2020) in computer science at Illinois Institute of Technology, USA.

Research:

Intelligence of Things, AI security, data privacy, and mobile computing

What You Can Expect in the Project:

Smart Manufacturing: To match users to standard BOMs.

Smart Decision-making:
To quickly decide the cargo capacity of the ship.

Smart Health Care: To accurately perceive the patient's status.

Desired Skill and Background:

Motivated and reliable researcher with a background in combinatorial optimization problem or problem-solving skills. Familiar programming skills in Python, Java or C/C++, Git.

Number of Participants:

4

Liu Wang, Professor

University of Science and Technology of China

Lab of Soft Robotics

Homepage: https://faculty.ustc.edu.cn/liuwang_en

Email: wangliu05@ustc.edu.cn

Biography:

- Bachelor at USTC, PhD at UT Austin, Postdoc at MIT
- Over 50 publications e.g., Nature Machine Intelligence, Nature Biomedical Engineering, Science Advances, Advanced Materials
- Awardee of 2023 Forbes 30 under 30 (Science and Healthcare)
- Vice Director of CAS Key Lab for Nonlinear Mechanics

Research:

Soft robotics for healthcare & biomedicine

- Magnetic soft robots for minimally invasive surgery
- Soft rehabilitation glove/bionic prosthetic hand
- 3D printing of functional soft materials

What You Can Expect in the Project:

- Learn fundamentals of soft materials and soft robotics
- Fabrication of soft materials and soft robots
- Demonstration of soft robots
- 3D printing techniques

Number of Participants:

2–3

Pan Peng, Professor

University of Science and Technology of China

Algorithms and Theory for Big Data and Graphs (AntBag)

Homepage:

http://staff.ustc.edu.cn/~ppeng/

Email: ppeng@ustc.edu.cn

Biography:

Pan Peng is a faculty member in the School of Computer Science and Technology of University of Science and Technology of China (USTC). He has served as a lecturer (assistant professor) in the Department of Computer Science at University of Sheffield, UK. He has held assistant researcher position of Institute of Software, Chinese Academy of Sciences, and postdoc positions of TU Dortmund, Germany and University of Vienna, Austria. His research goal centers on advancing the theory and application of graph algorithms and big data algorithms. He has been invited to serve as program committee members of many internationally renowned conferences (such as STACS, LATIN, AAAI, IJCAI). His work has been published at top conferences, including STOC, SODA, COLT, PODS, NeurIPS, ICML etc.

Research:

The PI's research is characterized by a dynamic exploration of theoretical computer science, network science, and data science. His research interests spans a range of topics, including graph algorithms, big data algorithms (e.g. property testing, streaming algorithms), spectral graph theory, dynamic graph algorithms, graph sparsification/compression, and random graphs. Recently, he has delved into emerging fields such as differential privacy, robust algorithms and quantum algorithms.

What You Can Expect in the Project:

Students can anticipate engaging in theoretical and practical research on graph algorithms within contemporary computational models. The scope encompasses diverse areas, such as local algorithms that probe specific portions of a graph, streaming algorithms tailored for processing sequences of edge updates, and the development of algorithms characterized by reduced computational complexity. This research endeavor offers a stimulating platform for students to delve into cutting-edge topics and contribute meaningfully to the evolving landscape of theory and applications of algorithms.

Desired Skill and Background:

Have a deep passion for the Design and Analysis of Algorithms: Having passed a few advanced-level undergraduate courses, or participated in reading groups on algorithms, combinatorics, probability, and/or algebra.

Number of Participants:

2

Qi Song, Professor

University of Science and Technology of China

LINKE - Lab for Intelligent Networking and Knowledge Engineering

Homepage:

https://songqi1990.github.io/

Email: qisong09@ustc.edu.cn

Biography:

Qi is currently a professor at USTC. Before joining USTC, he was an Applied Scientist at Amazon.com. He obtained his Ph.D. from the Database Group at Washington State University. He published more than 20 research papers in top-tier conferences and journals including TKDE, SIGMOD, ICDE, ICLR with more than 2000 citations. He also served as PC member for conferences like CIKM/AAAI/ECAI, etc…

Research:

His research spans the areas of Big Data and deep learning, with emphasis on knowledge graph, knowledge-enhanced LLM, graph neural network, and multi-model learning.

What You Can Expect in the Project:

Large language models (LLMs) have shown great performance in various NLP tasks. In order to apply LLMs on domain-specific tasks, we are exploring knowledge-enhanced LLMs, where the LLM can use KG to generate accurate answers. Students are welcome to participate in some domain-specific LLM+KG-based applications, such as medical QA, industrial inference, and AI for Science.

Number of Participants:

2

Rui Yan, Professor

University of Science and Technology of China

High Energy Density Fluid Physics Lab

Homepage:

https://faculty.ustc.edu.cn/ryan/zh_CN/index.htm

Email: ruiyan@ustc.edu.cn

Biography:

PhD, University of Rochester, 2012

BS, University of Science and Technology of China, 2005

Professor Yan's research interest is generally in the area of high energy density physics (HEDP).

In particular, he is interested in exciting plasma physics topics relevant to inertial confinement fusion (ICF). He uses large-scale Paricle-in-Cell (PIC) and has been developing fluid models to help understanding different levels of physical details in these highly nonlinear areas of physics. He has published more than 40 papers on leading academic journals.

Research:

Hydrodynamic instabilities, laser plasma interactions, HEDP

What You Can Expect in the Project:

Fusion energy is expected to be a reliable future energy source for human kind. HEDP is the study of matter under extreme states of pressure roughly between 1Mbar to 1000 Gbar. At these conditions matter behaves very differently from that under Earth-like circumstances and exhibiting rich physics. HEDP helps understanding the key processes in ICF and a number of important astrophysical phenomena. You will have a tour on HEDP topics on modern fusion science, fluid dynamics, and laser-plasma physics. You will be working together with Dr. Yan's group on fluid modeling and performing simulations for hydrodynamic instabilities and/or laser plasma instabilities.

Desired Skill and Background:

Applicants with a physics or mechanics background are preferred. You are expected to have taken a series of math and physics courses in college, eg. calculus, linear algebra, complex analytics, classical mechanics, electromagnetics, and/or fluid mechanics.

Number of Participants:

1-2

Dr. Shuai Shao

University of Science and Technology of China

Homepage:

staff.ustc.edu.cn/~wwwucuc

Email: shao10@ustc.edu.cn

Biography:

Shuai is a pre-tenured professor in the School of Computer Science and Technology at USTC. He was a postdoc at Edinburgh, and a junior research fellow at Oxford. He got his Ph.D. degree from the University of Wisconsin at Madison.

Research:

Shuai's research interests lie in theoretical computer science. He is working on the complexity classification of counting/optimization problems, and their connections with quantum entanglement theory and statistical physics.

What You Can Expect in the Project:

You will work on a research problem tailored for you under my supervision.

You will discuss research ideas with me through regular meeting.

You are expected to write a research paper at the end.

Desired Skill and Background:

I am glad to work with self-motivated students with a strong background in theoretical computer science, statistical physics, quantum theory, or any field of mathematics.

Number of Participants:

1-3

S. Sun, Professor

University of Science and Technology of China

Robotics and Intelligent Equipment Lab

Homepage:

https://faculty.ustc.edu.cn/sunshuaishuai/en/

Email: sssun@ustc.edu.cn

Biography:

I received the Ph.D. degree in 2016 from University of Wollongong, N.S.W, Australia. I worked as a postdoc at University of Wollongong, Australia and as an assistant professor at Tohoku University, Japan. Currently, I am working as a professor (specially appointed) in the Department of Precision Machinery and Precision Instrumentation, University of Science and Technology of China (USTC), Hefei, China. I have published more than 130 SCI journal articles with more than 90 of them being published on JCR Q1 journals. These publications have attracted more than 3000 citations according to Google Scholar. I have been invited to serve as a guest editor or academic editor for *Smart Materials and Structures, Journal of Intelligent Materials Systems and Structures, Frontiers in Materials, Shock and Vibration.*

Research:

Intelligent mechatronics, vibration and shock mitigations, and innovative robotic technology. My overall research aim is to address the most challenging engineering problems by exploring innovative smart devices, especially in the fields of mechanical vibration control and adaptive robotics.

What You Can Expect in the Project:

Magnetorheological (MR) materials are smart materials whose mechanical properties such as viscosity and yield stress, can be significantly transformed under an external magnetic field. The transformation is characterized as great continuity, reversibility, rapidity and low energy consumption. Therefore, MR materials are gradually applied in scenarios including vehicle suspension, robot actuation joints, and high-speed rail nodes. In this project, you will learn about the basic characteristics of MR materials and intelligent devices. You will get hands-on training on investigating innovative automotive suspensions, robot actuators and other smart devices with high performance, and learn some basic knowledge about structural design and control algorithm of MR equipment.

Number of Participants:

1-2

Xiaohua Xu, Professor

University of Science and Technology of China

Edge Computing Group

Homepage:

http://staff.ustc.edu.cn/~xiaohuaxu/

Email: xiaohuaxu@ustc.edu.cn

Biography:

Xu Xiaohua has Published over 70 papers, 26 works, and 2 monographs in authoritative journals in computer field. Google Academic Citation has a maximum of 337 citations per article and a total of 2058 citations for all his papers.

Research:

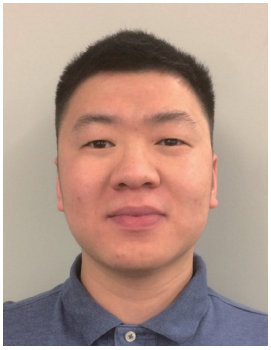
- Intelligent Internet of Things
- Edge Computing
- Machine Learning

What You Can Expect in the Project:

- Research and application of key technologies for network security of auto drive system.
- Major special project of science and technology of Anhui Province.

Number of Participants:

2-6



Xue Chen, Professor

University of Science and Technology of China

Randomized Algorithms Lab

Homepage:

http://staff.ustc.edu.cn/~xuechen1989/

Email: xuechen1989@ustc.edu.cn

Biography:

I am a faculty member in the School of Computer Science of USTC. Previously, I was a postdoc in Northwestern University (in USA) and an assistant professor in George Mason University (in USA). Prior to that, I obtained my PhD in University of Texas at Austin and my bachelor degree from the Yao class of Tsinghua University.

Research:

Theoretical computer science: big data algorithms, learning theory, randomized algorithms and pseudorandomness

What You Can Expect in the Project:

Learning and doing research in the frontier of algorithms, a variety of areas include big data algorithms and machine learning algorithms.

Desired Skill and Background:

Background: Algorithms, linear algebra, combinatorics.

Number of Participants:

1

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:

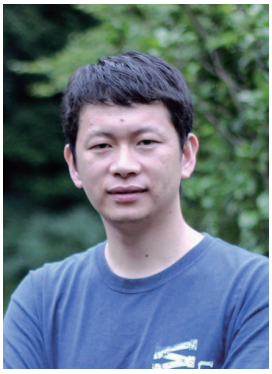
His current research interests include advanced nanomaterials and nanodevices, physical and biochemical sensors, Quantum mechanism-based sensors, flexible/wearable/implantable electronics, bioelectronics, energy harvesting technologies and self-powered wireless microsystems, passive wireless sensors, 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, 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 Professor at Zhejiang University. He serves/served associate editors for ACM TECS, IEEE TPDS, IEEE Network, IEEE TCNS, IEEE TII, etc. He also was the recipients of IEEE INFOCOME 2014 Best Demo Award, IEEE ICCC 2014 best paper award, IEEE PIMRC 2012 best paper award, JSPS Visiting Fellowship 2011, and Royal Society Newton Advanced Fellowships 2020. He is a Distinguished Lecturer of IEEE Vehicular Technology Society (2015-2018), a member of VTS Fellow evaluation committee (2020-2022) and a Fellow of IEEE.

Research:

Intelligent Autonomous Systems, Robotics, Network Optimization and Control, AIoT and Big Data 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:

5

Kuang Sheng, Qiushi
Distinguished Professor

Zhejiang University

Lab Name :
Power Electronic Devices Laboratory

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

Email: shengk@zju.edu.cn

Biography:

Kuang Sheng received his B.Sc. degree from Zhejiang University, Hangzhou, China, in 1995, and the Ph.D. degree from Heriot-Watt University, Edinburgh, U.K., in 1999. His research interest focuses on the power semiconductor devices and ICs since 1995. He has worked in Cambridge University, Rutgers University as a researcher, assistant professor and tenured associate professor, respectively.

He is currently a Qiushi 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 IGBT modeling, the design, processing, packaging and reliability of SiC power diode, MOSFET and JFET 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

Kui Ren, Qiushi Chair Professor

Zhejiang University

Lab Name：

National Key Laboratory of Blockchain and Data Security

Homepage:

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

Email: kuiren@zju.edu.cn

Biography:

Prof. Kui Ren is a Qiushi Chair Professor at Zhejiang University. He is currently the Dean of the School of Cyber Science and Technology at Zhejiang University, and also the deputy director of the National Key Laboratory of Blockchain and Data Security. Professor Kui Ren's research interests span the broad field of security and privacy, with recent focus on data security and privacy, AI security, and IoT security. He has published more than 400 peer-reviewed journal and conference articles, with an H-Index of 91 and 46,000+ total citations. His research has been supported by multiple government funding agencies, including the Ministry of Science and Technology of China, the National Natural Science Foundation of China, and the National Science Foundation of the United States. He has won the first Guohua Outstanding Scholar Award of Zhejiang University, and the CISTC Technology Achievement Award of the IEEE Communications Society. He is a Fellow of the ACM, IEEE, and CCF.

Research:

Cyberspace Security, Data Security and Privacy, AI Security, IoT security.

What You Can Expect in the Project:

Our program mainly spans three research directions:

1) Artificial Intelligence Security.

This topic primarily investigates the interdisciplinary of AI and data security. It mainly addresses the inherent and extrinsic challenges in secure AI systems, AI-generated content (AIGC) security, and deepfake defense.

2) Data Security.

This domain concentrates on practical scenarios in data security, encompassing aspects such as privacy computing, mobile data security, digital currency security, and autonomous driving data security.

Number of Participants:

8

Peng Zhao, Professor

Zhejiang University

Lab Name :

Intelligent materials and processing Lab

Homepage:

person.zju.edu.cn/en/pengzhao

Email: pengzhao@zju.edu.cn

Biography:

Peng Zhao is a prominent professor at Zhejiang University, China. He holds a Ph.D. in Materials Science and Engineering and specializes in polymer precision molding technologies and equipment. He has published 90+ papers in esteemed journals like Advanced Functional Materials and ACS Nano. He has also filed over 50 national invention patents, securing 39 grants. He holds key academic positions and serves as a Guest Editor for the Chinese Journal of Mechanical Engineering and as an Editorial Board Member for the Journal of Composites Science and Coatings. He has been recognized with prestigious awards, including the National Science and Technology Progress Award in 2019 (3rd place), and the Zhejiang Province Science and Technology Progress Award in 2021 (1st place).

Research:

Advanced polymer processing
Intelligent materials and soft robots
Functional structures and devices

What You Can Expect in the Project:

Our research group has successfully developed a novel two-dimensional shear flow field sensor by utilizing soft materials and magnetic sensing methods. Currently, **we are seeking 3 volunteers to develop a biomimetic soft robotic fish**, as well as the implementation of a multi-sensor array that combines propulsion and flow field monitoring functionalities. The objective of this research is to enable the robotic fish to achieve efficient locomotion and accurate perception abilities in complex flow field environments. By doing so, we aim to contribute innovative solutions for future marine exploration and environmental monitoring.

Number of Participants:

3

Rong Xiong

Qiushi Distinguished Professor

Zhejiang University

Lab Name：

Intelligent Robotics Laboratory

Homepage:

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

Email: rxiong@zju.edu.cn

Biography:

Prof. Rong Xiong is Qiushi Distinguished Professor at Zhejiang University, Fellow of China Automation Society, expert member for the National Key Research and Development Program on Intelligent Robots, organization chair of IROS 2025, member of international trustee committee of RoboCup, and associate editor of IET Cyber-Systems and Robotics. Since 2000, she has been conducting research in the field of intelligent mobility and manipulation for robots in complex environments. She has led more than 20 national and provincial-level projects, published over 100 papers in journals including TPAMI, TRO, TMECH.

Research:

Robust intelligent mobility and manipulation for robots in complex environments

What You Can Expect in the Project:

- End to end learning based perceptual decision-making for autonomous driving

  This project aims to develop an end-to-end learning framework integrating perception and decision-making for autonomous driving. Students will explore neural network architectures, dataset creation, and real-time implementation, advancing the field's understanding of robust, real-world autonomous vehicle systems.

- Robot manipulation skills learning

  This project focuses on enabling robots to acquire and refine complex manipulation abilities through machine learning. This project delves into reinforcement learning, imitation learning, and dexterous control strategies. Students will design algorithms, simulate scenarios, and experiment with physical robots to enhance their manipulation capabilities.

Number of Participants:

4-6 students, twosome

Interdisciplinary Science

Shouyan WANG, Professor

Fudan University

Neural Engineering Centre

Homepage:
https://istbi.fudan.edu.cn/info/1774/4601.htm

Email: Shouyan@fudan.edu.cn

Biography:

Shouyan Wang is the Vice Dean of Institute of Science and Technology for Brain-inspired Intelligence of Fudan University, and the Director for International Cooperation. He is the chairman of Neuromodulation Branch of Chinese Neuroscience Society and the chairman of Neuromodulation Branch of Shanghai Neuroscience Society. He was a Senior Scientist at University of Oxford between 2002 and 2007, Lecturer at University of Southampton between 2007 and 2012, Professor at Suzhou Institute of Biomedical Engineering Technology, and then joined Fudan University. He published more than 100 papers in peer reviewed journals.

Research:

Shouyan Wang conducted neuromodulation research since he worked at University of Oxford in 2002. Recent research on intelligent deep brain stimulation carries out theoretical modelling, real-time brain computer interface technology development and translational application in Parkinson's disease, pain etc. Projects include non-invasive neuromodulation for insomnia, closed-loop deep brain stimulation for pain, neural signal processing.

What You Can Expect in the Project:

The activities will organized as a competition. There will be three groups consisting of visiting students and students from my group. Students will assist experiments, conduct brain-storming and design experiments with preliminary data. The competition will be assessed from the presentation at the end.

Requirements:

Having research interests in neuromodulation, neuroscience or neural signal processing.

Number of Participants:

10

Baojing Gu, Professor

Zhejiang University

Lab Name: GuLab

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

Email: bjgu@zju.edu.cn

Biography:

Prof. Baojing Gu has published over 60 first-author or corresponding-author papers, including 13 highly cited papers recognized by ESI. Among these, he has published 3 papers in Nature, 1 paper in Science, and 10 papers in Nature sub-journals or PNAS, reflecting his significant research impact with a 47 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:

- Exploring climate change effects on global nitrogen cycle and sustainability
- Assessing adaptation strategies for addressing climate change
- Investigating climate change impacts on the realization of water, air, and ecosystem boundaries

Number of Participants:

2~3 participants

Der-Horng Lee, Qiushi
Chair Professor

Zhejiang University

Lab Name :
Smart Urban Future Lab

Homepage:
https://zjui.intl.zju.edu.cn/en/node/1487

Email: DHLEE@INTL.ZJU.EDU.CN

Biography:

Professor Der-Horng Lee is an academician of the Singapore Academy of Engineering. He is a Qiushi Chair Professor at Zhejiang University, and the Dean of the Zhejiang University-University of Illinois Urbana-Champaign Institute. He holds a Ph.D. from the University of Illinois. In 2002, he was named one of the “Innovators Under 35” by MIT Technology Review and has been listed among “World’s Top 2% Scientists” published by Stanford University. He has also been named as “Most Cited Chinese Researcher” by Elsevier. According to the Google Scholar, he ranks first in the field of maritime transportation, and third in the fields of port logistics, public transportation, and urban travel, and fifth in the field of transportation policy. Professor Lee’s research focuses on smart port and shipping logistics systems, maritime transportation systems, urban mobility systems, urban rail transit systems, transportation planning and policy, etc. Professor Lee was received by President Xi Jinping in Beijing in October 2019.

Research:

Multi-modal transportation logistics, large-scale container port operations, public transportation systems, on-demand ultra-flex mobility system

What You Can Expect in the Project:

Public transportation is the solution of urban mobility. To further boost up the ridership and sustain the financial viability, it is necessary to overcome the first-/last-mile problem. Given the urban configuration and mobility alternatives, an on-demand, ultra-flex community-based mobility system in light of no fixed schedule, no fixed boarding/alighting points, and no fixed route, autonomous sharing mobility is the twilight of future urban mobility.

Number of Participants:

2-4

Heping Zhao, Professor

Zhejiang University

Lab Name :

Environmental Biotechnology Lab

Homepage:

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

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 machine, Soft wearable medical device.

Number of Participants:

5

Yong He, Professor

Zhejiang University

Lab Name :

3D Bioprinting Lab

Homepage:

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

Email: yongqin@zju.edu.cn

Biography:

Dr. He is the Deputy Editor of *Bio-Design & Manufacturing* as well as *the Editorial Board Member of Biofabrication* and *Engineering Regeneration*. His team has been engaged in biofabrication over 10 years, publishing 2 academic monographs, more than 50 patents, and over 100 SCI papers in authoritative academic journals such as *Science Translational Medicine, Science Advances,* and *Nature Communications*. His H-factor is 55 and his papers have been cited more than 9500 times.

Research:

3D printing、Tissue engineering、Medical devices

What You Can Expect in the Project:

Tissue/Organ printing: in this project, you will understand the basic principle of 3D printing, and master basic experimental techniques. On this basis, you will learn high-resolution 3D printing techniques such as Projection-Based 3D Printing and Near-Field Direct Writing, and attempt to use these advanced manufacturing technologies to reconstruct functional tissues/organs *in vitro*.

Number of Participants:

6

Life Sciences & Medicine

Dijun Chen, PI/Dr.

Nanjing University

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 to unlocking mysteries in the field of life sciences.

Number of Participants:

Maximum of 4 students

Jiayu Chen, PI/Dr.

Nanjing University

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 to 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 prestigious journals such as Cell, 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:

1-5

Zhen Zhou, PI/Dr.

Nanjing University

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, 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

Dan Wu, Professor

Zhejiang University

Lab Name：
Advanced MRI Technology

Homepage:
https://chenyang03.wordpress.com/

Email: chenyang@fudan.edu.cn

Biography:

Dr. Wu obtained her PhD degree from the Department of Biomedical Engineering at Johns Hopkins University. She has published over 100 research articles on top journals such as PNAS and Radiology, and she owned over 20 authorized patents domestically and internationally. She is the PI of over 10 national and provincial projects. She was awarded Innovator under 35 China by MIT Tech Review, Young scientist of World Economic Forum, Leading Talents in Scientific and Technological Innovation, Excellent Youth Project of NSFC, etc. She served as the Chair of the Pediatric MR Study Group and Chair of the Placenta & Fetus Study Group of the International Society of Magnetic Resonance in Medicine (ISMRM), and Associate Editor of Human Brain Mapping.

Research:

Dr. Wu's research focuses on the development of high-resolution MRI acquisition techniques, neuroimage analysis methods, and medical AI to study the brain development and disorders.

What You Can Expect in the Project:

1. Neuroimage analysis of infant brain MRI
2. Automatic Methods for tumor segmentation

Number of Participants:

2

GRIPS

Daqing Ma, FRCA, MAE,
Qiushi Chair Professor

Children's Hospital of Zhejiang University School of Medicine

Lab Name :
Perioperative and Systems Medicine

Homepage:
https://www.zjuch.cn/about/team/61/85

Email: daqingma91@zju.edu.cn

Biography:

Prof. Ma has more than 370 publications (H index 80; Citations more than 23,000) of peer reviewed original articles, reviews and book chapters. His impactful research contributions are:

1) He pioneered research into the brain- and kidney-protective properties of the noble gases, xenon and argon, and has maintained his world-renowned status in that field. Based upon his research into the molecular mechanisms for the cytoprotective actions of xenon and argon, the use of these gases by competitive athletes are now prohibited by the World Anti-Doping Agency (WADA);
2) he was the first to discover that general anaesthetics that are used for cancer surgery can modulate cancer cell behaviour through the elaboration of hypoxia-inducible factor 1-alpha (HIF-1α) which has led to change clinical practice to use intravenous anaesthesia to reduce cancer re-occurrence risk after surgery.
3) He has also led investigations in the mechanisms for neurocognitive disorders after surgery in the elderly that culminated in a large RCT demonstrating the efficacy and safety of a peri-operative interventional strategy. He ranks at the position 13,530 out of 166,880 top clinical scientists (top 8%) by research.com and at the position 45,937 out of 8.49 millions of top 2% world scientists.

Research:

1. Integrating with metabolomics, genomics and proteomics together with clinical big data study into for perioperative organ injurious mechanism and protecting strategies.
2. Underlying mechanisms of cancer reoccurrence following surgery.
3. Using various sophisticated technologies to study mechanisms of anaesthesia and sleep disorders.

What You Can Expect in the Project:

1. Master 2-3 research techniques
2. Generate meaningful data to be included for publication(s)

Number of Participants:

Up to 2

Francis Kaming Chan, Professor

Zhejiang University

Lab Name: Chan Lab

Homepage:
https://person.zju.edu.cn/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 8-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

Haoxing Xu, Qiushi Chair Professor

Zhejiang University

Lab Name: Xu Lab

Homepage:
www.hxulab.org

Email: haoxingx@zju.edu.cn

Biography:

Dr. Xu is currently a Chair Professor at Liangzhu Laboratory, Zhejiang University; New Cornerstone Investigator; adjunct professor at MCD Biology Department, University of Michigan; and Dean of School of Basic Medical Sciences, Zhejiang University. Dr. Xu received his undergraduate degree from Peking University, Ph.D. from Georgia State University, and postdoctoral training at Harvard Medical School. He then joined the University of Michigan where he was promoted to the tenured position of full professor. He was selected for the National and Zhejiang Province's High-level Talents. Dr. Xu has made stellar contributions to the field of lysosome research, pioneering a groundbreaking technique known as the whole-lysosome patch clamp. This innovative approach has opened up new avenues of exploration and advanced our understanding of lysosomal channels.

Research:

Dr. Xu's current research interests include exploring the physiological and pathological roles of lysosomal membranes proteins in various fundamental cellular functions and associated diseases through interdisciplinary technical approaches.

What You Can Expect in the Project:

In the research project focused on lysosome membrane proteins, you can expect an exciting and challenging experience. You will delve into the fascinating world of lysosomes, investigating their function and regulation. Laboratory work will involve conducting experiments using techniques such as cell culture, microscopy, patch-clamping, and molecular biology. You will collect and analyze data rigorously, honing your scientific skills. Collaboration with peers and experts in the field will foster knowledge exchange and critical thinking. Expect to encounter obstacles, requiring troubleshooting and problem-solving skills. Ultimately, the project will provide an invaluable opportunity to contribute to the understanding of lysosome membrane proteins' intricate mechanisms.

Number of Participants:

2

Zhen Gu, Qiushi Chair Professor

Zhejiang University

Lab Name: Imedication Lab

Homepage:
https://person.zju.edu.cn/0020202

Email: guzhen@zju.edu.cn

Biography:

Dr. Zhen Gu is a Qiushi Chair Professor and Dean of College of Pharmaceutical Sciences at Zhejiang University. He also serves as the Director of the National Key Laboratory of Advanced Drug Delivery and Release Systems. 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. Dr. Gu's group studies controlled drug delivery, biomaterials and cell therapy. He 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. His major inventions include glucose-responsive insulin patch and platelet-drug conjugates for targeted drug delivery, which are under clinical trials.

Research:

Drug Delivery and Biomaterials

What You Can Expect in the Project:

Our Imedication Lab is interested in integrating biomaterials design, biomacromolecular 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.

In this project, you will have the opportunity to engage in the development of a smart microneedle patch that can controlled release therapeutic insulin in response to blood glucose levels for diabetes treatment, or contribute to the development of a drug-platelet conjugation designed for targeted cancer treatment.

Number of Participants:

2

Natural Sciences

Dongyuan Zhao, Professor
Dean of Faculty of Chemistry and Materials,
Academician of CAS and TWAS

**Laboratory of Advanced Materials,
Department of Chemistry,
Fudan University**

Homepage:
http://www.mesogroup.fudan.edu.cn

Email: dyzhao@fudan.edu.cn

Biography:

Dongyuan Zhao received B.S. (1984), M.S. (1987) and PhD (1990) from Jilin University. He was a post-doctoral fellow in the Weizmann Institute of Science (1993–1994), University of Houston (1995–1996), University of California at Santa Barbara (1996–1998). Now he is a Professor in the Department of Chemistry at Fudan University. He was a member of Chinese Academy of Sciences and The Third World Academy of Science (TWAS), Council Member of IZA, President of International Mesostructured Materials Association (IMMA). He has received many awards such as Khwarizmi International Award (KIA) (2019), JCIS Darsh Wasan Award (2018), Siyou Excellent Faculty Award (2018), Chemistry Contribution Award of China Chemical Society (2017), Natural Science of the Ministry of Education of China (First Grade Prize, 2017), Zeolite Achievement Award of Chinese Zeolite Association (2017), TWAS Lenovo Science Prize (2016); CRN Rao Award from India Chemical Research Society (2013); Muetterties Memory Award (2012); The Ho Leung Ho Lee Award (2009), TWAS Prize (2008); IMMS Award (2008); DuPond Award (2005). He is now appointed as senior Editor of ACS Central Science. He published more than 720 peer-review papers, 40 patents and is listed as one of highly cited researchers ISI in both Chemistry and Materials Science fields (Total citation ~ 95,000, h index 150).

Research:

(1) Control Synthesis of Novel Mesoporous Materials
(2) Application of Mesoporous Materials

What You Can Expect in the Project:

(1) Understand and learn the synthesis methods of mesoporous materials
(1) Learn the cutting-edge research results of mesoporous materials
(1) Design a research project with the help of. Generate meaningful data to be included for publication(s)

Number of Participants:

Up to 4

Mu Mu, Professor

Fudan University

Homepage:
https://atmsci.fudan.edu.cn/4f/73/c14808a151411/page.htm

Email: mumu@fudan.edu.cn

Biography:

I received my bachelor's degree from Anhui University in 1978 and the Ph.D. degree from Fudan University in 1985. I became the academician of Chinese Academy of Sciences in 2007, and the academician of the Academy of Sciences for the Developing World in 2008. I am now the member of the degrees committee of State council, and deputy editor-in-chief for Science China Earth Sciences and Climatic and Environmental Research. I am also the editor-in-chief for Advances in Atmospheric Sciences. I am members of the International Commission for Planetary Atmospheres and Their Evolution (ICPAE) and the International Commission for Dynamical Meteorology (ICDM).

Research:

- Predictability of weather and climate; Climate variability and climate change
- Data assimilation, ensemble forecast and targeted observation in atmospheres and oceans
- Nonlinear stability and instability problems in geophysical fluid dynamics

What You Can Expect in the Project:

Understanding

(1) the El Niño and MJO phenomena and the differences between their prediction and predictability;
(2) the necessity of the data assimilation, ensemble forecast and target observations in El Niño forecast.

Requirements:

- A strong passion for exploring challenging problems in the field of complex physical processes and atmospheric science.
- Good at Python programming, and willing to use Google to search literature.

Number of Participants:

8

Wei Li, Professor

Fudan University

Mesoenergy Lab

Homepage:
https://mesoenergy.fudan.edu.cn/

Email: weilichem@fudan.edu.cn

Biography:

Dr. Li currently Yangtze River scholar distinguished professor in Department of Chemistry, Fudan University. He obtained his bachelor degree from Heilongjiang University, doctor degree from Fudan University, China in 2008 and 2014, respectively. From 2014 to 2016, he worked as Postdoctoral fellow in University of Toronto, Canada, and Institute of Basic Sciences, Republic of Korea, respectively. In 2016, he joined in Fudan University. He is a member of International Mesostructured Materials Association (IMMA). He has received many awards such as first prize in the China's State Natural Science Award in 2020 (2/4), The 11th Young Scientific and Technological Talents of Shanghai (2022), Hou Debang Chemical Science and Technology Youth Award (2023). He is the associate editor of Battery Energy, the editorial board member of Adv. Mater. Interfaces, iScience, Chin. Chem. Lett., and so on. He was listed as one of highly cited researchers by Clarivate Analytics (2019-2023).

Research:

Dr. Li' research interests in the discovery and understanding of the self-assembly for synthesis of porous materials with rational control of the composition, micro/nano-structure, morphology, property and functionality, and their applications in catalysis, energy storage and conversion.

What You Can Expect in the Project:

Synthesis of mesoporous materials, Self-assembly for new colloidal molecular materials, Plastic degradation and upcycling, New battery materials and system.

Number of Participants:

4

GRIPS

Wei Ruan, Assistant Professor

Fudan University

Zhang & Ruan Lab

Homepage:
https://zhangruanlab.com/

Email: weiruan@fudan.edu.cn

Biography:

Wei Ruan obtained his Bachelor's degree from Tsinghua University in 2010 and completed his PhD in Physics at Tsinghua University in 2017. He worked as a postdoc scholar at the University of California, Berkeley, from August 2017 to December 2020. Since 2021, Wei Ruan has been a assistant professor at Fudan University.

Research:

We are a group of condensed matter experimentalists in the Department of Physics at Fudan University, Shanghai, China. Our research focuses on the electronic properties of two-dimensional (2D) materials. Since the discovery of graphene in 2004, 2D materials have been at the forefront of material research. Vast opportunities arise on two fronts. Firstly, reduced dimensionality often leads to novel material properties that are different from those in the bulk. Secondly, the entire crystal is a surface, whose material properties can be fully controlled with a gate. We have been developing new fabrication techniques to isolate/synthesis novel 2D materials, and probing their quantum mechanical behavior using two complimentary experimental techniques: electronic transport and scanning probe microscopy. The combination of the two techniques provides a full view of the quantum mechanical properties of these 2D materials on microscopic and macroscopic scales.

What You Can Expect in the Project:

During the internship, students can expect to actively engage in cutting-edge research on 2D materials at Fudan University. They will contribute to the development of novel fabrication techniques for isolating and synthesizing 2D materials. Students will have the chance to participate in electronic transport experiments, gaining hands-on experience in probing the quantum mechanical behavior of these materials. Additionally, they will have the chance to utilize scanning probe microscopy to investigate microscopic properties. This immersive experience will provide students with a comprehensive understanding of 2D materials' electronic properties on both macroscopic and microscopic scales, fostering valuable skills in condensed matter physics research.

Number of Participants:

2 participants.

Yuanbo Zhang, Professor

Fudan University

Zhang & Ruan Lab

Homepage:
https://zhangruanlab.com/

Email: zhyb@fudan.edu.cn

Biography:

Yuanbo Zhang obtained his Bachelor's degree from Peking University in 2000 and completed his PhD in Physics at Columbia University in 2006. He served as a Miller Research Fellow at the University of California, Berkeley, from September 2006 to June 2009, and later worked as a postdoc research associate at IBM Almaden Research Center from March 2010 to September 2010. Since 2011, Yuanbo Zhang has been a professor at Fudan University.

Research:

We are a group of condensed matter experimentalists in the Department of Physics at Fudan University, Shanghai, China. Our research focuses on the electronic properties of two-dimensional (2D) materials. Since the discovery of graphene in 2004, 2D materials have been at the forefront of material research. Vast opportunities arise on two fronts. Firstly, reduced dimensionality often leads to novel material properties that are different from those in the bulk. Secondly, the entire crystal is a surface, whose material properties can be fully controlled with a gate. We have been developing new fabrication techniques to isolate/synthesis novel 2D materials, and probing their quantum mechanical behavior using two complimentary experimental techniques: electronic transport and scanning probe microscopy. The combination of the two techniques provides a full view of the quantum mechanical properties of these 2D materials on microscopic and macroscopic scales.

What You Can Expect in the Project:

During the internship, students can expect to actively engage in cutting-edge research on 2D materials at Fudan University. They will contribute to the development of novel fabrication techniques for isolating and synthesizing 2D materials. Students will have the chance to participate in electronic transport experiments, gaining hands-on experience in probing the quantum mechanical behavior of these materials. Additionally, they will have the chance to utilize scanning probe microscopy to investigate microscopic properties. This immersive experience will provide students with a comprehensive understanding of 2D materials' electronic properties on both macroscopic and microscopic scales, fostering valuable skills in condensed matter physics research.

Number of Participants:

2 participants.

Cheng Gu, Ph. D.

Changjiang Scholar Distinguished Professor

Nanjing University

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 an 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, et al. 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 participants

Huilin Chen, Professor

Nanjing University

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

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:

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

Number of Participants:

1-2 students

Jun Luo, Professor

Nanjing University

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

Lili Lei, Professor

Nanjing University

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 students

Minghuai Wang, Prof.

Nanjing University

Homepage:

https://as.nju.edu.cn/as_en/fd/cc/c20738a327116/page.htm

Email: Minghuai.wang@nju.edu.cn

Biography:

Prof. Wang obtained his Ph.D in Atmospheric Sciences from the University of Michigan-Ann Arbor, and had worked at Pacific Northwest National Laboratory before he took his current position at Nanjing University. His primary research interests focuses on aerosol and cloud modeling, and their roles in climate and environment. Prof. Wang has published more than 100 papers, and currently serves as the co-chair of the Aerosols-Clouds-Precipitation-and-Climate (ACPC) Initiative, and editor of Atmospheric Chemistry and Physics, Advances in Atmospheric Sciences, and associate editor of Journal of Geophysical Research-Atmosphere.

Research Interests:

Aerosol and cloud modeling, machine learning

What You Can Expect in the Project:

To use deep learning methods to explore complex relationships between aerosols and clouds, and to isolate the role of aerosols on clouds and climate.

Number of Participants:

1-2 students

Rong Ji, Professor

Nanjing University

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

Xiaowei Zhang, Ph.D.

Professor, Talent for Technological Innovation of the National High-level Personnel of Special Support Program, Young Yangtze Scholar of the Ministry of Education, Recipient of National Outstanding Youth Science Fund.

Nanjing University

Eco-Toxicology and Health Risk Research Lab

Homepage:

https://hjxy.nju.edu.cn/szdw/zrjs/hjkxx/js/20210604/i201753.html

Email: zhangxw@nju.edu.cn
howard50003250@yahoo.com

Biography:

Dr. Xiaowei Zhang is a molecular (eco)toxicologist and the director of the Research Institute on Environmental Safety of Chemicals, Nanjing University. He obtained his B.Sc. from Nanjing University in 2000, his M.Sc. from the City University of Hong Kong in 2003, and his Ph.D. from Michigan State University in 2008. Dr. Zhang has published more than 200 papers and serves as an editor for Environmental Toxicology and Chemistry. In 2016, he was awarded the title of Young Changjiang Scholar, Ministry of Education. In 2018, he received the inaugural "Young Scientist Gold Award" from the Chinese Society of Environmental Sciences, and in 2019, he was honored as an "Early Career Scientist" by the American Chemical Society's ES&T in the field of environment.

Research:

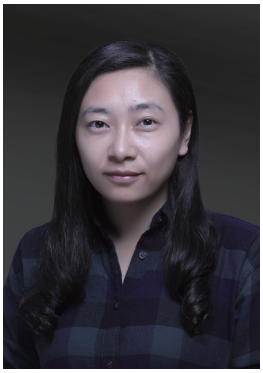
1. High-throughput screening and predictive toxicology of chemicals.
2. Environmental analysis and source tracking technology for organic pollutants.
3. Environmental DNA and ecological health assessment.
4 Regional chemical risk prevention and control strategies and management policies.

What You Can Expect in the Project:

We strongly believe that the key to future scientific research lies in interdisciplinary collaboration and the integration of diverse perspectives. Therefore, our goal is to serve as a bridge linking academia, public health, and community through our work, promoting joint assessment of health and ecological risks, as well as policy formulation. Let us keep pace with the times, lead the future with science, and together create a healthier and safer environment. We welcome you again to visit our lab, and we look forward to meeting and collaborating with you.

Number of Participants:

3-5 participants



Yang Zhang, Professor

Nanjing University

Climate dynamics

Homepage:
https://orcid.org/0000-0003-4102-2671

Email: yangzhang@nju.edu.cn

Biography:

Yang Zhang is a professor and the head of the Department of Meteorology at Nanjing University, China. She earned her Ph.D. in atmospheric dynamics from Massachusetts Institute of Technology in 2009, and joined the faculty at Nanjing in the same year. The focus of her research is the fundamental dynamics of atmospheric circulations, including eddy-mean flow interactions in various climate variabilities and regional weather extremes, mechanisms of extratropical air-sea interactions and planetary waves connecting polar regions and midlatitudes. She now serves as an associate editor of the *Journal of the Atmospheric Sciences*, *Journal of Climate*, and co-editor of the *EGU journal Weather and Climate Dynamics*.

Research:

Global scale circulations of the atmosphere, mid-and-high latitude climate dynamics

What You Can Expect in the Project:

Data analysis regarding to the climate variability and climate change

Number of Participants:

2

Jingrun Chen, Professor

University of Science and Technology of China

SCAI Lab

Homepage: scai.sz.ustc.edu.cn

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

What You Can Expect in the Project:

In the one-month program, students can expect an immersive and enriching experience. They will have the opportunity to work closely with leading researchers in the field, gaining hands-on experience and exposure to cutting-edge techniques and technologies. Students will actively participate in ongoing projects, assisting in data analysis, algorithm development, and software implementation. They will engage in collaborative discussions and brainstorming sessions, fostering a creative and stimulating environment. Additionally, students can expect to attend seminars, workshops, and training sessions, broadening their knowledge and skill set. By the end of the program, they will have gained valuable insights and a solid foundation in their research interests.

Number of Participants:

<=3

Juyong Zhang, Professor

University of Science and Technology of China

Graphics&Geometric Computing Laboratory (GCL)

Homepage: juyong.github.io

Email: juyong@ustc.edu.cn

Biography:

Juyong Zhang is a professor and a recipient of Excellent Young Scholars, NSF-China. He received his Ph.D. degree in School of Computer Science and Engineering from Nanyang Technological University, Singapore. From 2011 to 2012, He was a Postdoctoral Research Fellow in LGG of EPFL, Switzerland. His research group mainly conducts research at the intersection of Vision, Graphics, and AI with a special focus on capturing, modeling and synthesizing objects, humans and large-scale scenes.

Research:

AIGC, 3D Computer Vision, Digital Human

What You Can Expect in the Project:

During the one-month research project, students can deeply participate in our research group's three projects about AIGC for high-fidelity digital human, city level 3D scene reconstruction and free-form surface based imaging and non-imaging optics. Specific works include: understanding the project background, assisting in data collection, building software and hardware systems, mathematical modeling, algorithm development and system deployment. At the end of the course, they will have gained valuable insights and laid a solid foundation for their research interests.

Number of Participants:

<=2

Renjie Chen, Professor

University of Science and Technology of China

Graphics&Geometric Computing Laboratory

Homepage:

http://staff.ustc.edu.cn/~renjiec

Email: renjiec@ustc.edu.cn

Biography:

Renjie Chen is a professor at the School of Mathematical Sciences, University of Science and Technology of China. He received his bachelor's degree and doctor's degree from Zhejiang University in 2005 and 2010 respectively. From 2011 to 2015, he was employed as postdoctoral researcher at Technion - Israel Institute of Technology and the University of North Carolina at Chapel Hill, USA. From 2015 to 2019, he was a senior researcher at the Max Planck Institute for Informatics, Germany. He joined the University of Science and Technology of China in July 2019. His research field is computer graphics, and the research direction is geometric processing and modeling, computational geometry and glasses-free 3D display.

Research:

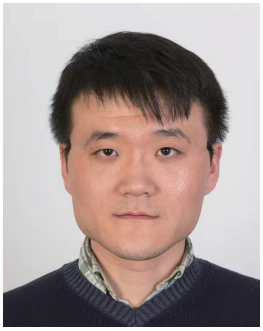
Computer graphics

What You Can Expect in the Project:

The breakthrough of graphics processing hardware (GPU) has brought new development opportunities to many different research fields. Compared with traditional computing units (CPU), GPU has stronger computing power and is more suitable for computing-intensive applications. There are many problems in graphics and vision that are suitable for GPU acceleration. However,because the GPU and CPU architectures are designed completely differently, many existing algorithms need to be redesigned to run efficiently on GPUs. Currently the problem faced by parallel geometric computation is to carefully conduct in-depth analysis of the related geometric problems and decompose the tasks into local sub-problems avoiding complex task scheduling and inter-thread communication, thereby achieving a viable solution for GPU parallel processing.

Number of Participants:

3



Shiping Liu, Professor

School of Mathematical Sciences

University of Science and Technology of China

Homepage:

staff.ustc.edu.cn/~spliu

Email: spliu@ustc.edu.cn

Biography:

Shiping Liu is a Professor at the School of Mathematical Sciences, University of Science and Technology of China. He received his PhD (Dr. rer. nat.) degree in 2012 from University of Leipzig under the supervision of Prof. Jürgen Jost. Before that, he was a postgraduate student in Academy of Mathematics and System Science, Chinese Academy of Sciences, Beijing, and an undergraduate student at Shandong University. From 2013 to 2016, he was a Research Associate at the Department of Mathematical Sciences, Durham University, UK. His research field is discrete geometric analysis, with particular interests to the topics of discrete Ricci curvature and spectral graph theory.

Research:

Discrete geometric analysis

What You Can Expect in the Project:

There are various interesting conjectures or questions about the discrete Ricci curvature and spectrum of particular classes of graphs. For example, the discrete Ricci curvature values of distance regular graphs with girth 3 are particularly interested. We expect people who are interested in designing algorithms to check plenty of examples and making theoretical findings from the numerical experiments.

Number of Participants:

1

Xiao-Ming Fu, Associate Professor

University of Science and Technology of China

Graphics&Geometric Computing Laboratory

Homepage:

https://ustc-gcl-f.github.io/

Email: fuxm@ustc.edu.cn

Biography:

Xiao-Ming Fu is an associate professor at the School of Mathematical Sciences, University of Science and Technology of China. He received his bachelor's degree and doctor's degree from the University of Science and Technology of China in 2011 and 2016 respectively. From 2016 to 2021, he served as an assistant researcher at the University of Science and Technology of China. His research field is computer graphics, and the research direction is geometric optimization, topology optimization, geometry-driven manufacturing, and so on. He has published 20 papers in ACM Transactions on Graphics.

Research:

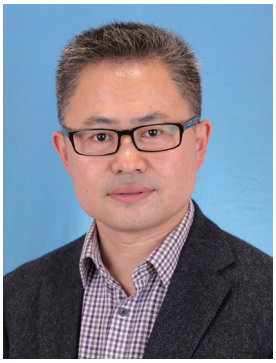
Computer graphics

What You Can Expect in the Project:

Metamaterials can present extraordinary physical properties through reasonable structural design that natural materials do not have. However, most metamaterials are designed by manual trial and error or numerical optimization, which is time-consuming and laborious and needs better structural diversity. Therefore, we plan to conduct metamaterial intelligent design based on generative AI. Firstly, the metamaterial structure data set is constructed. The AI algorithm is designed to generate the structure that meets the performance automatically. Finally, the data set enhancement and algorithm adjustment are iterated to enrich the data set and improve the algorithm's performance.

Number of Participants:

1



Huaxin Peng, Qiushi Chair Professor

Zhejiang University

Lab Name :

Composites (InCSI)

Homepage:

www.composites.zju.edu.cn

Email: composite@zju.edu.cn

Biography:

Peng is the founding Director of the Institute for Composites Science Innovation (INCSI) at Zhejiang University and was a Full Professor in the Bristol Composites Institute (BCI, Bristol UK). His research focuses on tailoring composite microstructures at different length scales and has led to the publication of 3 authoritative monographs in Progress in Materials Science and 220+ journal articles. He is a founding Co-Editor-in-Chief of the Elsevier Journal - Composites Communications, currently serving as Executive Council Member of International Committee of Composites Materials (ICCM) and the President-elect of Asian-Australasian Association for Composite Materials (AACM).

Research:

- Microstructural tailoring of multi-phase materials
- Multifunctional composites and MetaComposites
- Composites design/manufacturing/analysis/testing

What You Can Expect in the Project:

Depends on your background and interest, you are expected to work closely along with staff/postdocs/PGs on topics including microstructural design and additive manufacturing of metal matrix composites, impact resilient biomimetic composites as well as more application oriented work on design/analysis/testing of carbon fibre composites for hydrogen storage and greener aviation.

Number of Participants:

2-4

Wei Sun, Tenured Associate Professor

Zhejiang University

Lab Name: Nanosilicon Lab

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

Email: sunnyway423@zju.edu.cn

Biography:

Prof. Wei Sun works at the school of material science and engineering, Zhejiang University. He received his Ph.D in Chemistry-Interdisciplinary under the supervision of Prof. Geoffrey A. Ozin from University of Toronto in Canada. His research encompasses silicon nanomaterials and nanochemistry for energy and environmental applications, exemplified by CO2 reduction towards valuable feedstocks, and recycling crude oil and metals. These have broadened the application of silicon, the 2nd earth-abundant element. He has published more than 60 articles in world-renowned journals such as ***Nat. Commun., Nat. Catal., Adv. Sci., Adv. Mater.,*** *etc.* He serves as a junior board member for many journals and organizations and has received multiple awards as a young scientist, including, Connaught International Scholarship (Canada), *Advanced Science* "Rising Stars", “Top ten academic progress of youth scholars at ZJU”, etc.

Research:

Unconventional synthetic methods for silicon nanostructures, and new discoveries on their unprecedented activities for energy and environmental applications, e.g. CO2 reduction, plastic upcycling, photothermal catalysis.

What You Can Expect in the Project:

Participation in the key research projects; acquirement of skills of preparation, characterization and evaluation of advanced catalytic materials; approaching the new scientific concepts of reducing carbon emissions.

Number of Participants:

1

Xiaogang Peng, Professor

Zhejiang University

Lab Name: Peng Group

Homepage:

http://penglab.cn/

Email: xpeng@zju.edu.cn

Biography:

Prof. Xiaogang Peng works in the field of colloidal quantum dots. Before joining the faculty at Zhejiang University in July 2009, he was a Chair Professor at the University of Arkansas. As a world leader on synthetic chemistry in the field, he has established standard synthetic methods for academic research and industrial development of quantum dots. In May 2019, he won the Special Recognition Award by the Society for Information Display (SID), for his contributions to the development of solution-processable quantum dots for display applications. He has published ~200 papers, which have received over 70,000 citations (Google Scholar). He has served as Associate Editor or Editorial Board Member for a few international journals.

Research:

His research focuses on colloidal nanocrystals, especially semiconductor nanocrystals (quantum dots), including their synthetic chemistry, ligands/surface chemistry, spectroscopy, and applications.

What You Can Expect in the Project:

Facet-controlled synthesis of colloidal semiconductor nanocrystals. Experimental and theoretical studies on ligands chemistry of the nanocrystals. Time-resolved and single-nanocrystal spectroscopy studies of semiconductor nanocrystals.

Number of Participants:

2-3

Social Science

Fengji Geng, Assistant Professor

Zhejiang University

Lab Name:

Brain Inspired Education Lab

Homepage:

person.zju.edu.cn/gengf

Email: gengf@zju.edu.cn

Biography:

Dr. Fengji Geng completed her Ph.D. in Psychological and Behavioral Sciences at Zhejiang University in 2012. She pursued postdoctoral research at the University of Michigan and the University of Maryland, focusing on neurocognitive and educational studies. Currently, she is with Zhejiang University's Department of Curriculum and Learning Sciences. Dr. Geng leads research in developing K12 STEM education programs based on neurocognitive findings. Her team's groundbreaking work, published in top SCI/SSCI journals like the Journal of Neuroscience and NeuroImage, bridges neuroscience and education. Dr. Geng is also a respected reviewer and was the Co-Chair for the SRCD 2021 Biennial Meeting Review Panel, with her research receiving substantial support from bodies like the NSFC and MOE.

Research:

Develop K12 STEM education programs grounded in neurocognitive research findings

What You Can Expect in the Project:

Our lab is actively engaged in designing innovative STEM educational programs for K12 students. We are committed to rigorously evaluating these programs using a blend of educational, psychological, and neuroscientific methods. We welcome students to participate as teaching or research assistants, offering a unique opportunity to gain hands-on experience in crafting STEM activities grounded in neurocognitive evidence. Additionally, students will develop skills in data collection and analysis, crucial for a career in educational research.

Number of Participants:

2-4

Xia Fang, Assistant Professor

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