上海科技大学
ShanghaiTech University

SIST NEWSLETTER

ISSUE No. 15, April 2021

School of Information Science and Technology







SIST News | Research Discoveries | Students' Awards and Honors | Faculty Profiles

Welcome to the Newsletter of the School of Information Science and Technology at ShanghaiTech University!

SIST Website | PDF Newsletters

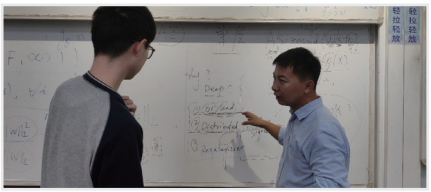
School of Information Science and Technology (SIST)
School Website: http://sist.shanghaitech.edu.cn/sist_en/

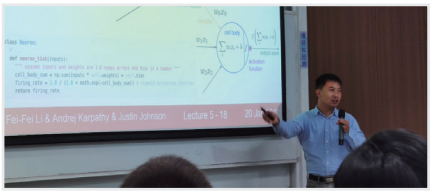
SIST News

- ShanghaiTech has started its Spring semester on February 22nd. This semester, SIST is offering 27 undergraduate courses and 37 graduate courses. SISTors are ready for their campus life.



- Good news! The course “Computer Vision I” has received the “Excellent Undergraduate Offline Course in Shanghai, 2020” award from the Shanghai Municipal Education Commission in recognition of its outstanding course design and teaching methods. This course, taught by SIST Prof. Gao Shenghua, covers the basic concepts, methods, and cutting-edge research of the field. Additionally to offering lectures and tutorials, the teaching assistants, who are usually senior students, offered Q & A sessions after class.





- The students of SIST have formed a new students’ union, named “InSIST Students’ Union”. It is comprised of the Sport and Recreation Department, the Publicity Department, the Career Development Department and the Alumni Department. Students themselves will organize a series of activities to make life colorful.

Yang Bo — Sport and Recreation Department
Admitted SIST in 2018, Undergrad, CS
And God’s night is infinite.Your matter is time, ceaseless Time.You are each solitary moment.

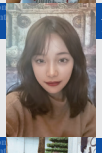
Wang Yuhan — Sport and Recreation Department
Admitted SIST in 2019, Undergrad, CS
So long lives this, and this gives life to thee.

Zhou Yuxin — Sport and Recreation Department
Admitted SIST in 2019, Undergrad, EE
I want to paint windows on the earth.

Duan Yanxin — Sport and Recreation Department
Admitted SIST in 2020, Undergrad, CS
It's never too late to learn.

Gong Rui — Sport and Recreation Department
Admitted SIST in 2020, Undergrad, EE
Live by the ABCs: Adventurous,Brave, Creative.

Hu Wenman — Sport and Recreation Department
Admitted SIST in 2018, Undergrad, EE
These moments when we dare to aim higher, to break barriers, to reach for the stars, to make the unknown known. We count these moments as our proudest achievements.



Xiao Ziyi — Sport and Recreation Department
Admitted SIST in 2019, Undergrad, EE
A bird sitting on a branch is never afraid of the branch breaking, because the belief is not in the strength of the branch but the strength in their own wings.

Xu Shijie — Sport and Recreation Department
Admitted SIST in 2018, Undergrad, EE
What doesn't kill me makes me stronger.

Li Jun — Sport and Recreation Department
Admitted SIST in 2020, Postgrad, EE
Stay hungry，stay foolish.

Yang Jiayi — Sport and Recreation Department
Admitted SIST in 2019, Undergrad, EE
I give myself to the university like I give resin to the sculptor.

Ye ke — Sport and Recreation Department
Admitted SIST in 2019, Undergrad, EE
Cease to struggle and you cease to live.

Zhang Xiaoyuan — Sport and Recreation Department
Admitted SIST in 2018, Undergrad, CS
Take a deep breath and then take an adventure.

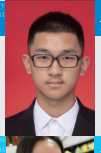
Qiu Ling — Sport and Recreation Department
Admitted SIST in 2017, Undergrad, CS
Do you think everything you are supposed think?

Xu Zhongling — Publicity Department
Admitted SIST in 2018, Undergrad,CS
There is a crack in everything, that's how the light gets in.

Jiang Wenqing — Publicity Department
Admitted SIST in 2020, Postgrad-CS
Nothing is impossible.

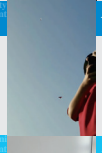
Lian Yihang — Publicity Department
Admitted SIST in 2019, Undergrad, CS
Follow the heart, a nail to sail.

Lin Hongyang — Publicity Department
Admitted SIST in 2020, Undergrad, CS
I'll try anything once.

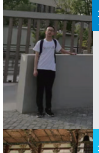


Wang Junfei — Publicity Department
Admitted SIST in 2020, Undergrad, EE
Never lose my passion

Xu Zehao — Publicity Department
Admitted SIST in 2017, Undergrad, CS
We've got the sky and the sea in our hands



An Lihua — Publicity Department
Admitted SIST in 2018, Undergrad, EE
I do not know where to go,but I have been on the road.

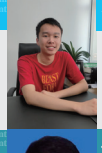


Zhang Yixiang — Publicity Department
Admitted SIST in 2019, Undergrad, EE
Trust myself, try my best.

Qiao Wenhui — Alumni Department
Admitted SIST in 2017, Undergrad, CS
Life is hard.

Xia Ruiyan — Alumni Department
Admitted SIST in 2019, Undergrad, CS
Together with the growing of inSIST, I’d like to devote myself into the career of developing our Alumni Association, benefiting all of us students of ShanghaiTech.

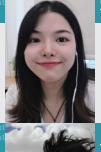
Shu Yiwei — Alumni Department
Admitted SIST in 2020, Undergrad, EE
God bless with you.



Fan Gucongcong — Alumni Department
Admitted SIST in 2020, Undergrad, CS
Life is like a long journey where one should always remain true to his original aspiration.

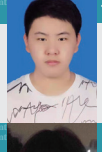
Zhu Jiahui — Alumni Department
Admitted SIST in 2018, Postgrad, CS
Rome was not built in one day.

Zhang Zirui — Career Development Department
Admitted SIST in 2020, Postgrad, EE
Making all eyes accustomed to darkness, Get use to light.



Gao Yining — Career Development Department
Admitted SIST in 2019, Postgrad, CS
Justice rains from above.

Jiang Chenxin — Career Development Department
Admitted SIST in 2020, Undergrad, EE
From small beginnings comes great things.

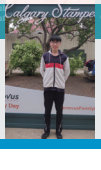


Jiang Yining — Career Development Department
Admitted SIST in 2020, Undergrad, EE
Every single day without dancing is one day we betrayed of life.

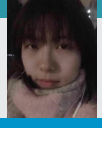
Wang Luyu — Career Development Department
Admitted SIST in 2017, Undergrad, EE
Nothing in the world is difficult for one who sets his mind to it.

Wu Junlei — Career Development Department
Admitted SIST in 2020, Undergrad, CS
Cherish the present and make continuous progress.

Yu Chen — Career Development Department
Admitted SIST in 2020, Postgrad, CS
Mr. Know Nothing, who is interested in everything.



Gao Guoliang — Career Development Department
Admitted SIST in 2019, Postgrad, IE
Study makes me happy.

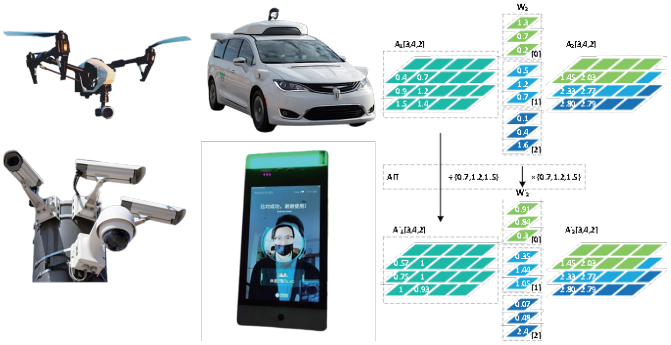


Qian Liyue — Career Development Department
Admitted SIST in 2017, Undergrad, CS
Just keep everything simple and neat!

Research Discoveries

01

Two papers from Professor Ha Yajun's research group have been accepted by the 58th ACM/IEEE Design Automation Conference (DAC). One is entitled TAIT: *One-Shot Full-Integer Lightweight DNN Quantization via Tunable Activation Imbalance Transfer, and the other one is Bitwidth-Optimized Energy-Efficient FFT Design via Scaling Information Propagation.*



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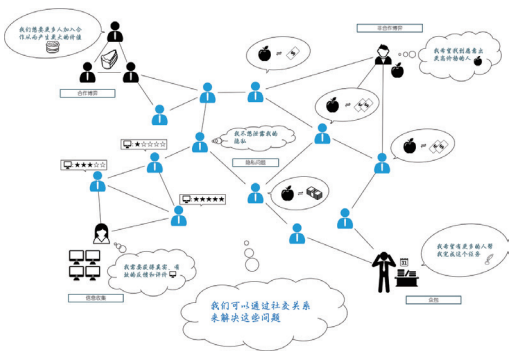


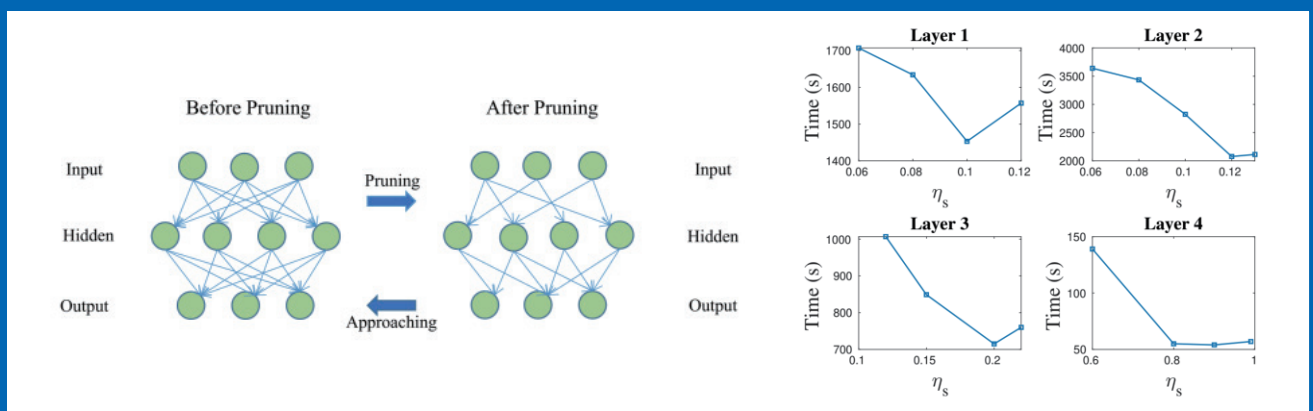
02

Professor Zhao Dengji's paper entitled "Mechanism Design Powered by Social Interactions" has been accepted by the 20th International Joint Conference on Autonomous Agents and Multi-Agent Systems (AAMAS-2021), Blue Sky Ideas Track. Unlike other technical paper reviewing processes, the emphasis of this track is on visionary ideas, long-term challenges, new research opportunities and controversial debate. The average number of accepted papers in this track is less than ten in each year. In this accepted paper, Professor Zhao, for the first time, systematically framed a mechanism design framework based on social networks and opened the door for discussing these fundamental open questions.

Link: https://sist.shanghaitech.edu.cn/sist_en/2021/0315/c3863a60941/page.htm

03

Professor Wang Hao's research group developed a novel trimming approach to determine the redundant parameters of a trained DNN in a layer-wise manner to produce a compact neural network, and their result has been published in the journal "IEEE Transactions on Computers" with the title "A Proximal Iteratively Reweighted Approach for Efficient Network Sparsification"



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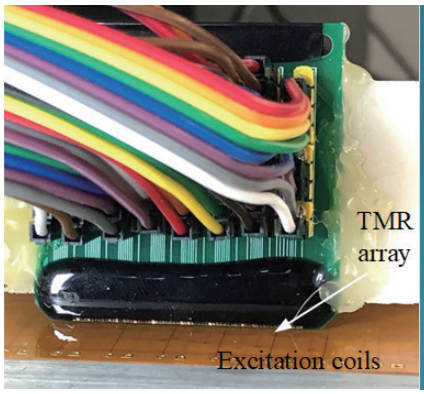
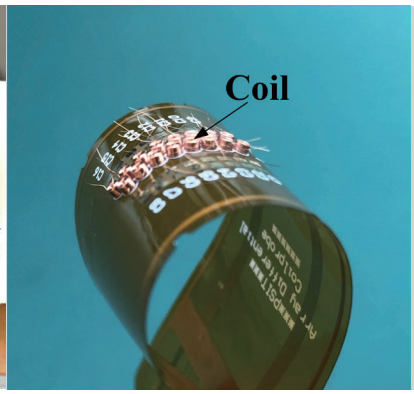




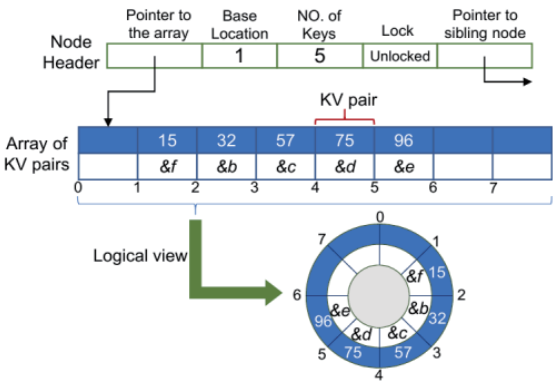
04

Professor Ye Chaofeng and his research group in the Precision Sensing and Intelligent Testing Lab (PSIT) have designed two novel probes and testing systems for the imaging of defects. Both achievements were recently published in the *IEEE Transactions on Industrial Electronics.*

Link: https://sist.shanghaitech.edu.cn/sist_en/2021/0208/c3863a59421/page.htm

05

Professor Wang Chundong's research group has designed three new B+-Tree variants to significantly improve the performance of B+-Tree on the promising non-volatile memory with the premise of maintaining data persistency and consistency.

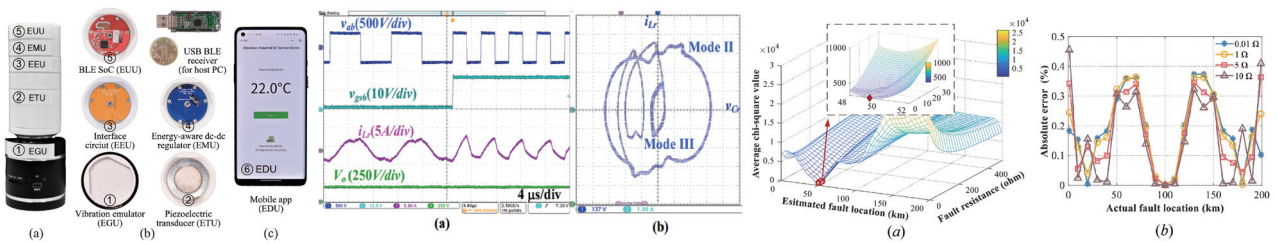


Link: https://sist.shanghaitech.edu.cn/sist_en/2021/0204/c3863a59347/page.htm

06

The Center for Intelligent Power and Energy Systems has published three papers addressing topics in Internet of Things (IoT) energy harvesting, power systems and power electronics, in top journals.

- Professor Liang Junrui, designed a vibrational-powered IoT development platform prototype called ViPSN and published a research article entitled "ViPSN: A Vibrational Powered IoT Platform" in IEEE Internet of Things Journal, a leading academic journal in the field of Internet of Things (IoT).
- Professor Liu Yu's Group proposed a novel fault location method in transmission lines of MMC-HVDC grids based on dynamic state estimation (DSE) and gradient descent. This work was published in an article entitled "Transmission Line Fault Location in MMC-HVDC Grids Based on Dynamic State Estimation and Gradient Descent", in IEEE Transactions on Power Delivery, the leading peer-reviewed journal in the field of power system protection.
- Professor Wang Haoyu's group proposed a new LLC resonant converter topology with an ultra-wide output range based on adjustable transformer ratio and reconfigurable bridge. The converter used an adjustable turns ratio transformer and reconfigurable bridge structure, which can effectively extend the converter voltage gain and reduce the loss. This result was published in the renowned journal IEEE Transactions on Industrial Electronics, in an article entitled "An Ultra-Wide Output Range LLC Resonant Converter Based on Adjustable Turns Ratio Transformer and Reconfigurable Bridge".



Link: https://sist.shanghaitech.edu.cn/sist_en/2021/0114/c3863a59028/page.htm

SIST
ISSUE No. 15, April 2021
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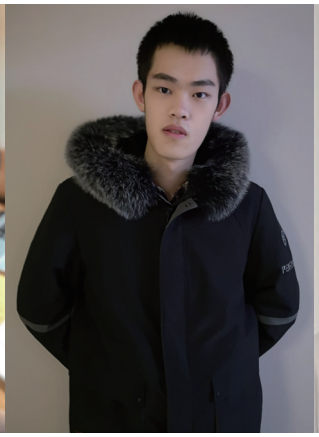
Students' Awards and Honors:

1

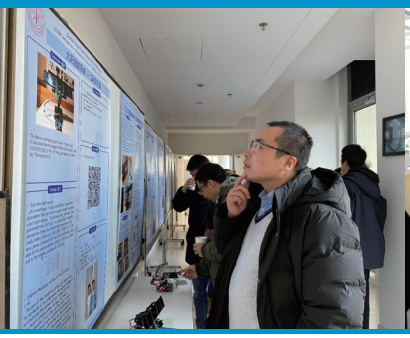
Six undergraduate students won the Third Place among Asian Teams in the SC20- Virtual Student Cluster Competition. They are Yang Yiwei, Meng Yixuan, Liu Yuchen, Wu Tianyuan, Xu Zijun and Xu Kaiyuan.

2

Three undergraduate students won the Gold award in the 45th International Collegiate Programming Contest Asia Regional Nanjing Contest. They are He Kai, Xu Hongtu and Li Wenchao.



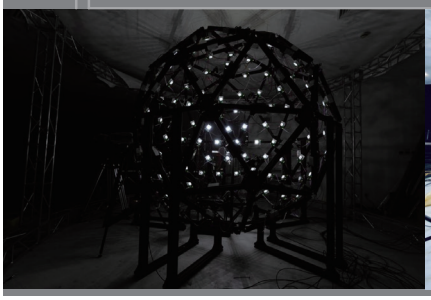
Excellent Course Project Demonstration for the course of Introduction to Information Science and Technology was held at SIST in January 2021. Students were divided into different groups and designed their course projects respectively. The demonstration includes poster demonstration as well as demo show. Each poster has clearly presented their design thought, design results and the team members.

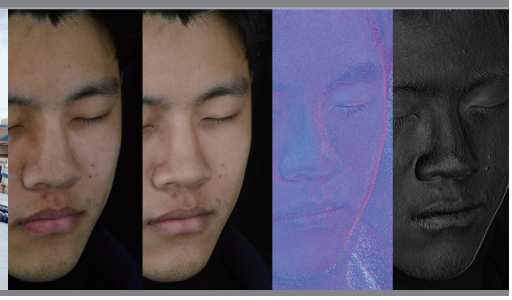


3

4

Five undergraduate students Cao Ruixiang, Li Zhenbang, Qiu Linwei, Wang Yiwei and Zhang Qixuan have made the Light Field Stage for facial geometry and reflectance field during the Spring Festival, 2021. The Light Field they built is the leading worldwide dynamic scanning equipment for the film production.





Faculty Profiles

Prof. Lian Lixiang

It's my great honor to introduce myself and share my academic journey with you. Hope you can get inspired and motivated from my experience.

Ever since I entered elementary school, I was aware of the fact that the competition exists in all aspects of our life. After each exam, the teacher would rank the students based on the total score and announce the ranking in front of the whole class. I still remember that I ranked tenth for the first exam I took in my life, that I was very proud of this, because I thought ten was much better than one. Ever since I realized that being number one means being the best, I had been striving to be the top one in every exam. To achieve this, I worked very hard to find the "correct" answer to every problem, and I firmly believed that there was only one right answer to any question, which was called the "standard answer". As a result, I spent my teenage years competing with other kids, searching for the standard answer and struggling in countless exams.

What really changed my life was going to college, which freed me from the previous life. I encountered many brilliant people from all over the country and experienced the collision of different thoughts. Furthermore, participating in various activities and reading the classics truly broadened my horizon and reshaped my values. I began to pay more attention to my inner growth than comparing myself to others. There will always be someone superior to you in some way, but what's of paramount importance is learning from the excellent people and trying to be the best of ourselves.

Besides, the advanced courses in the university had always fascinated me. For the first time, I had the chance to comprehensively understand one subject from its establishment to gradual development. I realized that the evolution of a discipline relies on the tremendous theoretical inventions of great scientists, which push the whole field forward. For example, the Shannon's theorem establishes the transmission limit of a communication channel, the Maxwell's equations form the foundation of classical electromagnetism. In my opinion, the coolest thing about learning was to expand the boundaries of human knowledge, which motivated me to go one step further and pursue the Doctoral degree after graduation. Fortunately, I got the offer for a PhD position at HKUST, and from that moment on, my life trajectory has been changed dramatically.

In the initial stage of the PhD study, I was worried about whether I could survive. I was told that the process of PhD study was like a downward parabola. In the initial stage, you would be confused about the research direction and spend a lot of time exploring the worthwhile topics. At year 2 or 3, you would undergo the hardest time in the whole journey. Being stuck in a problem without significant progress for a long time would make you doubt, whether you are really suitable for this path. However, once through the most difficult period, you would harvest a fulfilling PhD journey. It is just like the old saying, "only over the mountains can you enjoy the most beautiful scenery." Luckily, I survived and did see different views. This process has cultivated my logical thinking, passion to the academics and courage to explore.

After graduation from the HKUST, I was fortunate to get an offer from ShanghaiTech, and joined the SIST family without hesitation. I was attracted not only by the advanced school idea, the good research environment, the passionate and outstanding faculty, but also by the support and freedom given to the young scholars to conduct independent research. Looking back, I am lucky to have always been surrounded by the kind and intelligent people at every stage of my life. I will continue learning from them and trying my best to become one of them.

Prof. Zhao Ziping

In December of 2019, I joined the community of SIST and became a SISTor. I was truly humbled and honored to start my career in ShanghaiTech as a university teacher which actually has long been my dream since I was a child. Like most of my family members, taking the road of being an educator is almost a natural decision. As one of the most renowned old-style private school (called “Si-Shu” in Chinese) tutors in my hometown, my great-great-grandfather had cultivated numerous talents and made significant contributions to the development of the regional education. To some extent, choosing the career of education is an inheritance of the family spirit.

I grew up in a small city in Shandong. Unlike Shanghai and many other developed cities, I have to say the education resources in my hometown are pretty scarce. In spite of the arduous conditions, my parents always did their utmost to support me to receive the best educations and, in my memory, we were always moving from place to place during my study just to get a valuable opportunity to be enrolled into better schools. The concept from my parents and also my family of always keeping education on the front burner without any doubt influences me a lot and my personal study experience greatly solidifies the dream to become an educator.

When I started to look for a faculty position after I finished my PhD study in Hong Kong, I got to know ShanghaiTech and was quickly enchanted by its great ambition in high education renovation and international research atmosphere. After having lots of insightful discussions with the passionate and competent SIST faculty members and obtaining a comprehensive understanding of this newly set up institution, I was more and more attracted to it and finally made up my mind to join ShanghaiTech.

In ShanghaiTech, I have established my own laboratory working with a group of wonderful students. As a professor, I am entitled to carry out research on the purely interest-guided topics, but what makes me more excited is that I can gain the opportunity to be engaged into some mission-oriented work, aiming at benefiting the whole society. **In my lab, the long-term goal of our research is to develop a new generation of data-driven decision-making theory, methods, and systems, which tailor artificial intelligence towards addressing societal pressing challenges and national strategic needs.** With this aim in mind, the research directions in my lab span across machine learning, optimization, statistics, signal processing, and game theory.

In my lab, we are conducting both theoretical and application-wide research. The theoretical side covers several directions. For instance, in recent years “smart city” has become a hot and promising topic in which idea the electronic sensors are ubiquitous for data collection which will lead to vast volume of data generated in a both distributed and online fashion. This has put forward the demand for powerful and intelligent data processing theory and methods to automate and orchestrate a wide range of daily-life services in the interests of better performance, lower costs, and lessened environmental impact. In my lab, one of our research goals is to develop the theory and methods for real-time and distributed big data analytics to address the rising needs like from smart cities.

We are also focusing on the application research in my lab. To put the theory into practice we have developed several open-source software packages which have gained widespread attentions both from the academia and the industries. We also have a group of people committed to developing the hardware platform for high-performance data analysis based on the embedded AI computing devices and FPGA’s.

I also need to highlight that **my lab is greatly encouraging and promoting transdisciplinary research** which has attracted more and more attentions from research funders to policymakers and from journal editors to company engineers. For example, we have published a number of papers on **artificial intelligence for financial technology (FinTech),** like the intelligent portfolio management problem arising in the Robo-Advisor systems, one of the widely accepted FinTech products nowadays. Besides that, we are also engaged in many other interesting applications in FinTech like leveraging the low-latency characteristics of the FPGA implementations for financial assets modeling, option pricing, Monte Carlo simulations, and so on.

I am always looking forward to collaborating with the faculty members and warmly welcoming students to join my lab.

Faculty Recruitment

JOIN US !

Tenure-Track and Tenured Positions

School of Information Science and Technology (SIST)

ShanghaiTech University invites highly qualified candidates to fill multiple tenure-track/tenured faculty positions as its core team in the School of Information Science and Technology (SIST). We seek candidates with exceptional academic records or demonstrated strong potentials in all cutting-edge research areas of information science and technology. They must be fluent in English. English-based overseas academic training or background is highly desired.

Academic Disciplines:

Candidates in all areas of information science and technology shall be considered. Our recruitment focus includes, but is not limited to: computer science and technology, electronic science and technology, information and communication engineering, applied mathematics and statistics, data science, robotics, bioinformatics, biomedical engineering, internet of things, smart energy, computer systems and security, operation research, mathematical optimization and other interdisciplinary fields involving information science and technology, especially areas related to AI.

Compensation and Benefits:

Salary and startup funds are highly competitive, commensurate with experience and academic accomplishment. We also offer a comprehensive benefit package to employees and eligible dependents, including on-campus housing. All regular ShanghaiTech faculty members will join its new tenure-track system in accordance with international practice for progress evaluation and promotion.

Qualifications:

Strong research productivity and demonstrated potentials;
- Ph.D. (Electrical Engineering, Computer Engineering, Computer Science, Statistics, Applied Math, or related field);
- A minimum relevant (including PhD) research experience of 4 years.

Applications:

Please refer to the following link or the QR code for more information:
https://www.wenjuan.com/s/MFzQ-jeO/

December 30, 2021
If you have any questions, please contact us :
sist@shanghaitech.edu.cn

- **For the postdoc positions, please refer to the following QR code:**