



*Prof. Yuyao Zhang*

This is already the fourth semester since I joined ShanghaiTech. I still clearly remember the feeling for the first time I met this place, a proper and quiet campus, everything was in order and everybody was efficient, just like my dream university to work in. After working here for one year and a half, after our first five-year international review, I am very grateful and proud of being a member of this big family. Looking back, the decision of applying to work in ShanghaiTech is the most important one after my decision to pursue a PhD. I gained an extremely rewarding opportunity to teach intelligent students, to work with passionate colleagues, as well, to contribute my effort to build this world-class university in China.

I am not a smart one, I got to know that when I was in first grade. Since I always failed in the fast computation quiz, in which we were asked to complete one hundred addition and subtraction problems in 5mins. Normally people like me won't pursue a PhD. But some other things changed my mind. When I was in high school, I began to earn some pocket money by tutoring junior school students. At that time, I learned two things, first one, to earn money (for example, teaching student) is definitely more difficult than to cost money (for example, being student); and second one, although I am an idiot comparing with my classmate who always won the first place, but comparing with the majority of other ones at same age, I am kind of good at math and physics. At least for me, math is logic, not magic. Therefore, from then on, I made a decision: I'd like to do some easier task, for example, being a student as long as possible. And finally, I got a PhD on signal and image processing. It was a pretty long way (almost 10 years after high school), thus except the degree itself, there are other good things happened to me. Such like, I have visited many cities in the Europe and U.S. with very little cost, I learned French and defended my PhD thesis with it, I met my husband and we supported each other in every precious moment, and I met numerous of great researchers, their broad knowledge and deep insight have a great impact on my research and life. Looking back, although the original motivation is ridiculous, to pursue a PhD is not a bad idea.

After receiving my PhD, I moved to Duke University to work on the topic of constructing baby brain atlas. It was for the first time I started to work with medical images. I was attracted by the problem of signal transformation in human brain, which seems to be a fascinating topic involving biology, physics and mathematics. The problem of exploring the working mechanism for our brain remains challenging with joint effort of both brain structural reveal and brain functional interpretation. This research interest led me to work with a more specific field: Magnetic Resonance Imaging. MRI can provide the best in-vivo brain structural contrasts and the most high-resolution brain functional image. And nowadays, one of the most promising research topic is to combine the artificial intelligence and brain imaging techniques to display and also to affect the signal transfer in human brain. Right-now in ShanghaiTech, we are installing the most advanced MR imaging scanners, we believe with our efforts, we could build world-class brain-computer interface center.

I believe no one can forget this spring of 2020, just like the one 17 years ago. When bad things happening there is always great hope. From my view, I have seen the sincere solidarity of all the Chinese people from all over the world, that is our hope. Unite as one, we will always win. Bon-courage Wuhan!

## • 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 founding 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/NJ7RBf/>



**Deadline:** June 30, 2020  
If you have any questions, please contact us :[sist@shanghaitech.edu.cn](mailto:sist@shanghaitech.edu.cn)

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



# SIST

ISSUE No. 13, March 2020  
NEWSLETTER

## Welcome to

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

## C O N T E N T S



Letter from Dean



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Students' Awards and Honors



Faculty Profile



SIST Website



PDF Newsletters

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





Dear students and colleagues,

As you prepare to return to the spring semester following the winter break, at least digitally, I'd like to welcome you all back and remind everyone to prioritize personal health and safety to ensure a fruitful new semester ahead.

The past winter break was most unusual to all of us. I believe many of you are still faced with anxiety caused by uncertainty. This perhaps resembles your first encounter at SIST, when the first programming assignment handed down to you, and worse, due in a week. You did not hide your head in the sand, pretending the problem would go away on its own. Instead, you directly stared the problem in the eye and chose to solve it step by step.

That's the brave spirit of SIST and that's what's made you a proud ShanghaiTecher.

Your studies here have surely taught you that uncertainties, mistakes and even failures are inevitable. In fact, learning and research are all about trial and error. This is how knowledge is created, technology is invented, and greatness is achieved. This is exactly what the frontline doctors and scientists are doing to fight the epidemic, with courage and determination. You, SISTors, share the same courage and determination.

A few months ago, SIST conducted the first 5-year international review. What impressed the evaluation board most is you: you are motivated, passionate, and compassionate. These traits are indeed key to tackling uncertainties and anxiety in your study, research and daily life. Nobody is an island. In the face of current difficulties and challenges, I hope you'd always be ready to extend our compassion and help to each other. At the same time, please don't feel shy to ask for help. We are always here to support you.

Let us enjoy this new semester that will not be short of uncertainties and anxieties but will certainly be of a great success. And I trust, through this experience you will emerge stronger, more capable, and more confident!

Sincerely,

Jingyi Yu

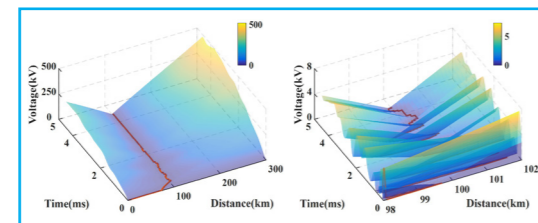
Executive Dean  
School of Information Science and Technology

SIST

## • Research Discoveries

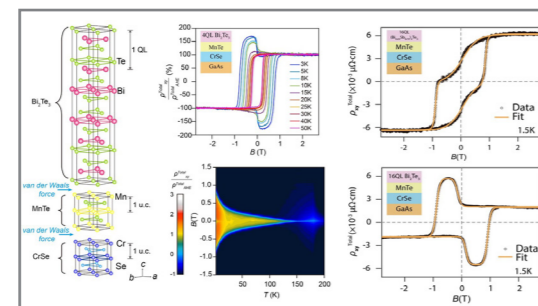
- Assistant professor Liu Yu's group proposed two accurate fault location methods on long and complex transmission lines. The two papers were published online on IEEE Transactions on Power Delivery, which is the best peer-reviewed journal in the area of power transmission, distribution and protection.

link: [http://sist.shanghaiitech.edu.cn/sist\\_en/2020/0303/c:3863a50395/page.htm](http://sist.shanghaiitech.edu.cn/sist_en/2020/0303/c:3863a50395/page.htm)



- Prof. Kou Xufeng's group designed and fabricated the epitaxial  $(\text{Bi,Sb}_{1-x})_2\text{Te}_3/\text{MnTe}$  magnetic heterostructures by molecular beam epitaxy (MBE) and realized effective manipulation of anomalous Hall effect in this system through precise variation of layer thickness and doping level. These findings, titled "Tailoring the Hybrid Anomalous Hall Response in Engineered Magnetic Topological Insulator Heterostructures", have been published international academic journal *Nano Letters*.

Link: [http://sist.shanghaiitech.edu.cn/sist\\_en/2020/0217/c:3863a50267/page.htm](http://sist.shanghaiitech.edu.cn/sist_en/2020/0217/c:3863a50267/page.htm)



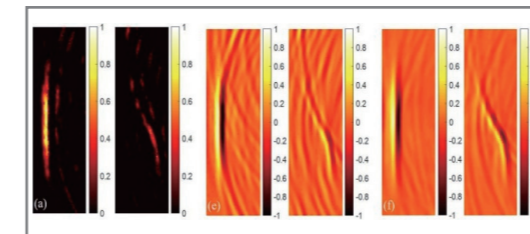
- Professor Zhao Dengji's research group got five papers accepted at the prestigious AI conferences AAMAS2020 and ECAI2020. It is worth mentioning that the first authors of the papers are not only the master's students but also the undergraduate students. They apply traditional algorithmic game theory on social networks and utilize users' social interactions to overcome new challenges in the global digital economy.

Link: [http://sist.shanghaiitech.edu.cn/sist\\_en/2020/0228/c:3863a50337/page.htm](http://sist.shanghaiitech.edu.cn/sist_en/2020/0228/c:3863a50337/page.htm)



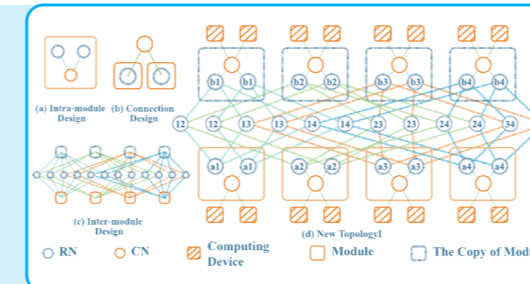
- Prof. Wang Xiong's Group proposed a novel 3D thermoacoustic imaging algorithm based on compressive sensing on IEEE TMTT. This work entitled "Three-Dimensional Microwave-Induced Thermoacoustic Imaging Based on Compressive Sensing Using an Analytically Constructed Dictionary" has published in IEEE Transactions on Microwave Theory and Techniques.

Link: [http://sist.shanghaiitech.edu.cn/sist\\_en/2020/0117/c:3863a50102/page.htm](http://sist.shanghaiitech.edu.cn/sist_en/2020/0117/c:3863a50102/page.htm)



- Professor Shao Ziyu's research group made a breakthrough in fundamental theory of networking, solving an open problem: how to systematically design effective large-scale network topology? Relevant result with title "Systematic Topology Design for Large-Scale Networks: A Unified Framework" has been accepted by IEEE International Conference on Computer Communications (IEEE INFOCOM 2020)

Link: [http://sist.shanghaiitech.edu.cn/sist\\_en/2020/0113/c:3863a49861/page.htm](http://sist.shanghaiitech.edu.cn/sist_en/2020/0113/c:3863a49861/page.htm)

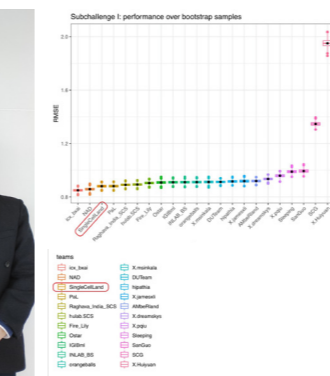


## • Students' Awards and Honors:



Tu Zhi, a senior undergraduate from the SVIP laboratory of Professor Gao Shenghua, had a paper accepted by the international conference IEEE ISBI 2020 as the first author. (Paper title: *SUNet: A Lesion Regularized Model for Simultaneous Diabetic Retinopathy and Diabetic Macular Edema Grading*). This is Mr. Tu Zhi's second academic paper to be published at an international conference. In 2018, his paper was accepted by IEEE EMBC as the first author.

"SingleCellLand", a team guided by Prof. Zheng Jie, won the Third Place (out of 291 teams worldwide) in the first sub-challenge of DREAM 2019 Challenge. Other team members include Professor Zheng's master's degree students Dai Xinnan and Wang Jie, undergraduate student Ms. Xu Fan, and Dr. Piyush Mundra from the University of Manchester (UK) a former postdoc fellow with Professor Zheng.



## • Faculty Profiles



Prof. Chi-Han Peng

It is my pleasure to have the opportunity to share my research interests and academics experiences to the big family in ShanghaiTech.

I am interested in solving optimization and more recently also machine learning/AI problems in visual computing. I generally approach problems that require a combination of algorithm design, development of suitable spatial or geometric structures, user interaction, and numerical and discrete optimization techniques. More recently, I also became interested in developing machine learning/AI techniques, mainly deep learning, in combination with optimization and user interaction.

I am fascinated with the ways that real-world 3D objects can be stored in digital formats that are easy to be visualized and manipulated. For many applications, the most suitable format is surface meshes, which are, in a nut shell, graphs with 3D embedding that encode the objects' shapes. My past research established a theoretical framework for mesh editing, including analysis of existing editing algorithms and proposal of novel operations. I studied quad and quad-dominant meshes extensively, which are a special type of mesh that poses many advantages over the traditional triangle meshes in computer animation, computer aided-design (CAD), and finite element methods for simulation. But my real passion lies in finding ways to effectively mix triangles and quads, the two cornerstones of modern mesh formats that somehow seldom being used together, for the re-meshing of 3D shapes and modeling of novel geometries.

My second and perhaps more pressing research topic is about the design and generation of urban environments, which include, but not limited to, floorplans for large buildings and street networks for cities. In general, I believe that such problems have strong geometric characteristics akin to solving spatial partition problems of 2D or 3D (volumetric) domains. At the same time, the solutions shall balance multi-faceted, and sometimes conflicting, objectives and constraints inspired by real-world settings. In terms of applications, we are witnessing the increasing roles of computational design tools in all stages of the real-estate pipeline – site planning, architectural design, floor planning, interior design, etc. Also, such algorithms have the ability to generate urban environment contents at bulks, which can be very useful for generating training data for machine learning / AI algorithms that operate on urban data such as autonomous driving, indoor scene understanding, and robotic navigation.

Looking back, I am greatly grateful for many great teachers, mentors, and collaborators that I met and worked with. From them I learnt that hard-working and time management, attention-to-details, kindness to people of all ranks, patience and persistence, and most importantly integrity, which means being honest and fair even when no one is watching, all are indispensable requirements for a successful career in academics and beyond. Looking forward, joining ShanghaiTech has been a very rewarding, exciting, and educational experience for me, and I am looking forward to contribute myself toward the goal of building a world-class university.