

classroom absorbing all kinds of invaluable knowledge rather than struggling for living. I was just like half-grouted rice which should have enjoyed the warm sunshine and sweet water and grown rapidly, but were harvested too early.

Back to my job. It was an ordinary worker rather than a cadre. An ordinary worker and a cadre were the two fundamental markers for employees in a state-owned enterprise. You may have no idea how huge the gap between them was, but just keep in mind, most of the ordinary workers were not able to cross this gap even exhausting the whole efforts of their entire career. Coming from the countryside without any social resource, I did not think God would shed special light on me such that I could cross that gap, although I was almost there six years later. Furthermore, I did not like the tasks of this job. I worked in a heat-treatment workshop. What I did was to put (manually) the metal material, sometimes very large and heavy, into an electric resistance furnace and take them out after a certain period and then chill them with water or special liquid, in order to alter their physical properties. Today, some software engineers describe their work as 'moving bricks' with self-deprecating humor. But my work was really 'moving metal', seriously. For me, it was just physical labor requiring no professional knowledge nor skills. Every health adult could do that after a couple of month training. The only good thing was that, after work, I ate well, slept well, and never had hair-loss problem. But what was the value of my four-year study in the technical secondary school? And what about my childhood dream? Although I had to give up the opportunity to a university twice, I had never given up my dream, ever. So what should I do?

Again, education became the straw which might be able to save my drowning life. I took the self-study higher education examination, choosing mechatronics as my major, which was quite different from heat treatment and therefore really challenging. I did the fulltime job and studied the mechatronics in the late evening, during what time people around me were having all kinds of fun. As indicated by the name 'self-study', I was totally on myself without any external help, any teacher, nor any classmate. What I had were a textbook, a syllabus, and several copies of previous exams for each course. Unlike today, it was not easy to get information through the internet since I could not even afford for a computer at that moment. So basically I had to understand the textbook and figure out every single problem by myself. One example, for the course 'Microcomputer principle and interface technology', there were lots of concepts I had never heard before. The first time I just read it as a novel and tried to understand its structure. Then I repeated reading, thinking, reading, thinking, ..., and finally passed the exam with a score of 91. But this was only one course, and I had to pass more than 30 courses in order to obtain a bachelor degree. The whole process took me six years, which were the most difficult but also the most valuable years in my life. It was a treasure from the God, I guess, because as Mengzi said, if the God wanted you to do something really big, he would first blablabla... So, thank you, my God, but what was the thing really big? Oh perhaps it was ShanghaiTech, I did not get it until recently.

After finishing the bachelor, I made a big decision: to take the National Graduate Entrance Examination (NGEE) with target at University of Electronic Science and Technology of China (UESTC). I believed it was this decision that led me to an academic career, and finally to ShanghaiTech. Just like throwing a little stone into the quiet water, this news spread soon all over the factory and resulted in quite some surprise, doubt, laugh, ..., but no trust. I have seen all kinds of eyes and faces: from which I could hear sounds like 'are you kidding?', 'it is impossible', et al. Well, nothing is impossible. So, just let it be. I ignored all sounds outside and was preparing for the exam following my own pace.

An even bigger news came two months later (three months before the NGEE): I rejected a promotion to a cadre (the League secretary) because it was accompanied by the condition of giving up the NGEE. As I said before, in a state-owned enterprise, the gap between a worker and a cadre was so huge that most workers could not cross it during their entire career. So in all people's minds, I should grab this opportunity. However, they were not me, the 'stupid' guy who chose the NGEE which was labeled as impossible. To be honest, I also could not predict the NGEE result at that moment. But what I knew was that this was my last chance to a university pursuing my dream, and if I missed this one I would miss it completely and would definitely regret it in the rest of my life. I also knew that I could live with the worst NGEE result. So why not? People did not understand me except for my family. My parents and two sisters always trusted me, encouraged me, and supported me. Other people felt like 'are you crazy'? Yes, I was crazy. I was crazy because this time I could follow the inside of my heart without considering the goddam finance. I was crazy also because I felt so close to my dream, only missing the final shot. I felt full of energy in every single nerve and every single cell of my body. As a man, I was fighting against the fate, which, I believe, should only be controlled in my own hands.

The biggest news came along with the warm sunshine and pleasant spring breeze: I made it. Again, I saw all kinds of interesting eyes and faces. But, this time, the underlying sounds were different. The rest of my life was much easier. I finished my master study at UESTC and then went to abroad for a Ph.D. at the Eindhoven University of Technology, where I also did my postdoc training. When I started looking for a faculty position, ShanghaiTech came into my mind immediately since I knew it quite a few years ago, from my middle school classmate and friend, Prof. Ji Hu, assistant professor at SLST in ShanghaiTech. It was interesting that, different from me choosing the technical secondary school, Ji went to the high school and then a university. But this was not the point. The thing was that he was a full professor at Xi'an Jiaotong University before joining in ShanghaiTech as assistant professor in 2014. And he was not the only case. I noticed, almost during the same period, another full professor at Nanjing University joined in ShanghaiTech as associate professor, although he was promoted soon. I was so surprised, just like people hearing that I rejected the cadre position. I was curious about what kind of university ShanghaiTech was. After extensive learning about her tenure-track system, founding and education philosophy, high academic freedom, as well as the competitive salary and benefits, I understood their choices. Since then, ShanghaiTech had become my dream institute to develop an academic career.

Again I made it. I received the offer a couple of days after the on-site interview, and accepted it without hesitation. I joined in ShanghaiTech in Sep. 2019, with education and research interests focused on biomedical signal processing and its application in neuromuscular rehabilitation and ambulatory health monitoring. To me, life was miraculous. As you see, me and Ji started from the same village school, then followed two totally different trajectories, but finally met again in ShanghaiTech, which confirmed, once again, the very old saying: 'All roads lead to Rome'. To make it more specific, perhaps I could say: 'All roads lead to ShanghaiTech, sooner or later'. So, just be prepared and patient. And, to make it even further, I would say 'All roads lead to the same destination – end of the life'. So, just cherish and enjoy every single minute and every single scene in our lives.



It has been almost three years since I joined in ShanghaiTech, and I am proud of being a member of this big family in the School of Information Science and Technology (SIST). As stated in our first five-year international review, we are commonly viewed as one of the top AI groups in China -- This is a great achievement by our faculty fellows and students. Looking back, I feel it is probably the most exciting and enriching experience after my graduation. While making a transition from oversea after so many years is not an easy task, it paves a new path that is extremely rewarding and full of opportunity in research life.

Shanghai is my second hometown and the place where I started to pursue my research career in artificial intelligence. Since high school, I was intrigued by the problem of information processing in brain, which seems to be a fascinating topic involving biology, physics and mathematics, but no individual discipline can reveal its true working mechanism. Upon graduation from high school, I joined an experimental undergrad program in Shanghai Jiao Tong University that allows us to study courses from multiple disciplines in the first year and then to decide which major to continue afterwards. This curriculum design provides a unique opportunity for me to broaden my view and to receive rigorous training in both science and engineering. Eventually I chose Electronics Engineering as my major as it provides most comprehensive coverage of topics in the area of modern information technology.

Among all the course topics, I was particularly interested in signal processing and modeling, which not only has a clear theoretical framework, but also provides an efficient strategy to transform the raw signal we perceive from the environment to a form that reflects its semantic or physical meaning. I gradually shifted to searching for an intelligence way to interpret digital signals such as speech and images, partially due to new speech recognition systems started working around that time (end of nineties). Despite the busy college life, I also managed to join in a team for mathematical modeling, which was fun and allowed me to learn how to conduct a small-scale research.

I continued my research in speech recognition and intelligent signal processing during the master program in SJTU, and joined in Prof Guangrui Hu's research team. I was lucky to work with two senior PhD students, from whom I learned a variety of background topics, including probabilistic models (HMM) and neural networks (MLP), as well as the basic research skills. I think it is also around that period that China started to introduce low-price English textbooks and all the PhD students were required to publish in international journals. Such efforts changed the way we conducted research, and I realized that there was a huge gap in domestic and oversea research qualities. Due to limited internet access and lack of speech datasets, it was challenging to build our study on top of the state of the art. The algorithm we developed worked okay in a controlled environment but was not easy to be applied to real-world scenarios.

As a result, I decided to pursue my PhD study in an oversea university and luckily received the full scholarship from University of Toronto, which is considered as one of the world centers of machine learning research. Under advice of my supervisor Prof. Richard Zemel, I started to work on developing a learning framework for visual scene understanding. My thesis work formulated the scene understanding problem as multiclass labeling of the entire image at pixel level, and proposed a probabilistic framework based on structured prediction models such as Conditional Random Fields (CRF). This perspective creates a new class of scene models with compact structure that enables us to incorporate prior knowledge of 3D scenes and to capture complex contextual relations in a principled manner. This was one of the first attempts to tackle the problem of learning to interpret scene by pixel labeling, or semantic segmentation, which has since become a core research topic, evidenced by the PASCAL challenges and many other scene labeling benchmarks.

After receiving my PhD, I moved to University of California Los Angeles to work with Prof Alan Yuille on the topic of modeling human motion perception. It was an interesting experience as I worked with researchers from not only computer science but also computational psychology. The problem of understanding dynamic scenes remains challenging with the joint efforts from multi-disciplines but it provides a unique perspective to gain deeper insights. Upon completing my postdoc project, I wanted to address some real-world problems in computational vision and decided to join in the National ICT Australia as a researcher to work on an exciting project on bionic eye, i.e., building an artificial eye for visually impaired people. With my collaborators, I developed novel image and video processing pipelines in prosthetic vision and assistive devices. The main challenge in improving the functional vision of the visually impaired is the low resolution and dynamic range of their remaining vision. My work has focused on improving object perception with such blurred vision based on object detection, tracking and segmentation. At the same time, I also joined the Australian National University as an adjunct faculty and worked with PhD students and faculty there to tackle more fundamental visual scene understanding problems.

After six year's effort, we built a world-class computer vision group led by Prof Richard Hartley, who is the key founder of the modern multi-view computer vision. However, further expanding our research efforts became more challenging due to several factors, particularly the government budget constraint and its overall policy in AI research. Despite my permanent position in the lab, it was increasingly difficult to build a competitive team working on the core problems in vision and learning. In contrast, AI research in China has taken off and expanded on a fast track, which attracted many top-tiered researchers to come back and join domestic universities. It is, however, not an easy decision to make -- after so many year's oversea experiences, domestic research environment looks unfamiliar to me and there were quite a few concerns on the management styles in traditional universities.

Fortunately, two of my colleagues at ANU, Prof Hongdong Li and Laurent Kneip told me their experience in visiting ShanghaiTech, which aims to build a brand-new university with international standard. In particular, Prof Yi Ma and Jingyi Yu were recruiting top-tier researchers around world to build a strong AI center. To get the first-hand information, I submitted my application and paid a visit myself for the following-up on-site interview. The detailed introduction and eye-opening tour on new campus showed me a well-designed, energetic, and fast-growing research university, which is an ideal environment for junior faculties to start research career. I was also impressed by the warm collaborative working environment in the SIST, cultivated by researchers from all different levels, including world-famous leaders and young faculty staffs. Therefore, after a short period of careful consideration, I decided to join in the ShanghaiTech and started to build my own PLUS (Perception, Learning and UnderStanding) lab to focus on new frontier in vision-related AI research.

After joining in ShanghaiTech, I have gradually built a research team consisting of more than ten PhD, Master and Undergrad students, which have achieved great research outcomes in computer vision and learning, including publishing five top-tier international conference papers, and expanding our research efforts to medical and biological domains. I am currently teaching two courses: one is database and data mining for undergrad students, and the other is deep learning for graduate students, both of which steadily attracts more students every year. Moreover, we are reaching out and working with industry to build joint labs, such as united imaging intelligence, so that our technology will have deep impact on real applications. While life becomes a bit more hectic because of those developments, it is a great opportunity to work with so many talented students and colleagues in ShanghaiTech, and I believe this journey would continue being exciting and highly rewarding in research and education.

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/NJ7RB/>



Deadline: March 31, 2020

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

For the Postdoc / Researcher positions, please refer to the following QR code:



上海科技大学
ShanghaiTech University

ISSUE No. 12, December 2019



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

Young Scholars Forum

In order to further strengthen the construction of the talent team, increase the introduction of high-level talents, and build a benign, efficient, fair and equitable recruitment platform, SIST held the Young Scholars Forum on May 24-25th and July 4th 2019.

The Forum provided a platform for young scholars to draw from their outstanding academic background and exchange ideas on frontier and hot academic issues, while giving them an opportunity to know more about ShanghaiTech University.



Annual ASSIST Symposium 2019

ShanghaiTech's annual information science and technology symposium was held from June 30th to July 2nd. With the theme of smart life, interdisciplinary integration, this conference attracted many experts and scholars from universities and research institutions at home and abroad. It not only focuses on new technology transformation, but also stresses cross-disciplinary collaboration, including computer vision, intelligent networks, new semiconductor devices, new energy systems, robotics, and smart healthcare.



VEH 2019



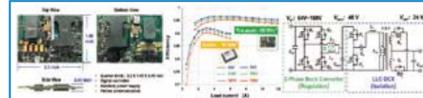
The 2nd International Conference on Vibration and Energy Harvesting Applications (VEH 2019) was held on July 13th to 15th, 2019. It focuses on how to better convert ambient kinetic energy into electricity. It properly exploits surrounding energy, to provide a reliable power supply to ubiquitous Internet of Things (IoT) devices with a vision towards the Internet of Everything.

2019 Degree Conferral Ceremony

2019 SIST degree conferral ceremony was held in the lecture hall of ShanghaiTech University on June 29th. 175 graduates in total gathered together to celebrate the ceremony with excitement and joy.

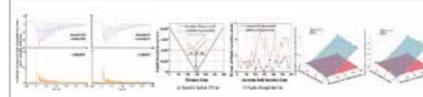


Research Discoveries



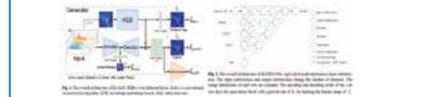
Fu Minfan proposed a 300W 110V/24V digital DC/DC module based on gallium nitride (GaN) devices.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0220/c1685a39239/page.htm>



Liu Yu's research group had three papers accepted by 2019 IEEE Power and Energy Society General Meeting.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0314/c1260a40714/page.htm>



Academic papers from Gao Fei and Gao Shenghua's research group have been accepted in MICCAI, 2019.

Link: http://sist.shanghaitech.edu.cn/sist_en/2019/0716/c3863a43749/page.htm



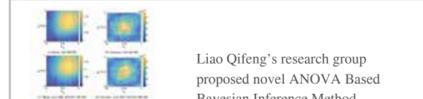
Shao Ziyu's group published three papers in IEEE ICC 2019.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0618/c1260a43192/page.htm>



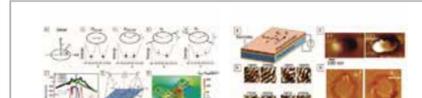
Academic papers from Sören Schwertfeger and Andre Rosendo's research group have been accepted by IEEE ROBIO 2019 and one paper from Sören Schwertfeger's research group won Best Paper Finalist.

Link: <http://www.shanghaitech.edu.cn/eng/2019/1218/c1260a48868/page.htm>



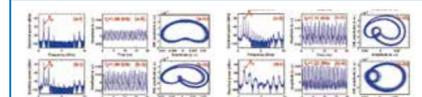
Liao Qifeng's research group proposed novel ANOVA Based Bayesian Inference Method.

Link: <http://www.shanghaitech.edu.cn/eng/2019/1018/c1260a45733/page.htm>



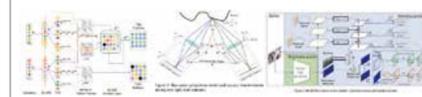
Wu Tao reviewed strain-mediated magnetoelectric coupling.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0220/c1685a39240/page.htm>



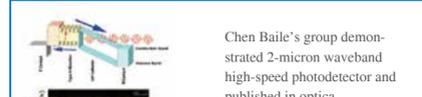
Wang Cheng's group proposed novel Q-switched semiconductor laser typ.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0617/c1260a43159/page.htm>



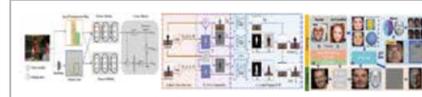
15 papers have been accepted by four top international artificial intelligence (CVPR, ACL, ICML and IJCAI).

Link: <http://www.shanghaitech.edu.cn/eng/2019/0619/c1260a43208/page.htm>



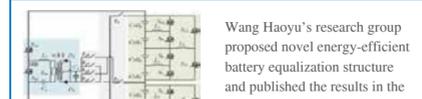
Chen Baile's group demonstrated 2-micron waveband high-speed photodetector and published in Optica.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0716/c1260a43765/page.htm>



The International Conference on Computer Vision accepted four papers from the research groups of He Xuming, Gao Shenghua and Yu Jingyi.

Link: <http://www.shanghaitech.edu.cn/eng/2019/0913/c1260a44752/page.htm>



Wang Haoyu's research group proposed novel energy-efficient battery equalization structure and published the results in the journal of IEEE Transactions on Power Electronics.

Link: <http://www.shanghaitech.edu.cn/eng/2019/1025/c1260a45870/page.htm>

Students' Awards and Honors:

Our students Received Outstanding Award (ASA Data Insights Award) and Three Meritorious Awards in 2019 Mathematical Contest in Modeling

- Deyang Jiang, Rui Li and Shidong Lyu won ASA Data Insights Award
- Jingshu Liu, Longxiulin Deng, and Yincen Xia, etc. received the three meritorious awards



Faculty Profiles



In March of 2018, I joined the family of SIST. Actually since the first day I met SIST, I have been deeply impressed for the vigorous and energetic life at ShanghaiTech. It is amazing to live a campus full of modern buildings, yet so quiet that you don't even realize this is in Shanghai, the biggest and most populated city in China. The faculty members are very young, yet they have organized many world-class research groups and achieved a great number of cutting-edge outcomes. I'm enjoying such a life, as if the time reverses, and I become a university student again.

In my life after grown-up, there have been several significant changes for both life and career. Before I enrolled in Tsinghua University as an undergraduate student, I had never been leaving home for more than a weekend. The experience in university taught me how to be independent and strong, as well as how to compromise when you can't handle everything. After a few years, I again became a stranger and started my life in Canada. More than just the change of life style, I also chose a different path for my career. It was unusual that an 18-year-old girl selected nuclear engineering as major, however it was even more difficult that she gave up all the foundation achieved for last 6 years and began the research on ultrasound which she absolutely knew nothing at that time. I would address my sincere appreciation for Tsinghua university. I was benefited quite a lot from the training and studying during my undergraduate and master, knowledges, skills, logical and critical thinking, above all, the self-confidence and courage that support me for this tough decision.

Now I have been working on the research of medical ultrasound for more than 13 years. Instead of tiresome and boring, I feel more and more joyful and enthusiastic especially when I meet the milestones one after another. It is not only because of the accomplishments, but also the responsibility that they are really helping people and making the life healthier and happier. It is the best reward for me to see patients' sparkling eyes and doctor's relieved smiles.

There may be many definitions for future medicine in the term of science and technology, however the definition of my version can be only simplified as "good enough for everyone". Artificial intelligence may improve the efficiency and accuracy of diagnosis, but eventually its applications can help medical doctors, do not need to work overtime and enjoy their family reunion. The portable medical device may integrate many high-tech including 5G, new generation of chips etc., yet its most brilliant moment is when an old man is saved even though he lives in a small village surrounded by mountains. To invent and develop the best and most advanced medicine-related technologies is never the final goal, how to make people's life longer, healthier, happier and more colorful with these technologies is the vision and mission we should pursue.

Lastly, I would like to summarize a few words from my own experience. It is never too late to start anything. Once setting up the goal, do not look back and wonder right or wrong, save all the time for that goal. After all, to make the choice means something has been lost, we should not waste our time on those we already lose, but focus on those we will achieve.



As a new 'SISTor' in ShanghaiTech, I feel very exciting, proud, and really lucky. Just the same as my dear colleagues who have shared their experiences, I would like to tell you my own story. But my story will be a little different, I believe.

I was born in a small village in the south of Sichuan province, where people were poor, struggling just for food and clothes. I had to stay at home for one year doing nothing before meeting the age requirement of a primary school, just for saving 5 RMB. Although the financial situation was not good, my childhood was very happy, because, as a child, I did not have any awareness about finance. Instead, what I had were plenty of play time, plenty of little fellows, and plenty of game places, e.g., wild fields, small hills, and rivers. Moreover, we did not have any extra course. In this sense, we were much luckier than today's kids, particularly the Shanghai kids.

I stood out soon after I went to the village's primary school, especially in math. Like most of my dear colleagues, I also had a dream to become a scientist or an engineer, even though I did not know what a scientist and an engineer really did. It turned out in my later life, this dream was too luxury. Anyway, gradually, I became the so called 'neighbor's kid' and also the hope of my family since it seemed possible for me to change my life by education, which was the only way to leave the countryside for kids like me. Fortunately, I made it. In 1996, I graduated from the middle school with top ranking, meeting the entrance requirements of the best high school in my home county as well as the technical secondary school. As Prof. Pingqiang Zhou mentioned in the first issue of the SIST newsletter, in 1980s and early 1990s, graduation from a technical secondary school guaranteed a job from the government or the state-owned enterprises, and it took only 3 or 4 years after middle school. Therefore, a technical secondary school was cost-effective and usually the first choice for most of the best students from the countryside. But, actually, I preferred to go to the high school and then a university to pursue my dream. Unfortunately, I had to give it up and picked a technical secondary school due to family's financial situation. This was the first time that I was aware of the impact of finance on my life.

Four years later, I graduated from the technical secondary school with honors and was offered to be recommended for admission to a university without exams. Once again, I rejected this offer due to the same goddam financial reason, and then accepted the assigned job in a state-owned enterprise. I still remember my first salary, i.e., 304 RMB, with which I started to live on myself and partially shouldered the burden of my family, e.g., supporting my younger sister for her high school expenses. I was just 19 years old at that moment. Kids with this age should have sat in a spacious and bright