Interview with Prof. Lu Qin

Prof. Lu Qin joined The Hong Kong Polytechnic University in the 90s and has contributed her time and efforts in research, teaching and administrative duties in the Department of Computing. Since she joined the academia in Hong Kong, she ventured into open systems to address issues in supporting interoperability of computer systems, especially in encoding methods for Chinese language processing. She is currently working in computational linguistics and Chinese NLP, but is still actively contributing to the technical development of open systems related standards.

I HAVE WANTED TO BE A TEACHER FROM A VERY YOUNG AGE.

A: Could you tell us some background on your education?

Q: I have wanted to be a teacher from a very young age. I remember when I was a kid in the elementary school, my teacher would ask me to be their “replacement teacher” to teach my classmates if for any reason they cannot come to class. The subject could be math, Chinese or even music. For example, when my musical teacher got sick, she just said, "OK, Lu Qin, go to the class to help me teach students music." I asked "What do you want me to teach?" She said "Teach them how to sing this piece of song." So, I had to learn the notes which might be new to me and then teach my classmates. I enjoy explaining to others something I know and it gives me joy if people can understand what I am trying to express.

A: Are you one of those very few women talents in those areas?

Q: I don’t think so. I am a bit insensitive to this because during my growing up years, we were taught to be men’s equals, and I don’t really have the inferiority complex when it comes to gender. During my college days, at least one third of my classmates were women. This was not very typical because in engineering schools, in general, you do not see a lot of women, at least not in my days. But you do see a lot more women in computer science.

In my college years, I have also not seen the commonly believed “men do better than women in engineering” scenario. If I take a one-on-one comparison of the performance of the female students to the male students in my college years, we were all the way as good as our counterparts. Our teachers were so proud of us and told us a secret. He said that the average score for female students admitted to our program was 20 points higher than that of male students because it was an EE program.

Actually, I was very naive about picking a school to go to for college as I had no knowledge about doing research at that time. I picked Beijing Normal University (BNU) as my first choice because it was a university for training teachers. Since I was always good in science and I like to build things, I picked EE as my major. Another reason I picked EE was because there was no such subject in high school so I see I would become a teacher in universities, which obviously sounded more attractive to me. This was how I got into BNU.

In the last year of the college, we had a programming language course and we had to do programming in ALGO on a TQ-16 computer, one of the earliest computers in China.

I keep telling people this funny part of history as we had to punch on the tapes, to prepare a standard bootstrapping program at the beginning of our own program to start the machine. This was how I got into the computer system.

In the last year of my college, I got a fellowship from UNISCO to study modern educational technology abroad. That is why I went to the United States and changed to computer science major. It was in University of Illinois where I was exposed to research. My Ph.D. study was in distributed systems, and my research work was on process migration. At that time, there was no internet. The research communities used ARPANet. I studied the UNIX kernel for my PhD and the Unix Kernel was freely accessible to the research students. But because of the limitation of the OS at the time, my study on process migration was mostly a design idea with very limited implementation.

After I came to Hong Kong, I realized that system programming here was not going to work out because it required many students and building systems required companies which design operating systems. So, I gradually moved to open systems design, POSIX support, and eventually lead to Chinese computing and natural language processing.

At that time, all of us took it as a complement to us. But when I think back, this was quite an unfair practice on the University’s part (and perhaps widely practiced) and I certainly do not like to see the same practice anywhere in the world now.
I was so delighted when my work inspires others and benefits others.

Q: You are particularly interested in Chinese Computing Systems, Open Systems and projects related to Chinese language and characters. Why are you so interested in them and what gives you the biggest satisfaction while working on them?

Q: Actually, I switched my major after I came to Hong Kong. I started as a systems person. When I came to Hong Kong, it was the period when globalization just started and computer systems, especially PCs were reaching everyone’s desktop. When a new operating system was about to be launched, it required lot of efforts to localize a system for different markets. Say, if you have a Windows 98, you need to localize it to Chinese, French and other languages, or other culture conventions. Computer systems, are quite “English-Centric” because they are originated in the United States using ASCII code. Localization is quite costly and thus it motivated me to study methods for internationalization of software design, especially on POSIX, a standard for Portable Operating Systems.

I did some research on internationalization. There was one thing which I proposed with my colleagues in CUHK which eventually made a really big impact yet I did not realize at that time. We were the first to propose a so-called codeset announcement scheme. Say when you read a website nowadays and if that is a Chinese website, you will be able to see the Chinese characters as displayed no matter where you are, even if you are in America or in Spain. The reason is that in a HTML document, there is a codeset announcement called “charset” telling you what is the encoding of the current page. Therefore, any system receiving the browsed page can find the right character set and the font to display the correct information. This was the work I did in early 90s and I actually got an ITF fund for it. We built a prototype system to demonstrate the codeset announcement is doable and the paper was published in a conference paper. Years later, one of the standard HTML developer, sent me a letter, telling me that because of our work in the codeset announcement scheme, made him to propose adding the charset into the HTML standard.

The inclusion of charset is a very simple thing. However, it has had a huge impact as a platform support for interoperability of computer systems especially for displaying web pages written in different languages. In fact, the concept of charset was not limited to display Chinese, it enables users to read web pages written in all kinds of languages in their original forms. I did not write a journal paper for this idea as it was very simple. But somebody read our conference paper and put it into a technical standard. This technology has been used to this day. This is one of the things I am really proud of. Sometimes, we need to appreciate the simple things in life. Put some simple ideas into a standard can make everyone and every system benefit from it. That is the beauty of standardization.

I would also like to thank Professor Wang Xuan of Peking University. Prof. Wang was one of the first Chinese who worked on solving practical problems in support of Chinese character printing systems. He started with producing Chinese font for text processing. Eventually, he launched the Founder group, a real pioneer in terms of doing Chinese computer system. I actually met him when I first visited in the Peking University. He was a true scholar without the ego to boast himself. Even after the Founder Group was getting famous, he has still maintained his modesty and his focus on technology development. Even though the Founder Group has ventured into a lot of different businesses, their main contribution on Chinese e-publishing related products are still their technology core.

Different people are born with different destiny determined by their own interest and fate, perhaps. I am more of an engineering person. So building some solutions, big or small, and making them work is important to me.
Q: In your eyes, how will these technologies develop further and move forward in the future?

A: Well, actually, in terms of platform support, I think the most fundamental issues are addressed. That is why people have no problem in handling basic processing of different languages, also the use of ISO10646/Unicode makes it possible to process information of different languages on the same platform. However, Chinese characters still uses a different encoding method compared to a lot of other languages due to its unique character formations and the limitation of one character one code scenario. I am still working in this area to find more efficient ways of encoding Chinese characters.

In terms of language understanding using computer technologies, Chinese has its uniqueness. We are still not doing as good as some western languages like English.

Many people are working in these areas. Originally, people in computer science were aiming at using AI technologies to obtain a general understanding of natural languages. In the last 10-20 years, however, researchers have shifted their focus from pure understanding to solving practical problems with targeted tasks. So it is more task-oriented now than understanding of natural languages. This would help with finding practical solutions to targeted tasks, such as, information retrieval, information extraction, text mining for knowledge discovery, or QA systems, and entity recognition, etc.

Q: Do you have any new plan in your work or any new initiative in inter-disciplinary projects?

A: One of the things I am thinking about is how to use computing technology combined with cognitive science to enhance the learning of languages. In terms of learning, see if we can combine these models: language processing model and cognitive model to study learning-related issues. As I have said, different people would receive different messages. How can we make use of computing techniques to have a better understanding of the perceived messages. That has to combine both the language part, I mean the text processing, and the cognitive models to see what are the differences. This is the possibility of the direction to dig into. I have had some preliminary discussion with my colleagues, but we still need to learn more before we venture into this area.

I am also working on some works related to emotion analysis. This is not the general emotion analysis but under the context of text processing, looking at what are expressed in the text about certain emotions, certain favors of certain topics, how these emotions can be tracked and linked to events. When we talk about emotion, we are currently dealing with them at the lexical level. We target to raise it to semantic level using ontological analysis, but they are still from NLP perspective, not considered interdisciplinary. We may consider working with people in other fields to gain a better understanding of emotions and it affects us in terms actions.

Q: What would be the advice you may give to young people who also wish to follow your example and focus on research in similar areas?

A: I think the most important thing is to follow your heart no matter what you do. You can only make a difference if you love what you do. That is you have to choose and engage in what you have a keen interest in. Human beings are all born to be different, for example, one person may be interested in literature while others may be more inclined in science. Why we love to do some particular things is an innate thing for each individual. If you find your interest, pursue it.

Sometimes people are too driven by the external things and the society norms. For example, I think many people want to get a PhD for the wrong reasons. If you like to do research, if finding something that no one else did gives you the excitement, if you like to dig into the whys and hows of doing things, and if you like to explain to people what you have discovered, getting into a PhD program would be your cup of tea. In other words, I don’t think getting into a PhD programme is suitable for everyone. When people ask me for advice on what they should do, I always answer with this question: what really interests you? Don’t go in for a PhD just because it sounds good or people would think that you are smart. Smart people can do a lot of things that has nothing to do with a PhD title. We all know that if we are interested in doing something, taking the time to learn and to master it is not a burden, but a joy. It is much easier to endure the “hardship” as you are motivated by your own interest to do more.
A: You like sports very much. What do you think is the biggest attraction in sports?

Q: Well I like all kinds of sports and all kinds of games. Sports are just a lot of fun for me naturally. I also have rational reasons to do exercises as I am not a naturally healthy or fit person. In other words, if I don’t do sports, I many not have the mental strength to handle the physical stress of my work. Sports of any kind can release me from stress. I feel good after doing sports.

I am fond of long distance running which I started when I was in high school and I do it regularly still. At that time I ran an hour every morning with two to three friends. We were young and we wanted to strengthen our mental toughness through hard physical training. So I got up six o’clock in the morning under sub-degree temperature. It was a struggle every day, but we did it for a number of years during the winter months in Beijing. In my college years even in graduate school, I had group sport activities everyday too. So, it was just part of my daily routine. To tell you a story, when I was a graduate student, I had a severe case of back pain which almost forced me to consider quitting my study as my back was hurting so much that I could not study for more than 20 min.

A: You were awarded the Medal of Honour (M.H.) by the HKSAR Government in 2012. Did it bring any impact to you upon your work or your personal life? Do you consider yourself a role model to others?

Q: If you ask whether it changed my life, no, not at all. But it was a real surprise when I was first notified. I did not grow up in Hong Kong, nor had I have any knowledge of the honor system and its implications. Also, the nomination process was completely done without my knowledge. But I am really happy that I received it. After I was informed of this award, I did some research and found that not many academics in Hong Kong would have the chance in getting this honor. Actually, I still don’t know if I understand what it means. Supposedly when you get the medal of honor, you should put the “MH” after your name which is probably the practice here. But I really have difficulty in writing that MH anywhere alongside my name. It seems to be bragging to me. But then, I don’t know if I am not showing my respect if I don’t put it somewhere.

I think everyone who is doing a good job in their position especially if they do it beyond his/her duty can serve as a good role model for others. It doesn’t really matter whether you are famous or not.

The honour was a recognition to what I did in the past for the Hong Kong government which brought some benefit to people upon Chinese information processing and exchange. I will continue to do what I did in the past as I have enough inner motivations to continue my work.
Interview with Prof. Jane You

Prof. Jane You (J)
Interviewer: Bonny Yeung (B)

Prof. Jane You joined The Hong Kong Polytechnic University in 1998. Having completed her Bachelor degree in Xi’an Jiaotong University, she spent her time teaching and doing research in a few different universities in Australia before returning to Hong Kong. She is very keen in doing research and her interests include computer-aided diagnosis, smart sensing, medical imaging, pattern recognition, biometrics computing and content-based image retrieval.

**There are plenty opportunities ahead that you never know. Grasp and do well and you will achieve something.**

**B:** Could you tell us some background on your education?

**J:** I obtained my first degree in Electronics (Automatic Control) from Xi’an Jiaotong University. Well that was not my ideal choice at that time. When I was young, I was far more inclined to developing a career in biochemistry as I was very interested in studies related to DNA and chemical things.

![Prof. You had an American dream when she was young](image)

And I was so much aspired to studying in Beijing University. But that was not supported by my parents who wanted me to pursue electronic in engineering instead. Eventually in 1982 when Beijing University recruitment officers came to my hometown, I learned that they only had offers in physics and bio-physics but not what I liked most. So I finally agreed to listen to my parents to take automatic control as my major. Though I didn’t start with a subject that I loved most, I still worked very hard to attain an impressive academic performance.

When I came to year 4, my interests in Computer Engineering grew and I then decided to focus in image processing. This was the result of some influence that I received from my supervisor who established the image processing lab at Xi’an Jiaotong University at that time. It was also somewhat a combination of my interests – computing and biology (human eyes) and I was happy with that.

I graduated in 1986 and I encountered another interesting opportunity. I passed a selection by the Government and was given the chance to study abroad. I long had my American dream when I was a kid, but I could only navigate through the pre-determined cards – Australia, Japan and France. Having carefully considered about language and career development concerns, I decided to go to Australia.

Australia was a totally foreign place to me at that time and I had very limited knowledge of it. I sent a few letters to different universities and the offer from the La Trobe University came first. My supervisor, though not a very well-organized person, is very smart who trained me how to work independently and my years under him was rewarding. We still maintain a very good relationship till now.

I got my first teaching experience when I got the tutorship at La Trobe. On one hand, this tutorship brought me financial security (though I had to work 20 hours per week to keep the position). On the other hand it enriched my teaching experience which eventually prepared me better for getting a job. Also it was a nice chance for me to acquire the knowledge across various subjects and equip myself fully. It was through the tutorship that I got familiar with Computer Graphics, Computer Architecture, Data Structure and Algorithmic, Computer Networks and other Computer Science Subjects.

**B:** What are your research interests?

**J:** I taught computer graphics and I have been working in image processing and pattern recognition for a long time. Currently I am focused on medical related research and I began with a small funding from the department to support a PhD student. I had lots of discussion with my friends who were engaged in the medical and medical device manufacturing. They needed tools and applications to help them digitize lots of data and appropriately apply to their devices. I saw I could contribute and made a good utilization of my knowledge in computing and image processing. By all means that was a successful combination of subjects in bio-chemistry (my favorite subject when I was young), medical and computing.
B: You have particular interest in retinal imaging system in recent years and have won a number of awards in related projects. How would you comment your achievement in this area?

J: I obtained 3 GRF and 1 ITF funding during 2007-2009 with projects of related topic. At that time PDO called for projects to represent PolyU at the 39th International Exhibition of Inventions of Geneva. Since it was the time to report the progress of ITF project, I believed it was a good opportunity to demonstrate my ITF deliverables and the timing was just perfect. I showed the devices and demo to PDO staff and my project was finally selected to represent PolyU for the event. I did not aim too high at the Exhibition initially but I’ve tried my best to prepare. I spent time furnishing a nice video recording of my system and had it go together with good diagrams. When the video was played at the scene and projected to the wall, in addition to the on-site demo, it attracted the attention of the panel members and the audience.

Finally my project (An Innovative Secured Retinal Imaging System for Computer Aided Non-intrusive Diabetic Care) secured the Special Prize and Gold Medal with Jury’s Commendation and that was something really unexpected to me. That was an incident which fully illustrates my philosophy. I won’t put too much pressure on myself and set a goal which is too high. It won’t do anything good. I would rather enjoy the process and yet drive myself to improve and try again even if I fail. I would not feel regret as I could frankly tell myself I have performed.

I ENJOY WORKING ON SOMETHING THAT YIELDS SCIENTIFIC RESEARCH VALUE AND BENEFITS PEOPLE.

B: What are your future plans in research?

I don’t have any ambitious goal. But I do have my own principle – I will work on and hope to work on something that yields scientific research value or can bring some benefits to my students. I want my research deliverables to constitute certain market potentials. I want my work to help my students in their career hunt, at least to put them in a good position and secure something in the job market. There is no point doing research in something too narrow.

At the moment I will keep on with my work in diabetics and retinal imaging analysis and I want to get deeper since this is an important issue concerning human health. I want to investigate into how retinal imaging analysis can be applied to other diseases like stroke, and to research into methods to improve the specification accuracy of data. There is another challenge that I face which I want to work on and overcome – to analyse a high volume of data serving clinical purpose. I have been in discussion with Professor Maurice Yap (Dean of Faculty of the Health and Social Sciences) and am exploring into a possible collaboration with him and the many hospitals and clinical agents who he knows. I am also talking to Professor Lam and Professor To at the School of Optometry who gave me very positive feedback. I know there is still a long way to go till we can commercialize this technology and there are lots of other factors that may impact, say, government policies, a FDA approval and more. Yet I think we should not stop. I have also proposed a lab on smart sensing with an aim to drive sensing medical information signal and to develop new sensor for environment protection.

I believe that it is only when I have a very solid base and a real output, then it is the time to go for commercialization. If my product is good enough and outperforms others, marketers and partners will be willing to collaborate. As a result I wish to concentrate more on my work with solid outputs for the future commercialization. Hope it wouldn’t take too long.
Thus I had derived for myself some teaching techniques there for the Australian students and I got good SFQ scores. When I moved to Hong Kong, I saw a different group of Asian students with another type of personality and mind-set. So I told myself I needed to change. I needed to understand what the students wanted and adjust my teaching techniques. I could not stick to just one rule all the time.

B: How would you describe your relationship with your students and your colleagues?

I get along well with my colleagues and I am really happy working here. I really have to thank them for their support. I feel so contented to find myself immersed in a loving and caring environment.

If I am asked to reflect on the quality of the relationship between myself and my students, I would say I do have a strong commitment to caring for them. Yet this won’t work out if I have never attempted to understand them.

I do observe that there is cultural diversity among students in different places. Say when I was teaching the subject computer graphics in Australia, I met students from mixed nationalities and they behaved differently. The authentic Australian students were the free goer type. They cared less about defining the question being given but they would use the very limited resources to work out, develop and modify their programs. They enrolled into programming competitions just to prove their ideas and not for awards. They would enjoy the process and everyone was enthusiastic to contribute himself in a group project. Asian students on the other hand were good at argumentation, writing and report. They cared so much about tests and exams and would put much effort there but they were far less concerned about their programming ability. They even came to me to bargain for small marks on their exam results!

When I first began my teaching in Hong Kong, I soon discovered that I had to change my teaching philosophy and skills. Students here demanded more guidance, instruction and materials. Yet I didn’t think I should spoon-feed them. I spent time to encourage my students to ask, to think and even to challenge me during the class. I was not happy if they just remained silent. If they didn’t speak up and express, there would be no improvement.

I didn’t ask officially ask my students about my teaching. But I mingled with them and tried to let them think I was a member of them. I asked them their opinions and listened. I hope they would not always take that I was their lecturer. I would rather they take me as their friends. When I read their work, I would value quality more than word count and I often reinforced this idea to them.

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