Text | Reena James

A Researcher at Heart – from China via Aachen to Oxford

RWTH Research Alumna Dr. Tingting Han

Arrival in Amsterdam, train trip to Aachen and there she was – at RWTH Aachen University. Aachen was the first European city Tingting Han had gotten to know after leaving her home country of China several years ago. What struck her from the beginning was that Aachen combines both old and young. A city with a distinctive past, historic places and buildings such as the Dom, something she had never seen alike in China. But also a city vibrant and full of energy because of the many young people around. Han, a native of Hangzhou, then was a graduate of Nanjing University in China where she had received her undergraduate and postgraduate education. She completed a master´s degree in engineering with a major in Computer Science before leaving for Aachen. What drew her to Germany back then? In 2005 she was offered a position in the interesting and promising project QUPES (Verification of Quantitative Properties of Embedded Software) headed by Prof. Joost-Pieter Katoen at the Chair for Software Modeling and Verification in the RWTH Department of Computer Science and became a PhD student at RWTH Aachen University – "the right decision" as she says when looking back. She joined the MOVES research and pursued her doctoral studies at both RWTH Aachen University and the University of Twente in the Netherlands, benefitting from the close cooperation of the Chair with international partners in competitive research projects. In 2009 she finished her doctoral studies – and with distinction. Her excellent PhD dissertation dealing with probabilistic model checking in computer sciences got acknowledged with the Overijssel Ph.D Award of the University of Twente, a nomination for the Dissertation Prize of the German computer science association Gesellschaft für Informatik e.V. and the Borchers Badge of proRWTH, the association of friends and sponsors of RWTH.

She had the chance to stay with her research group another year as postdoctoral researcher. This was also the period when her now two-year old son was born and it paid off that her husband, a researcher like her, was working at the partner university and both their chairs knew each other well. Han´s husband moved to Aachen, carrying out parts of his research project at his wife´s lab and was thus able to support his wife during pregnancy and when their child was born. Asked about how to handle both family and academic career Han gets enthusiastic about the policy in Germany that parents can take time off work after the birth of their child. However, "for a woman in academia to take three years off is nearly impossible, one year is probably more realistic". In 2011 the family moved to England where Han joined the research group of Prof. Marta Kwiatkowska at the University of Oxford, who had also been one of her PhD examiners. The research she conducts is related to the growing necessity of obtaining formal guarantees of system correctness when diverse areas are dependent on complex computer systems, for instance in business, transport, and medicine. Han describes what her research is about: "In my field, we mainly resort to mathematics: computer systems are described as some mathematical models and our task is to design efficient means to (preferably automatically) check whether certain properties hold, for instance, `no deadlock is possible´." One of the main research projects Han is currently working on in Oxford is the project VERIWARE, funded by a grant of the ERC (European Research Council). She explains that "since conventional hardware and software have evolved into 'everyware', the central premise of the project is that there is a need for a paradigm shift in verification to enable 'everyware' verification. This involves, for instance, the fundamental principles, development of algorithms and prototype implementations, and experimenting with case studies." Not only in this context but also in her general research work, keeping in touch with colleagues and fellows at RWTH Aachen plays an important role. From time to time interesting topics emerge that are dealt with in collaboration with her former chair and fellows in Aachen. Apart from her networks and contacts in Aachen there are also other things she has good memories of and recounts with a wink, for instance "my red office door, the German class in the Karman Auditorium, Kontakthüpfen in the Königshuegel and Ahornstrasse but also Westpark and the Chocolate Factory of Lindt".

Being exposed to three different countries in Europe and their cultures and languages, one might ask how easy it was to adapt to these. Han took this as another challenge and got proactive during her time in Aachen. She attended a German language class, carried a dictionary with her and was able to count on her flat-mates and German friends to support her in improving her language skills. "In everyday life I tried to memorize things, for example in the supermarket: what was the word for oil, what are the German names for these vegetables…" I believe it helps a lot to learn the language of the country you come to as a foreigner." Can she also make out other differences, for instance how academic or research culture in China and Europe differs? In her opinion it is easier to encourage international collaboration in Europe than in China. Looking back on her experience so far in Germany, the Netherlands and the UK, she points out the many chances to take part in workshops, conferences, seminars and the research visits from which one can easily benefit as scientist. Looking at Han´s professional career one cannot fail to acknowledge: this woman is a researcher at heart. Han confirms that it was a conscious decision to stay in academia because she truly enjoys doing research. "It is a challenging job: new ideas pop in and out; new problems emerge and vanish; new deadlines come and go; and days are filled with blockages and breakthroughs, but the joy and sense of achievement will easily make me forgetful of the hard times." Therefore, her advice for all young students thinking about pursuing an academic career: If you like the challenge, go for it!

Photo: private

Dr. Tingting Han at Radcliffe Camera, Oxford.