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Column New Impulse

# A journey in academia: Exploring mathematical finance across continents

In this column, researchers who have been recently appointed to one of the Dutch mathematics institutes, introduce themselves.

My name is Fenghui Yu, and I've been an assistant professor in mathematical finance at the Delft University of Technology since August 2022. Working in a field that combines my passions for mathematics and finance, my research interests encompass a wide range of areas, including stochastic modeling, stochastic optimal control, risk management, machine learning, and data-driven methods, all applied to the domain of finance and insurance. In this article, I would like to share my personal story in academia, from humble beginnings in a small city in China to my current position in the Netherlands, and some of the varied experiences I've had along the way.

Growing up in a small city called Qiyang in the southeastern province of Hunan, China, I had never imagined pursuing a career in academia, or living outside of my home country. On the other hand, I've been an adventurous person ever since I was a child, and at the age of seventeen I decided to go to a university somewhere far away from my home town to seek new experiences and explore a different way of life. In the end I chose Jilin University, located in the far northeastern part of China — a 30 hour train journey from Qiyang.

Since the country is so big, life in Jilin province is actually very different to life in my home town. For example, in northern China people rarely take showers at home, and instead go to public showers, where everybody showers in the same room with no privacy! It also gets extremely cold there in the winter; you would even see people selling ice cream outside, without any need to keep it refrigerated. One time I forgot to bring my

hair dryer with me to the public showers, and my wet hair froze solid on the way home.

The transition from my home town to the bustling city of Changchun, the capital city of Jilin Province, was overwhelming at first, but I quickly adapted to the new environment, enjoyed my studies and forged valuable friendships. After four years of undergraduate study I obtained a double bachelor's degree, with a major in computational mathematics and a minor in finance, which made it a natural choice for me to continue studying in the direction of mathematical finance.

The experience of living independently in a big city gave me confidence, and I was influenced by my professors to want to study abroad. However, when I first suggested this idea to my





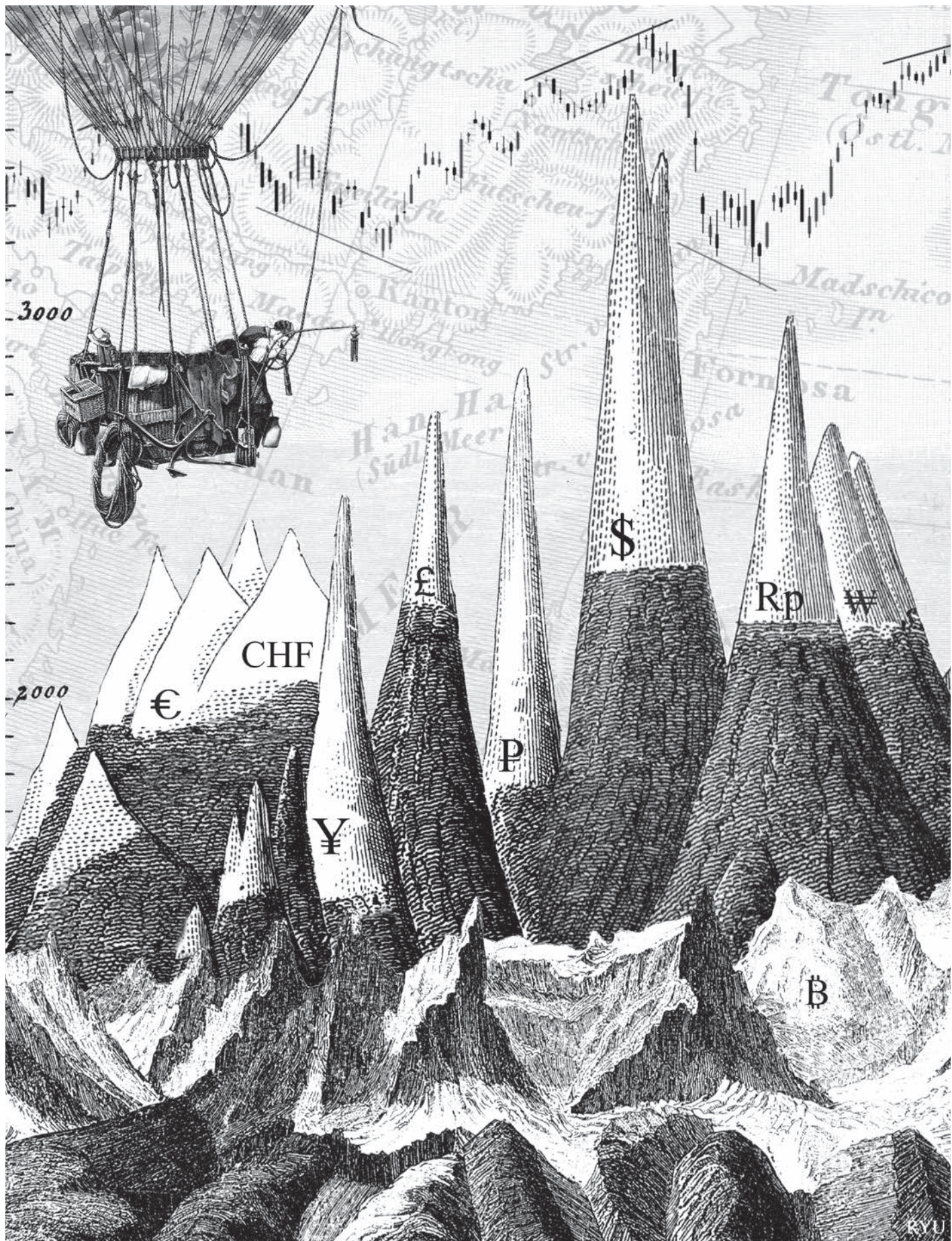


Illustration: Ryu Tajiri



parents, they were concerned about the uncertainties of going away alone to live in a foreign country. As a compromise, I decided to pursue my PhD studies in Hong Kong — a place not too distant from my home town, but still offering an international atmosphere and distinct education system. Fortunately, I received a PhD offer from the University of Hong Kong immediately after obtaining my bachelor's degree, along with an additional university scholarship.

Unlike Jilin, Hong Kong gets very hot — and yet whilst there I never wore shorts or skirts, since everywhere is so well air conditioned that I would get cold if I didn't wear enough clothes. I found life to be very convenient in Hong Kong. Being such a big city, you never have to travel very far to find what you need. You can quickly get to the bustling city center with its numerous skyscrapers, or to the beautiful nature in the mountains, harbours and beaches. I also liked the fact that the shops stayed open late. Many shops and restaurants would typically only open at 11am, but would stay open until 11pm or midnight. I would often leave the university at around 2am and stop by a dessert shop on the way home.

The opportunity to study in Hong Kong broadened my horizons, enabling me to attend conferences, participate in summer schools, and collaborate with people from around the world. These international interactions and experiences inspired me to seek new opportunities, and to finally move away from China altogether.

Following the completion of my PhD in Hong Kong I received an offer for a postdoctoral research position at ETH Zurich. This ended up being a crucial step in my career and in my life, as it committed me to an extended stay in a new continent. While awaiting the necessary documents to work in Switzerland I spent a few months as a postdoctoral fellow in Hong Kong, before finally embarking on my European adventure in June 2019.

Zurich can also get hot, but, unlike in Hong Kong, it's rare for buildings to be air conditioned. Sometimes I would sweat just sitting in my office, and at first I struggled to sleep due to the heat. Switzerland lives on a different schedule to Hong Kong; whilst shops close much earlier, the trams are already crowded at 6am, and many Swiss people get up even earlier than that. I also found Zurich to be much friendlier than Hong Kong, where I was used to staff in restaurants telling you to leave as soon as you'd finished your food. I was therefore surprised when, in a su-

permarket in Zurich, a member of staff kindly asked me whether I needed any help. Switzerland is also known for its incredibly stunning landscape, and I thoroughly enjoyed hiking, running, climbing and swimming in the beautiful Swiss countryside.

I feel extremely grateful to have had the opportunity to work at ETH Zurich. My research group there had a very stimulating atmosphere which made my work and life so enjoyable. It was a truly gratifying experience that exposed me to numerous experts in my field, expanded my research horizons and deepened my interests. Despite the challenges posed by the pandemic I had the opportunity to foster meaningful connections within my research network. The three years I spent in Zurich left a lasting mark on both my professional and personal development, reaffirming my love for the academic environment and the abundant opportunities it presents. Living in Europe also enriched my personal life, and allowed me to indulge my passions for outdoor activities and exploring places with a rich history.

I consider myself incredibly fortunate to have been offered a tenure-track assistant professorship at TU Delft. Since relocating from Zurich to Delft last summer, I have relished the chance to collaborate with new colleagues and connect with fellow researchers in the Netherlands. The country's small size and well-connected academic landscape makes it very convenient to travel and to visit various universities and institutions across the country. I was surprised at first to find out that so many of my colleagues in Delft actually live in other cities. In particular, it seems to be an unwritten rule that to be a professor in statistics at TU Delft you have to live further north than Amsterdam.

From a small city in Hunan, to Jilin, Hong Kong, Zurich and now Delft, each stage of my academic life has contributed to my growth as a researcher and as a person, and has shaped my perspective on academia. I'm grateful for the remarkable individuals I have encountered along the way, whose positive influences have paved the way for both my academic and personal development. As I continue my career at TU Delft, I remain passionate about exploring mathematical models and techniques for solving problems in financial mathematics, and I eagerly anticipate further collaboration and interaction with the academic community in the Netherlands and beyond. ❖

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