

Introduction of S. Joe Qin, President and Wai Kee Kau Chair Professor of Data Science at Lingnan University

Professor S. Joe Qin has a distinguished and inspiring career record, marked by outstanding achievements in both the world of academia and the field of industry.

He has won international recognition for his pioneering research work in areas ranging from automation and engineering to technology and data science, all the while maintaining a sharp focus on the importance of finding solutions to the type of real-world problems faced by major names in the high-tech and manufacturing sectors.

The ability to adapt, a willingness to seek out new challenges, and a talent for organisation and leadership have seen him hold a series of senior positions at highly respected institutions in the United States and Hong Kong.

And, each step of the way, he has made clear his dedication to advancing all-round education through a commitment to creating and capitalising on opportunities and ensuring that graduates have the skills and positive outlook needed to succeed in an ever-changing workplace.

A native of Shandong province where he showed an early aptitude for mathematics and physics, Professor Qin was admitted to Beijing's prestigious Tsinghua University at the age of 16 to study automation.

He obtained his B.S. and M.S. degrees there before moving to the United States in 1989 to take up a full scholarship to pursue a PhD in chemical engineering at the University of Maryland, College Park.

On completing this qualification in June 1992, he followed through on a long-held plan to gain practical experience in the world of industry by working as a principal engineer at Emerson Process Management for the next three years.

Based in Texas, he had to understand and resolve engineering problems in an environment where textbook answers didn't necessarily work. That general approach was something he went on to apply with notable success in future projects which required research discipline and on-the-spot insights.

From 1995, appointed initially as an Assistant Professor in chemical engineering at the University of Texas at Austin, but later promoted to endowed Professor, he took the chance to combine academic responsibilities with breakthrough research and regular assignments in industry.

A specific example of this was a project with Advanced Micro Devices (AMD) to develop optimisation and monitoring technology for next-generation wafer fabrication.

Realising that manufacturing conditions usually change over time, the aim was to use data from the manufacturing system to reduce defects and investigate "model predictive control", a practice known to industry before academia could fully explain it.

The resulting paper, co-authored by Professor Qin and Dr Thomas Badgwell, was the first to provide a unified framework to reveal the principles of industrial practice.

The paper now has over 6,000 citations on Google Scholar and is considered a milestone in its domain. It is credited with playing an influential role in the automation of chemicals and semiconductor manufacturing, the diagnosis of faults and possible defects, and the development of better monitoring systems.

From 2007 to 2019, Professor Qin was the Fluor Professor of Process Engineering at the Viterbi School of Engineering of the University of Southern California. During that period, he took three years' leave to serve as Vice President and Presidential Chair Professor at The Chinese University of Hong Kong, Shenzhen.

The goal there was to establish the campus, set standards, and build an up-to-date education system geared to the needs of global citizens.

Once that was done, he moved to Hong Kong to become the inaugural Dean of the School of Data Science and Chair Professor of Data Science at the City University of Hong Kong. This allowed him to lead in a different and new discipline, one that provided the scope to work on leading-edge projects and explore the exciting new possibilities of the digital era.

To date, Professor Qin has published more 470 international journal articles, book chapters, conference papers and presentations. He is an inventor who holds 12 U.S. patents. And he is a much-in-demand speaker at seminars, short courses, industry workshops, and technical conferences around the world.

Over the years, he has advised more than 40 PhD students, and his own research interests now range from data science and analytics to smart manufacturing, machine learning, smart cities, and predictive health maintenance.

Reflecting his high standing in the academic community and beyond, Professor Qin is a Fellow of the U.S. National Academy of Inventors, of the International Federation of Automatic Control (IFAC), of the American Institute of Chemical Engineers, and of the Institute of Electrical and Electronics Engineers (IEEE), among other honours.

Most recently, he received the 2022 CAST Computing in Chemical Engineering Award, presented by the American Institute of Chemical Engineers, and the 2022 IEEE Control Systems Society Transition to Practice Award. In each case, he was the first and, so far, the only recipient of both awards to be working currently at a university in Hong Kong or Greater China.

In other respects, Professor Qin has served as Senior Editor of the *Journal of Process Control*, Editor of *Control Engineering Practice*, and as Associate Editor for several more international journals.

In assuming his new role as the President of Lingnan University, he brings a clear vision and a forward-looking agenda. His stated aim is to build on traditional strengths in liberal arts education, extend the university's research and learning by furthering international networks, and ensure faculty and students are fully conversant with use of the latest digital tools.

Mr Chairman, in view of Professor S. Joe Qin's distinguished academic leadership, pioneering contributions in technology and data science, and commitment to integrating liberal arts education with digital innovation, I am honoured to present Professor S. Joe Qin for official installation as the President of Lingnan University.

Introduction delivered by Professor Joshua Mok Ka-ho