



Department of
Systems Engineering

香港城市大學
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From System to Device: Exploring Microsystem in Generalized 3D Sensing, Energy-Water-Food Nexus, and Medical Devices



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Abstract

System and device designers typically approach problems from two dimensions. From a system perspective, they usually need to have a deep understanding of practical application scenarios and requirements, use existing devices, and optimize system performance without involving innovation or optimization at the device level. From a device perspective, they typically start from physical models, improve the performance of individual devices under process constraints, and do not consider the requirement at the system level. Microsystems is an interdisciplinary technology platform that integrates miniaturization techniques with multifunctional systems, which can be used to bridge the collaborative optimization between systems and devices. This talk will explore the applications of microsystems and semiconductor technology from a system perspective in three areas: generalized 3D sensing, the energy-water-food nexus, and medical devices. It also attempts to make innovations in directions such as quantum enhancement and algorithms.

About the Speaker

Dr. Qi Qin obtained his BS, MS, and PhD degrees sequentially from Nanjing University, Chinese Academy of Sciences and Massachusetts Institute of Technology (MIT). His hands-on industrial experiences span photonics, artificial intelligence, medical device, green technology and finance. He identifies interdisciplinary innovation opportunities by addressing real-world problems and focuses on micro-system technologies. He has a comprehensive entrepreneurial background, serving as a professor in academia, CEO and inventor in startups, investor in venture capital, engineer and strategic investor in Fortune 500 companies. He is a finalist for Kauffman Fellowship, which recognizes achievements in innovation and highlights leadership within the entrepreneurial ecosystem. Being passionate about innovation, he resumed his academic journey as a distinguished professor in College of Physics and Optical Engineering at Shenzhen University.