

## Department of Computer Science



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 **Date: 28 May 2021 (Friday)**

 **Time: 9:30am – 10:30am GMT+8 (HKT)**

\*Zoom details will only be provided to registrants

# Convergence of Artificial Intelligence, Edge Computing, and Blockchain for Internet of Things: Challenges and Opportunities



## ABSTRACT

Internet of Things (IoT) is reshaping the incumbent industry to a smart industry featured with data-driven decision-making. However, intrinsic features of IoT result in challenges such as difficulty in data analytics, vulnerable privacy and security protection, and poor interoperability. The recent advances in artificial intelligence, edge computing, and blockchain technologies bring us opportunities to address the challenges of IoT. In this talk, I will first review the key challenges of IoT from the following aspects: 1) heterogeneity of IoT data, 2) security and privacy vulnerabilities, and 3) lack of interoperability. I will then present several potential solutions in tackling these challenges of IoT by integration of AI, edge computing, blockchain, and relevant technologies. Finally, I will discuss several future directions in this promising area.



## BIOGRAPHY

Henry Hong-Ning Dai is with the Faculty of Information Technology at Macau University of Science and Technology as an associate professor. He obtained a Ph.D. degree from the Chinese University of Hong Kong and a DEng from Shanghai Jiao Tong University. His research interests include Blockchain, the Internet of Things, and Big Data Analytics. He has published 3 monograph books, and over 150 peer-reviewed papers in top-tier journals and conferences, including IEEE Communications Survey and Tutorials, Proceedings of the IEEE, ACM Computing Surveys, IEEE Transactions on Computers, IEEE Transactions on Industrial Informatics, IEEE Internet of Things Journal, ACM Transactions on Intelligent Systems and Technology, etc. He has 4 ESI highly-cited papers awarded by Clarivate Analytics, 1 IEEE Outstanding Paper Award conferred by IEEE CPSCOM 2019, 1 Best Paper Award conferred by EAI CloudComp 2020, the Excellent Research Award conferred by Macau University of Science and Technology, and inclusion to top 2% of scientists for citation impact in 2019 by Stanford University. He is also the holder of 1 U.S. patent and 1 Australian innovation patent. He has been actively involved with many professional activities. In particular, he has been serving as associate editors in IEEE Transactions on Industrial Informatics, IEEE Systems Journal, and Connection Science, and an editor of Ad Hoc Networks. He is one of the founding TPC chairs of the International Conference on Blockchain and Trustworthy Systems in 2019) and the inaugural IEEE International Symposium on Blockchain in 2021. He is both ACM and IEEE senior members.

## ENQUIRY