

A Vision towards Pervasive Edge Computing



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The Hong Kong Polytechnic University

► Abstract

This talk presents an emerging pervasive edge computing paradigm where heterogeneous edge devices (e.g., smartphones, tablets, IoT and vehicles) can collaborate to sense, process data and create many novel applications at network edge. We propose a data centric design where data become self-sufficient entities that are stored, referenced independently from their producers. This enables us to design efficient and robust data discovery, retrieval and caching mechanisms. The future research agenda including scalable data discovery, cache management, autonomous processing, trust, security and privacy, incentives and semantic data naming) will be discussed.

► About the Speaker

Yuanyuan Yang received the BEng and MS degrees in computer science and engineering from Tsinghua University, Beijing, China, and the MSE and PhD degrees in computer science from Johns Hopkins University, Baltimore, Maryland, USA. Prof. Yang is a SUNY Distinguished Professor in the Department of Electrical & Computer Engineering and Department of Computer Science, and the Associate Dean for Academic Affairs of College of Engineering and Applied Sciences at Stony Brook University, New York, USA.

Prof. Yang is internationally recognized for her contributions in networking and parallel and distributed computing systems areas. She was named an IEEE Fellow in 2009 "for contributions to parallel and distributed computing systems." Her current research interests include wireless/mobile networks, mobile crowd sensing, edge computing, data center networking and cloud computing. Her research group currently develops wireless energy-charging algorithms and mobile data gathering mechanisms in wireless rechargeable sensor networks, data center networks and virtual machine placement algorithms in cloud computing networks and data discovery/retrieval/caching mechanisms in mobile crowd sensing systems.

Prof. Yang is currently the Associate Editor-in-Chief for IEEE Transactions on Cloud Computing and an Associate Editor for ACM Computing Surveys. She has served as the Associated Editor-in-Chief for IEEE Transactions on Computers, and an Associated Editor for IEEE Transactions on Computers and IEEE Transactions on Parallel and Distributed Systems. She has published over 370 scientific papers in leading refereed journals and conferences.

She is an inventor/co-inventor of seven U.S. patents in the area of interconnection networks. She has served as a distinguished visitor of IEEE Computer Society. She received an IEEE Region 1 Award in 2002, the Best Paper Awards at the 18th IEEE International Parallel and Distributed Processing Symposium in 2004, and the 7th International Conference on Parallel and Distributed Systems in 2000, a Distinguished Leadership Award from the 15th IEEE International Conference on Computer Communications and Networks in 2006 and four Best Paper Runner-up Awards. She has served as a general chair, program chair or vice chair for several major conferences and a program committee member for numerous conferences. She has received many research grants as a Principal Investigator from the U.S. National Science Foundation and the Army Research Office. Her home page is at www.ece.stonybrook.edu/~yang.

All are welcome!

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