

# AI-powered Multi-device Systems and Applications

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**Abstract**—Multi-device computing is an emerging research area that envisions autonomous, proactive and dynamic self-organizing collaborations between several devices, e.g., to improve the energy footprint of the individual devices, to accelerate their performance, or to capture information that is not possible to acquire without multiple devices working together. However, merging the resources of multiple devices to work in collaboration in a self-organizing manner is a profound challenge. Devices in the wild are not autonomous nor social entities that are aware of their context, e.g., location, local resources, other devices, I/O interfaces, and users preferences, among others. The theme of the panel is to overview how by leveraging the power of AI, it is possible to design and develop seamless integration of devices to provide better multi-modal interactions to users and to reduce the burden of computations in the wild for devices.

**Index Terms**—Cloud, Edge, Cloudlet, Artificial Intelligence, Device-to-Device, Data Analytics

## SPEAKERS BIO

**Huber Flores:** is a Docent as well as an Academy of Finland Postdoctoral Researcher working in the Department of Computer Science at the University of Helsinki, Finland. In 2015, he obtained with honors his PhD in computer science from the Faculty of Mathematics and Computer Science, University of Tartu, Estonia. He is an active member of ACM (SIGMOBILE) and IEEE societies. His major research interests include computational offloading, social-aware device to device systems and applications, and mobile cloud computing. He consistently publishes at top-ranked conferences, such as Ubicomp/IMWUT, ICDCS, CHI, PerCom, HotMobile, MobiSys; and journals such as IEEE Communications, IEEE Transactions on Mobile Computing, Pervasive and Mobile Computing Journal, and Journal of Systems and Software. He has served as organizer and committee member of multiple mobile computing and networking venues, which include CHANTS@MobiCom, HotPost@INFOCOM, IPDPS Workshops, Student Workshop@CoNext and PerCrowd@PerCom.

**Petteri Nurmi:** is an internationally well-recognized researcher in the fields of ubiquitous computing and sensing. He is Associate Professor at University of Helsinki as well as 50th Anniversary Lecturer in Foundations of Pervasive Data Science at Lancaster University. Prof. Nurmi has a

comprehensive publication record, with over 80 published articles, and an extensive citation record (1800+ citations, h-index of 22, i10-index of 42). He consistently publishes at top-ranked conferences, such as Ubicomp, MobiCom, SenSys, MobiSys, IUI, WWW, PerCom. and journals such as IEEE Pervasive, IEEE Transactions on Mobile Computing, Pervasive and Mobile Computing, and ACM Transactions on Intelligent Information Systems. He has served as external evaluator for ERC starting grant proposals; he was the program chair for MobiCASE 2015; and he serves as a program committee member and reviewer to several top conferences in the field. He has also actively participated in conference organization activities (workshop chair for PerCom 2018 and Pervasive 2009, as Demonstration Chair for PerCom 2017, and as poster chair for MobileHCI 2013). He also formerly worked as Science Advisor for Moprim, a company focusing on analysis of mobility information.

**Pan Hui:** received his Ph.D degree from Computer Laboratory, University of Cambridge, and earned his MPhil and BEng both from the Department of Electrical and Electronic Engineering, University of Hong Kong. He is director of the HKUST-DT System and Media Lab (<http://symlab.ust.hk>) at the Hong Kong University of Science and Technology. He was an adjunct Professor of social computing and networking at Aalto University Finland, a Distinguished Scientist for Telekom Innovation Laboratories (T-labs) Germany, and a researcher at Intel Research Cambridge. He has published 200+ research papers with over 14,000 citations and has 30 granted / filed European and USA patents. He has founded and chaired several IEEE/ACM conferences/workshops, and has been serving on the organising and technical program committee of numerous international conferences including ACM SIGCOMM, IEEE Infocom, ICNP, SECON, MASS, Globecom, WCNC, ITC, IJCAI, ICWSM and WWW. He is an associate editor for IEEE Transactions on Mobile Computing and IEEE Transactions on Cloud Computing. He is an IEEE Fellow, an ACM Distinguished Scientist, and a member of the IEEE Computer Society Fellow Evaluation Committee.