Keynote I – Computing for An Era of Innovation

President Sang Hyuk Son

DGIST, South Korea

Abstract
We are entering into an era of innovation and rapid change, fueled by disruptive technology. It is a new kind of technological revolution that will fundamentally change the way we live and work. In its scale, scope, and impact, the transformation will be unlike anything mankind has experienced before. If we look closely into the current revolution, it has intelligence information technologies at its core, converging with existing industries and being combined with science and engineering in diverse fields, bringing out novel innovations. Systems featuring a tight combination of, and coordination between, the system’s computational and physical elements are broadly called cyber physical systems (CPS). They have the potential to transform how humans interact with and control the physical world. Advances in key technologies are changing how these types of systems operate. For instance, the level of uncertainty in which these systems operate is increasing, creating the need for greater resiliency. Pervasive wireless access is pushing these systems to unprecedented dynamic and non-deterministic situations. There is a critical demand for CPS to be adaptive to provide robustness to meet the requirements. In this talk, we illustrate few technologies driving the innovation, and discuss the research challenges that need to be addressed to achieve the dream of a smart and safe new world.

Biography
Sang Hyuk Son is the President of DGIST. He has been a Professor of Computer Science Department at the University of Virginia, and WCU Chair Professor at Sogang University. He received the B.S. degree in electronics engineering from Seoul National University, M.S. degree from KAIST, and the Ph.D. in computer science from University of Maryland, College Park. He has been a Visiting Professor at KAIST, City University of Hong Kong, Ecole Centrale de Lille in France, and Linkoping University and University of Skovde in Sweden.

Prof. Son is IEEE Fellow, and a member of both the Korean Academy of Science & Technology and the National Academy of Engineering of Korea. He has served on the editorial board of the ACM Transactions on Cyber Physical Systems, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, and Real-Time Systems Journal. He is a founding member of the ACM/IEEE CPS Week, and serving as a member of the steering committee for the IEEE RTCSA and Cyber Physical Systems Week. He received the Outstanding Contribution Award from the Cyber Physical Systems Week in 2012. His research interests include cyber physical systems, real-time and embedded systems, database and data services, and wireless sensor networks. He has written or co-authored over 340 papers and edited/authored 4 books in these areas. His research has been funded by the Korean Government, National Research Foundation, National Science Foundation, DARPA, Office of Naval Research, Department of Energy, National Security Agency, and IBM.
Keynote II
Prof. Jane Hsu
National Taiwan University, Taiwan

Biography
Jane Hsu is currently a Professor of the Department of Computer Science and Information Engineering at National Taiwan University, where she served as the Department Chair from 2011 to 2014. As the Director of the NTU IoX Center, established in 2011 as the Intel-NTU Connected Context Computing Center, Prof. Hsu is leading the global research collaboration on Augmented Collective Beings and Internet of Things. With more than 30 years of experience in AI, her research interests include multiagent planning/learning, crowdsourcing, knowledge mining, commonsense computing, and context-aware smart IoT. Prof. Hsu served on the editorial board of *Journal of Information Science and Engineering* (2010-), *International Journal of Service Oriented Computing and Applications* (Springer, 2007-2009) and *Intelligent Data Analysis* (Elsevier/IOS Press, 1997-2002). Having been on the board of Taiwanese Association for Artificial Intelligence since 2004, she served as the President in 2013-14. Prof. Hsu has been actively involved in key international conferences of AAAI, IEEE, and ACM, and served as an executive member of the IEEE Technical Committee on E-Commerce (2000). Prof. Hsu is a member of the Phi Tau Phi Scholastic Honor Society, and received the 2016 MSRA Collaborative Research Award, and Intel Labs Distinguished Collaborator Award.
Keynote III – Collaborative Computing with Urban Big Data

Prof. Minyi Guo

Shanghai Jiao Tong University, China

Abstract
Nowadays, sensing technologies and large-scale computing infrastructures have produced a variety of big data in urban spaces, e.g. human mobility, air quality, traffic patterns, and geographical data. The big data implies rich knowledge about a city and can help tackle these challenges when used correctly. We believe this is the right time to research on holistic urban big data which has been made possible due to recent advances in communication technologies that allow wireless connection and untethered data exchange among vast urban sensing and computing devices, as well as advanced data and computing science that provides us necessary methods and computing power to understand, model, and reason the urban data and people. In this talk, we will give some properties for processing urban big data and discuss how the collaborative computing bridges the data and computation in the cyber space and the environment, systems, people and things in the physical world.

Biography
Minyi Guo received the BSc and ME degrees in computer science from Nanjing University, China; and the PhD degree in computer science from the University of Tsukuba, Japan. He is currently Zhiyuan Chair professor and head of the Department of Computer Science and Engineering, Shanghai Jiao Tong University (SJTU), China. Before joined SJTU, Dr. Guo had been a professor of the school of computer science and engineering, University of Aizu, Japan. Dr. Guo received the national science fund for distinguished young scholars from NSFC in 2007, and was supported by “Recruitment program of Global Experts” in 2010. His present research interests include parallel/distributed computing, compiler optimizations, big data processing and analysis, pervasive computing, and cloud computing. He has more than 300 publications in major journals and international conferences in these areas. He received 5 best paper awards from international conferences. He is on the editorial board of IEEE Transactions on Parallel and Distributed Systems and Journal of Parallel and Distributed Computing. Dr. Guo is a senior member of IEEE, member of ACM, IEICE IPSJ, and CCF.