

Spring 2016 Seminar Series

Networking, Computing, and Security of Cyber-Physical Systems

THURSDAY JUNE 9, 2016

1:30 PM – HEC 113

Wide deployment of mobile Internet applications and services totally change human society and the style of human living. Cyber-physical systems (CPS) are expected to further drive information technology integrating with diverse application scenarios to benefit human life from every aspect. We will present a unique journey of technology development toward large-scale CPS via network science. Under cloud computing, we start from the design of state-of-the-art wireless autonomous networks requiring spectrum efficiency and energy efficiency. Then, we introduce concepts from network science, biology and ecology, social science, to resolve various technology challenges in an innovative way. We then illustrate the importance of in-network computation and computational intelligence on data to efficiently establish secure end-to-end networking in the machine swarm of CPS. Via data analytics, interaction between human/social networks with CPS invokes a new technology opportunity to look into security and privacy. Networking, computing, and security, consequently form the foundation of systems engineering technology to enable future digital society.



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Kwang-Cheng Chen received the B.S. from the National Taiwan University, and the M.S. and Ph.D from the University of Maryland, College Park. From 1987 to 1998, Dr. Chen worked with SSE, COMSAT, IBM Thomas J. Watson Research Center, and National Tsing Hua University, in mobile communications and networks. Since 1998, Dr. Chen has been with National Taiwan University, Taipei, Taiwan, ROC, and is the *Distinguished Professor*, where he served as the Director, Graduate Institute of Communication Engineering, Director, Communication Research Center, and Associate Dean, College of Electrical Engineering and Computer Science. He has been visiting the Research Laboratory of Electronics at the Massachusetts Institute of Technology, 2012-2013 and 2015-2016. He was with the STAG, Executive Yuan, to engineering Taiwan's telecommunication deregulation and to plan nation's ICT strategy and regulator (i.e. NCC) in 1990's. Dr. Chen founded INPROCComm Inc. in 2001, which was acquired by the MediaTek Inc. in 2004. He has been actively involved in the organization of IEEE conferences as General/TPC chair/co-chair, serving editorships with a few prestigious IEEE journals, and IEEE volunteer services with IEEE Fellow Committee, etc. Most recently, Dr. Chen founds and chairs the Technical Committee on Social Networks in the IEEE Communications Society, and also serves in the IEEE Big Data Initiatives. Dr. Chen's research interests include wireless networks, cybersecurity, cyber-physical systems, network science and data science, and statistical decision & learning.

