

## IEEE Distinguished Lecture

May 15, 2017: 12.30-13.30 at DIMES – University of Calabria, Cubo 42C, Lecture Room, 5<sup>th</sup> Floor

### Internet of Things: Research and Practice

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#### Abstract

Human beings have experienced two major industrial revolutions. The first one took place in the 19<sup>th</sup> century, which replaced muscle power from humans and animals with mechanical power. The second one started in the middle 20<sup>th</sup> century, which provided people and societies with Internet. It was built with the technologies from computing, communication, networking and information storage. Both offered unprecedented productivity increases. What will be the next one? This talk intends to answer this question by presenting some recent development of Internet of Things (IoT). IoT was selected by IEEE as a major initiative to develop and advance over the next few years. Several recent studies have predicted the huge growth of IoT and tremendous benefits to the world economy. It was expected that 26 billion IoT units would be installed by year 2020, generating \$300 billion in revenue. The IoT will generate an additional \$1.9 trillion in economic value. We plan to present the status of IoT including its architectures, interesting research projects and applications to manufacturing automation, smart cities, smart grid, medical and healthcare services. Such key technologies and barriers as information security and social sensing will also be discussed.

#### Biography



**MengChu Zhou** received his B.S. degree in Control Engineering from Nanjing University of Science and Technology, Nanjing, China in 1983, M.S. degree in Automatic Control from Beijing Institute of Technology, Beijing, China in 1986, and Ph. D. degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY in 1990. He joined New Jersey Institute of Technology (NJIT), Newark, NJ in 1990, and is a Distinguished Professor of Electrical and Computer Engineering and the Director of Discrete-Event Systems Laboratory. His research interests are in intelligent automation, Petri nets, Internet of Things, Web service, workflow, big data, transportation and energy systems. He has over 680 publications including 12 books, 360+ journal papers (over 260 in IEEE transactions), and 28 book-chapters. His recently co-authored/edited books include *Business and Scientific Workflows: A Web Service-Oriented Approach*, IEEE/Wiley, New Jersey, 2013 (with W. Tan) and *Contemporary Issues in Systems Science and Engineering*, IEEE/Wiley, New Jersey, 2015 (with H.-X. Li and M. Weijnen). He was invited to lecture in Australia, Canada, China, France, Germany, Hong Kong, Italy, Japan, Korea, Mexico, Singapore, Taiwan, and US and served as a plenary/keynote speaker for many conferences. He is the founding Editor of IEEE Press Book Series on Systems Science and Engineering. He served as Associate Editor of IEEE Transactions on Robotics and Automation from 1997 to 2000 and IEEE Transactions on Automation Science and Engineering from 2004-2007, and Editor of IEEE Transactions on Automation Science and Engineering from 2008-2013. He is Associate Editor of IEEE Transactions on Systems, Man and Cybernetics: Systems, IEEE Transactions on Industrial Informatics and IEEE Transactions on Intelligent Transportation Systems. He served as Guest-Editor for many journals including IEEE Transactions on Industrial Electronics and IEEE Transactions on Semiconductor Manufacturing. He was General Chair of IEEE Conf. on Automation Science and Engineering, Washington D.C., August 23-26, 2008, General Co-Chair of 2003 IEEE International Conference on System, Man and Cybernetics (SMC), Washington DC, October 5-8, 2003, Founding General Co-Chair of 2004 IEEE Int. Conf. on Networking, Sensing and Control, Taipei, March 21-23, 2004, and General Chair of 2006 IEEE Int. Conf. on Networking, Sensing and Control, Ft. Lauderdale, Florida, U.S.A. April 23-25, 2006. He was Program Chair of 2010 IEEE International Conference on Mechatronics and Automation, August 4-7, 2010, Xi'an, China, 1998 and 2001 IEEE International Conference on SMC and 1997 IEEE International Conference on Emerging Technologies and Factory Automation. He organized and chaired over 100 technical sessions and served on program committees for many conferences. Dr. Zhou has led or participated in over 50 research and education projects with total budget over \$12M, funded by National Science Foundation, Department of Defense, NIST, New Jersey Science and Technology Commission, and industry. He was the recipient of NSF's Research Initiation Award, CIM University-LEAD Award by Society of Manufacturing Engineers, Perlis Research Award and Fenster Innovation in Engineering Education Award by NJIT, Humboldt Research Award for US Senior Scientists, Leadership Award and Academic Achievement Award by Chinese Association for Science and Technology-USA, Asian American Achievement Award by Asian American Heritage Council of New Jersey, and Outstanding Contributions Award, Distinguished Lecturership, Franklin V. Taylor Memorial Award and the Norbert Wiener Award of IEEE SMC Society, and Distinguished Service Award from IEEE Robotics and Automation Society. He is founding Co-chair of Enterprise Information Systems Technical Committee (TC) and Environmental Sensing, Networking, and Decision-making TC of IEEE SMC Society. He is a member of IEEE IoT Initiative Committee and IEEE Smart City Initiative Committee. He was leading Guest-Editor for July 2016 IEEE Trans. on Automation and Science Special Section on Advances and Applications of Internet of Things for Smart Automated Systems. He serves as Chair of Steering Committee of IEEE International Conf. on Automation Science and Engineering and IEEE Int. Conf. on Networking, Sensing and Control. He has been among most highly cited scholars for years and ranked top one in the field of engineering worldwide in 2012 by Web of Science/Thomson Reuters. His Google citation count is well over 25,000 and H-index is 72. He is a life member of Chinese Association for Science and Technology-USA and served as its President in 1999. He is Fellow of IEEE, International Federation of Automatic Control (IFAC) and American Association for the Advancement of Science (AAAS).