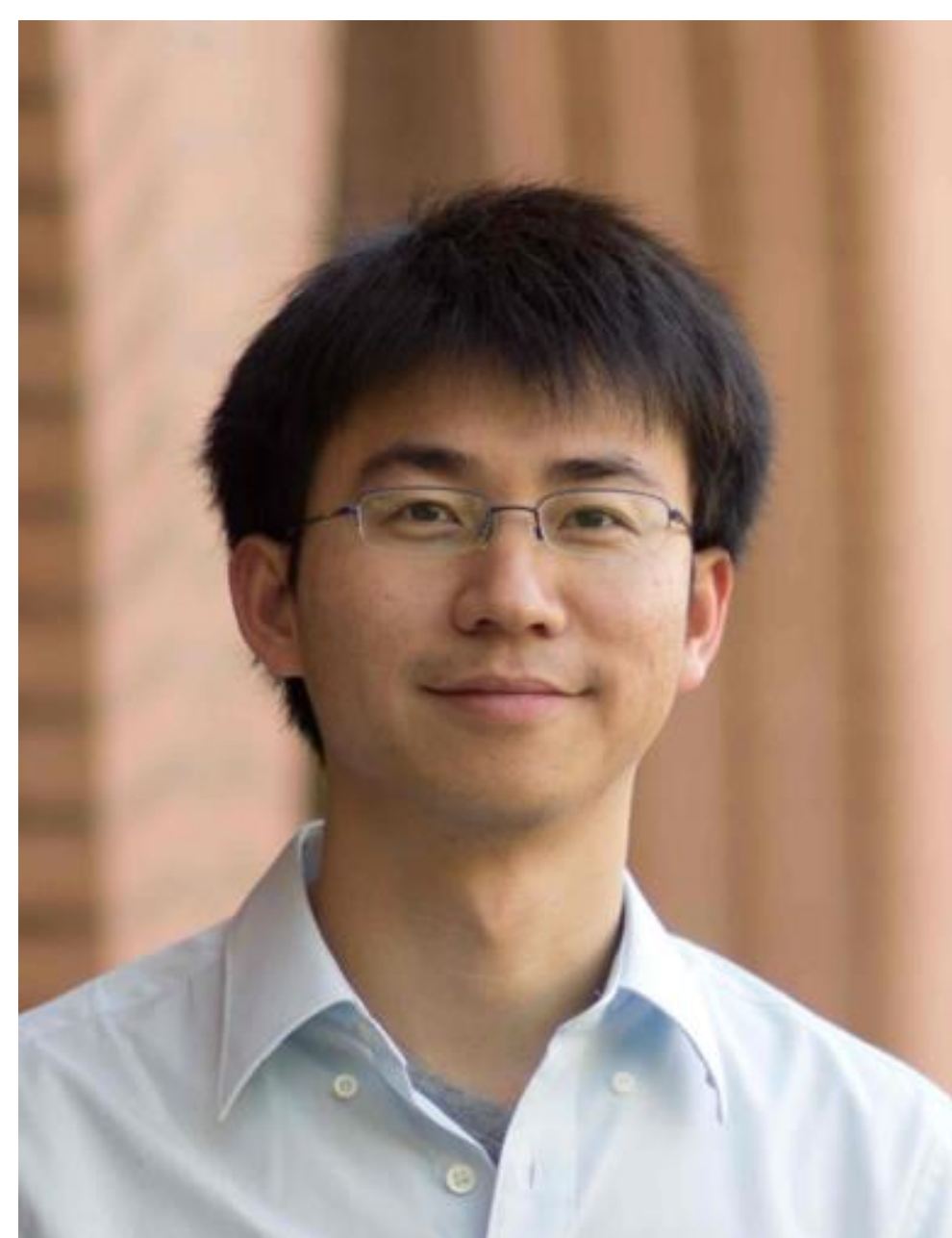




學術報告

Towards Intelligent System Control



报告人: Dr. Longbo Huang
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时间: 7月25日 星期一下午 2:00

地点: 浙江大学工控新楼105室

Biography: Dr. Longbo Huang is an Assistant Professor at the Institute for Interdisciplinary Information Sciences (IIS) at Tsinghua University. He received the Ph.D. degree from the USC, and worked as a postdoctoral researcher at UC Berkeley before joining IIS. Dr. Huang was selected into China's Youth 1000-talent program (青年千人) in 2013. He received the Outstanding Teaching award from THU in 2014. Dr. Huang's paper in ACM MobiHoc 2014 was selected as a Best Paper Finalist. He has served as TPC members for Sigmetrics/Performance, MobiHoc, INFOCOM, E-Energy, and as the lead guest editor for JSAC special issue on "Human-in-the-loop Mobile Networks." in 2015.

We present a general framework for understanding system intelligence, and propose a novel metric for measuring intelligence levels of dynamical systems. We show that the system intelligence is jointly determined by user demand volume, demand correlation, and system resource and action costs. We then propose an online learning-aided control algorithm called LBISC. LBISC achieves an intelligence that is within $O(N(T)^{1/2} + \epsilon)$ of the highest level. Moreover, we show that LBISC possesses a much faster convergence time. The analysis of LBISC quantifies the impacts of data and user population, learning, and control on achievable system intelligence, and provides novel insight and guideline into designing future smart systems.