THE CHINESE UNIVERSITY OF HONG KONG
ITCSC & Department of Information Engineering
Joint *Seminar*

Self-Programming Networks: Architecture and Algorithms
By
Prof. Balaji Prabhakar
Departments of Electrical Engineering and Computer Science, Stanford University

Date : **12th December, 2018 (Wed)**
Time : **15:00pm – 16:00pm**
Venue : **Room 833, Ho Sin Hang Engineering Building**
The Chinese University of Hong Kong

Abstract

We describe Self-Programming Networks (SPNs), an ongoing research effort at Stanford for making cloud computing networks autonomous; that is, to enable networks to sense and monitor themselves, and program and control themselves. We present the architecture of SPNs and two key algorithms: (i) Simon, for fine-grained network measurement using packet and probe timestamps taken at the network's edge, and (ii) Huygens, for nanosecond-level clock synchronization in real-time and at scale. We will present the algorithms and results from some deployments.

Balaji Prabhakar is VMWare Founders Professor of Computer Science and a faculty member in the Departments of Electrical Engineering and Computer Science at Stanford University. His research interests are in computer networks; notably, in Data Center Networks and Cloud Computing Platforms. He has also worked on Societal Networks: networks vital for society's functioning, such as transportation, electricity and recycling systems. He has developed "nudge engines" to incentivize commuters to travel in off-peak times so that congestion, fuel and pollution costs are reduced.

He has been a Terman Fellow at Stanford University, and a Fellow of the Alfred P. Sloan Foundation, IEEE and ACM. He has received the CAREER award from the U.S. National Science Foundation, the Erlang Prize from the INFORMS Applied Probability Society, the Rollo Davidson Prize from the University of Cambridge, and delivered the Lunteren Lectures. He is the recipient of the inaugural IEEE Innovation in Societal Infrastructure Award which recognizes "significant technological achievements and contributions to the establishment, development and proliferation of innovative societal infrastructure systems. He has served on the Advisory Board of the Future Urban Mobility Initiative of the World Economic Forum, and as a Judge on the Panel appointed by New York State Governor Andrew Cuomo's MTA Genius Challenge: Fixing New York City's Subway System. He is a co-recipient of several best paper awards.

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** ALL ARE WELCOME **

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