



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

**Developing IoT Systems for Smart Homes: From Smart  
Thermostats, to Smart Plugs and Smart Lighting**

by  
**Professor Sid Chi-Kin Chau**  
Masdar Institute  
Abu Dhabi  
United Arab Emirates

**Date : 29 Nov., 2017 (Wed.)**  
**Time : 2:00pm – 3:00pm**  
**Venue : Room 833, Ho Sin Hang Engineering Building**  
**The Chinese University of Hong Kong**

*Abstract*

A primary goal of Internet-of-Things (IoT) is to provide small-footprint low-cost embedded system solutions for enabling pervasive computational intelligence. One of the most promising applications of IoT is for smart homes, by automating the intelligent management in future homes. To develop effective IoT systems, a holistic approach integrating sensing, processing and control aspects is required.

In this talk, I will present some of my recent research projects of IoT systems developed for practical smart home applications, considering sensing, processing and control aspects of IoT systems. First, a smart thermostat system is developed to automate effective temperature control based on distributed low-powered or energy-harvesting sensors. Second, a smart plug system is presented that can track and learn appliance consumption patterns using only compact memory space in a standalone manner, as to realize the paradigm of edge/fog computing. Third, a smart lighting system is devised that automatically adjusts the brightness using ad hoc mobile sensors without relying on location information. This talk also shares some relevant system building experiences and a vision for IoT in smart cities.

*Biography*

Sid Chi-Kin Chau is an assistant professor with the Masdar Institute in Abu Dhabi, UAE, which was established in collaboration with MIT. His primary research area is Internet-of-Things and cyber-physical systems for smart cities and smart energy systems, including smart grid, smart buildings, intelligent vehicles and transportation. He also researches in broad areas of wireless communications, algorithms, and big data analytics. Previously, he was a visiting professor with MIT, and a senior research fellow with A\*STAR in Singapore. He received the Ph.D. from University of Cambridge and B.Eng. from the Chinese University of Hong Kong. He has been on the program committees of several top conferences in computing systems for smart cities and energy networks, such as ACM e-Energy and ACM BuildSys. He is a TPC co-chair of ACM e-Energy 2018 and the Lead Guest Editor for IEEE Transactions on Sustainable Computing Special Issue on Intersection of Computing and Communication Technologies with Energy Systems. Further information about his research can be found at <http://www.SmartSustainability.org/>

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