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Automatic Control and Systems Engineering

The Department of Automatic Control & Systems Engineering
is pleased to announce the following seminar:

Control and Learning for the Internet-of-Things

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University of Oxford

Wednesday, 28 October 2020 at 14:00
Via Google Meet

Host Academic: Dr Paul Trodden, ACSE

Abstract

The Internet of Things is a broad concept emerging from recent technological developments in sensing, faster computing and networking infrastructure, actuation capabilities, as well as data processing algorithms. These advances allow us to build autonomous systems that collect data efficiently from the physical world and process them to make better decisions and take better actions. IoT architectures generate new capabilities across a wide range of application domains, including industrial automation, smart cities, and future transportation systems. These applications give rise to both opportunities for impact as well as new fundamental engineering challenges. In this talk I will discuss the challenge of rethinking control at the edge of the Internet-of-Things and how this necessitates novel co-design interfaces between control systems and wireless communication networks. I will also illustrate the benefits of using this framework for management of multiple control systems in the next generation Wi-Fi protocol. Additionally, to cope with uncertainty and lack of models I will discuss how learning techniques can be leveraged at the connectivity layer of the Internet-of-Things.

Biography

Konstantinos Gatsis is a Lecturer (Assistant Professor) in the Department of Engineering Science at the University of Oxford, UK. Prior to joining Oxford, he was a Postdoctoral Researcher at the Department of Electrical and Systems Engineering at the University of Pennsylvania. He received the Ph.D. degree in electrical and systems engineering from the University of Pennsylvania, Philadelphia in 2016, and the Diploma degree in electrical and computer engineering from the University of Patras, Patras, Greece in 2010. His research interests include cyber-physical systems and the Internet-of-Things as well as control, learning, and optimization algorithms. Dr. Gatsis received the Best Doctoral Dissertation Award from the department of Electrical and Systems Engineering at the University of Pennsylvania. He also received the 2014 O. Hugo Schuck Best Paper Award, the Student Best Paper Award at the 2013 American Control Conference, and was a Best Paper Award Finalist at the 2014 ACM/IEEE International Conference on Cyber-Physical Systems.