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Automatic
Control and
Systems
Engineering

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

Planning and Filtering with Limited Sensing

Professor Jason O'Kane

*Associate Professor, Computer Science and Engineering
University of South Carolina, USA*

Tuesday, 8 March 2016 at 15:00
LT01, Sir Henry Stephenson Building

Abstract

Mobile robots are most useful when they can effectively sense and interact with their environments. However, because information from sensors is limited and unreliable, such robots are often confronted with substantial and difficult-to-resolve uncertainty about the state of the world. The problem is compounded further when multiple, independent robots must cooperate to achieve a goal. This talk will present two lines of research that make progress toward making robots operate autonomously in spite of such uncertainty. First, I will describe methods for localization and navigation that allow mobile robots with limited sensing capabilities and noisy actuators to move through their environments in provably reliable ways, based on worst-case reasoning about their movements. Second, I will discuss the possibility of automating the design of these kinds of strategies for filtering and planning tasks. The results include both bad news (i.e. hardness results) and good news (i.e. algorithms that work reasonably well in practice). The overall theme is that many important tasks in robotics require surprisingly little sensing.

Biography

Jason O'Kane is Associate Professor in Computer Science and Engineering and Director of the Center for Computational Robotics at the University of South Carolina. He holds the Ph.D. (2007) and M.S. (2005) degrees from the University of Illinois at Urbana-Champaign and the B.S. (2001) degree from Taylor University, all in Computer Science. His research spans algorithmic robotics, planning under uncertainty, and computational geometry.

*Light refreshments will be served in the
foyer of the Sir Henry Stephenson Building following the seminar*