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

Source term estimation for a hazardous atmospheric release using a mobile robot

Dr Cunjia Liu

Lecturer in Unmanned Vehicles, Loughborough University

Thursday, 3 May 2018 at 14:00

Sir Henry Stephenson Building, LT01

Abstract

Finding the location and strength of an unknown hazardous release is of paramount importance in emergency response and environmental monitoring. This talk will introduce a joint Bayesian estimation and search planning algorithm to guide a mobile robot to collect informative measurements, allowing the source parameters to be estimated quickly and accurately. Preliminary experimental results will also be reported. In the experiment, smoke from burning incense sticks were used to simulate a hazardous source and a ground robot equipped with a low-cost, metal oxide gas sensor was used to collect the smoke concentration data. The experimental results demonstrate the effectiveness of the proposed estimation and search algorithm based on a mobile robot and a low-cost sensor.

Biography

Cunjia Liu is a Lecturer in the Department of Aeronautical and Automotive Engineering (AAE) at Loughborough University. He received a PhD in autonomous aerial vehicles from the same department in 2011. After completing his PhD, he worked at Triumph Actuation & Motion Control Systems-UK Ltd as a control system engineer and then returned to the Autonomous System Laboratory at Loughborough University as a Research Associate. Cunjia was appointed as a Lecturer in Unmanned Vehicles, or Flight Dynamics and Control in October 2013. Prior to joining Loughborough University, he obtained MSc in Guidance, Navigation and Control (in 2008) and BEng in Control Engineering (in 2005) both from Beihang University (BUAA), China.