

Field Robotics and Intelligent Operations

Joint Electrical Institutions Sydney - Engineers Australia, IEEE, IET



ENGINEERS
AUSTRALIA

DATE & TIME

Thursday, May 14, 2015
5:30 pm for 6:00 pm start

VENUE

Engineers Australia Harricks
Auditorium
Ground Floor, 8 Thomas Street,
Chatswood NSW 2067

COST

EA, IET, IEEE Members – Free
Students – Free
Non-members - \$30

CPD

Eligible for 1.5 Continuing
Professional Development hours.

RSVP

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HOSTED BY

Joint Electrical Institutions Sydney



The Knowledge Network

**Presentation by Professor Salah Sukkarieh.
Professor of Robotics and Intelligent Systems, School
of Aerospace Mechanical & Mechatronic Engineering
at the University of Sydney and Director of Research
and Innovation at the Australian Centre for Field
Robotics**

Field robots are automated vehicles that operate outdoors in dynamic and unstructured environments. They can range from small drones weighing a kilogram through to 400 tonne haul trucks. We can define the autonomous capability of a field robot as a function of three components: the complexity of the environment; the level of human intervention in the operation of the environment; and the complexity of the mission. To increase the autonomy of robots we need to increase robot intelligence. This can come about through better perception techniques (giving the robot the capability of understanding its environment and making sense of it), learning (capabilities for adaptation in mission understanding given changing circumstances), and decision-making (taking into account uncertainty of environment, mission and risk).

Over the last 20 years Australia has led the world in the research, development and adoption of field robots. Examples include stevedoring, mining, transport, infrastructure monitoring, environment sensing, and agriculture. Now there is greater focus on the automation of complete operations of which field robots are part of the overall system.

This talk will present examples of field robotic systems in operation, their components, and the research into increasing their intelligence. The talk will also present how they are being used in the context of autonomous operations, and how operation intelligence consists of the same underlying principles of automated perception, learning and decision-making spread through the operation network.

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SPEAKER BIOGRAPHY

Professor Salah Sukkarieh

Professor Salah Sukkarieh is an international expert in the research, development and commercialisation of field robotic systems. He has lead a number of robotics and intelligent systems R&D projects in logistics, commercial aviation, aerospace, education, environment monitoring, agriculture and mining, and has consulted to industry including Rio Tinto, BHP, Patrick Stevedores, Qantas, BAE Systems, QLD Biosecurity, Meat and Livestock Australia, and the NSW DPI amongst others. In 2014 he was awarded the NSW Science and Engineering Award for Excellence in Engineering and Information and Communications Technologies.

Salah is the Professor of Robotics and Intelligent Systems at the University of Sydney, and the Director of Research and Innovation at the Australian Centre for Field Robotics. He has supervised over 20 research fellows, and graduated over 30 PhDs, 5 Masters and 60 honours students. He has received over \$45m in government and industry funding, national and international. Salah is on the editorial board for the Journal of Field Robotics, Journal of Autonomous Robots, and Transactions of Aerospace Systems, and has over 300 academic and industry publications in robotics and intelligent systems.

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