INTERNATIONAL

INVITED SESSION SUMMARY – IIMSS-16

Title of Session:

Autonomous System

Name, Title and Affiliation of Chair:

Dr Milan Simic
> RMIT University, School of Aerospace, Mechanical & Manufacturing Engineering (SAMME)
> Melbourne, Australia

Name, Title and Affiliation of Co-Chair:

Professor Reza Nakhaie Jazar
> RMIT University, School of Aerospace, Mechanical & Manufacturing Engineering (SAMME)
> Melbourne, Australia

Details of Session (including aim and scope):

This session will present a comprehensive approach on the topic of Autonomous Systems (AS). Through AS research we are able to give machines awareness of themselves and of their environment. Many different sensors are used to collect data and a variety of algorithms for data processing and decision making are applied. Compared to ordinary computers, which are here just an integrated part of the system, AS can move and take physical actions.

Following increased AS capabilities, the next challenge is to consider non-technical issues, such as ethical, legislation and regulatory matters. Mobile robots, or autonomous systems, have already entered daily life, including unmanned ground vehicles, surface, underwater, and unmanned aerial vehicles.

Vehicle Ad-Hoc Networking (VANET) and the use of communication infrastructure play an important role in mobile robotics. There is a wide range of AS applications across various disciplines, starting from search and rescue operations, monitoring health of various environments and systems, delivery of goods, military applications and many others.

The list of topics for this session may include:
- Definitions of autonomy
- Simultaneous Localisation and Mapping (SLAM) algorithms
- Vision, stereo vision
- Path planning and following
- Motion planning
- Autonomous systems in urban environments
- Real time path planning in dynamic environments
- Navigation in GPS denied environments
- Terrain following
- Autodriver algorithm
- Formation flying
- Cloud computing
- The role of communications
- Fault tolerant control
- Neural networks application
- Fuzzy Logic application
- Modelling and simulations, Design
- Test, verification and certification
- Legislation and regulations

Other topics in this area are also welcome.

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Website URL of Call for Papers (if any):

Email & Contact Details of invited session Chair:

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