

## Autonomous Surface Vehicles

### Speaker:

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### Description:

This talk will consist of a series of three lectures, which are for the first time to be delivered at Japan's Gunma University under invitation.

### Lecture 1:

Title: Autonomous Surface Vehicles on Land

Abstract: In this talk, I will present the achievements of R&D works leading to autonomous vehicles on land surface. Examples from Eureka-PROMETHEUS project and DARPA Grand Challenge will be shown. And, the addressed topics will include autonomous capabilities such as: visibility enhancement, land following, car following, automatic parking, and collision avoidance.

### Lecture 2:

Title: Autonomous Surface Vehicles on Water

Abstract: In this talk, I will present the works done in the context of Maritime RobotX Challenge. The efforts are to develop viable solutions which will make future vessels or boats to gain autonomous capabilities such as cruising on sea, collision avoidance on sea, patrolling on sea, signal detection in sea, target identification on sea, docking on sea, and mission-taking on sea.

### Lecture 3:

Title: Future R&D Trends of Autonomous Surface Vehicles

Abstract: In this talk, I will envision the trend of future R&D leading to truly self-intelligent vehicles on both land surface and water surface. The addressed topics will include cognitive vision and cognitive audition which are relevant to autonomous vehicles of future.

Biodata of Speaker:



Xie Ming received the B.Eng degree in control and automation engineering. Subsequently, as a recipient of the overseas scholarship from Chinese government, he has completed the study for Master degree in the University of Valenciennes (France) as well as the research for PhD degree in the University of Rennes (France). He is Associate Professor of Nanyang Technological University, and was a Fellow with Singapore-MIT Alliance (SMA). He was the General Chair of 2007 International Conference on Climbing and Walking Robots (CLAWAR), the General Chair of 2009 International Conference on Intelligent Robotics and Applications (ICIRA), the Co-founder of the International Journal of Humanoid Robotics (SCI/SCIE indexed), Co-founder of Singapore-China Association for Advancement of Science and Technology, Co-founder of Robotics Society of Singapore. He has taught the courses such as Robotics,

Artificial Intelligence, Applied Machine Vision, Measurement and Sensing Systems, Microprocessor Systems, and University Physics. In terms of scientific research, he has published two books, two edited books, several book chapters, over 10 patents of invention, over 30 research papers in scientific journals and over 100 research papers in international conferences. He was the recipient of one best conference paper award from World Automation Congress, the recipient of one best conference paper award from CLAWAR, the recipient of one outstanding paper award from International Journal of Industrial Robot, the recipient of one Gold Prize (S\$8K) from CrayQuest, the recipient of one Grand Champion Prize (S\$15K) from CrayQuest, the recipient of one A-Star's Best Research Idea Prize (S\$5K), the recipient of one Silver Medal from Dragon Design Foundation.