

ROS
2012
October 7-12

Intelligent Robots and Systems
IEEE/RSJ International Conference

Vila Moura, Algarve [Portugal]



Robotics for Quality of Life and Sustainable Development

2012 IEEE/RSJ International Conference on Intelligent Robots and Systems

4th Workshop on Planning, Perception and Navigation for Intelligent Vehicles

Full Day Workshop in Room Fenix 2

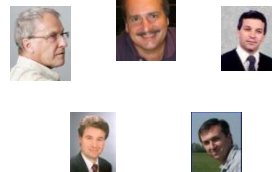
October 7th, 2012 Vilamoura, Algarve, Portugal

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This workshop is organized in the scope of the IEEE Robotics and Automation's Technical Committee on: Autonomous Ground Vehicles and Intelligent Transportation Systems

TC-chairs: P. Martinet, C. Laugier, C. Stiller

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2012

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□ Purpose of the workshop

- ✓ Discuss topics related to the challenging problems of **Autonomous Navigation** and **Driving Assistance** in Open & Dynamic Environments
- ✓ 1st edition at ICRA'07 in Roma, 2nd edition at IROS'08 in Nice, 3rd edition at IROS'09 in Saint Louis

□ Technical program

- ✓ 4 Technical sessions with oral presentation
=> Each session: 1 keynote (35 min + Q) + 2 papers (17 min + Q)
- ✓ 1 Interactive session (7 papers)

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□ Next related events

- ✓ Special Issue of the IEEE Robotics and Automation Magazine (1st semester 2013)
“Perception and Navigation for Autonomous Vehicles”
- ✓ New special issue will be organized soon
- ✓ New PPNIV’13 will be submitted (e.g. IROS’13)
- ✓ International summer school on ITS will be organized in 2013 (in France)

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Session I: Localization & mapping 8:30

Chairman: C. Laugier (*INRIA, France*)

Title: Navigable Maps for Intelligent Vehicles Localization and Perception 8:30

Keynote speaker: Philippe Bonnifait (UTC, Compiegne, France) *35min + 5min questions*

Title: Robot Localization using efficient planar features matching 9:10

Authors: B. Charrette, E. Royer, Frédéric Chausse and L. Lequievre *17min + 3min questions*

Title: Application of Visual-Inertial SLAM for 3D Mapping of Underground Environments 9:30

Authors: A. Ferreira, J. Almeida and E. Silva *17min + 3min questions*

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Session II: Multiple Vehicles/Robots & Interaction 9:50

Chairman: P. Bonnifait (*Heudiasyc, France*) Title: Thoughts on perception for intelligent vehicles
9:50

Title: Thoughts on perception for intelligent vehicles 9:50

Keynote speaker: Alberto Broggi (Parma University, Parma, Italy) *35min + 5min questions*

Co-Authors: P. Grisleri and P. Zani

Title: Multiple Robots in a Cooperating Task: Exploration and Mapping 11:00

Authors: A.M. Neto, P. Rosa, T.E. Alves de Oliveira and P.C. Pellanda *17min + 3min questions*

Title: Dynamic Obstacle Avoidance Strategies using Limit Cycle for the Navigation of Multi-Robot System 11:20

Authors: A. Benzerrouk, L. Adouane and P. Martinet *17min + 3min questions*

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Session III: Interactive session 13:30

Chairman: P. Martinet (*IRCCYN/ECN, Nantes, France*)

- **Title: Development of an Autonomous Vehicle for High-speed Navigation and Obstacle Avoidance,**
Authors: J.H. Ryu, D. Ogay, S. Bulavintsev, H. Kim, and J.S.Park
- **Title: Kinodynamic motion planning with state Lattice Motion Primitives**
Authors: M. Pivoraiko and A. Kelly
- **Title: Detection of Moving and Stationary Objects at High Velocities using Cost-Efficient Sensors, Curve-Fitting and Neural Networks ,** Authors: F. Mirus, J. Pfadt, C. Connette, B. Ewert, D. Grudl, A. Verl
- **Title: ESTRO: Design and Development of Intelligent Autonomous Vehicle for Shuttle Service in the ETRI,** Authors: J. Byun, K.I. Na, M. Noh and S. Kim
- **Title: An effective 6DoF motion model for 3D-6DoF Monte Carlo Localization**
Authors: A. L. Ballardini, A. Furlan, A. Galbiati, M. Matteucci, F. Sacchi, D. G. Sorrenti
- **Title: Visual trajectory learning and following in unknown routes for autonomous navigation,**
Authors: D. A. Marquez-Gamez and M. Devy
- **Title: Eigen analysis and gray alignment for shadow detection applied to urban scene images,** Authors: T. Souza, L. Schnitman and L. Oliveira

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Session IV: Navigation, Control, Planning 14:30

Chairman: P. Grisleri (*Parma University, Parma, Italy*)

Title: Interpretation of Situative Sensor-Data and Continuous Decision Making for Cognitive Automobiles 14:30

Keynote speaker: Rüdiger Dillmann (KIT, Karlsruhe, Germany) *35min + 5min questions*

Co-Authors: S. Brechtel, T. Gindele

Title: An Efficient Heuristic Estimate for Non-holonomic Motion Planning 15:10

Authors: J.W. Choi *17min + 3min questions*

Title: Short term path planning using a multiple hypothesis evaluation approach for an autonomous driving competition 15:30

Authors: M. Oliveira, V. Santos and A.D. Sappa *17min + 3min questions*

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Session V: Perception & Situation awareness 16:30

Chairman: C. Laugier (INRIA, Grenoble, France)

Title: Real-time Scan-Matching Using L0-norm Minimization Under Dynamic Crowded Environment 16:30

Authors: Y. Hieida, T. Suenaga, K. Takemura, J. Takamatsu and T. Ogasawara *17min + 3min questions*

Title: Fast classification of static and dynamic environment for Bayesian Occupancy Filter (BOF) 16:50

Authors: Q. Baig, M. Perrollaz, J. Botelho Do Nascimento, C. Laugier *17min + 3min questions*

Title: Localization and Mapping in Dynamic and Changing Environments 17:10

Keynote speaker: Wolfram Burgard (Freiburg University, Germany) *35min + 5min questions*

Co-Authors: Gian Diego Tipaldi