

IROS11

International workshop on Perception and Navigation  
for Autonomous Vehicles in Human Environment



IROS11 International workshop on  
*“Perception and Navigation for Autonomous Vehicles  
in Human Environment”*

C. Laugier and P. Martinet, U. Nunes

*San Francisco, California, USA, FW8, Room 8, 30th september 2011*

<http://www.lasmea.univ-bpclermont.fr/Control/WorkIROS11/PNAVHE11.html>



Philippe  
Martinet



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Autonomous Vehicles in Human Environment  
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*Workshop is linked to*

*IEEE-TC on « Autonomous Ground vehicles & ITS »*

**Outline of the Program**

- 4 Technical sessions (1 keynote + 2 papers)
  - ✓ *Path planning & Navigation systems*
  - ✓ *Perception & Situation awareness*
  - ✓ *2D & 3D Mapping & Localization*
  - ✓ *Mobile robot modeling and control*
- 1 Interactive session (5 papers)



# *Outline of the workshop*

## *Opening the workshop 8:20*

## *Session I: Path Planning & Navigation systems 8:30*

**Chairman: Urbano Nunes**

❖ **Title: : Why can't road positioning and integrity be friends? 8:30**

**Keynote speaker: Rafael Toledo-Moreo (Technical University of Cartagena, Spain)**

❖ **Title: Autonomous Navigation in Crowded Campus Environments 9:05**

**Authors: Z. J. Chong, B. Qin, T. Bandyopadhyay, T. Wongpiromsarn, E. S. Rankin, M. H. Ang Jr., E. Frazzoli, D. Rus, D. Hsu, K. H. Low**

❖ **Title: Integration of visual and depth information for vehicle detection 9:25**

**Authors: A. Makris, M. Perrollaz, I. Paromtchik, C. Laugier**



# *Outline of the workshop*

## *Session II: Perception & Situation awareness 10:30*

*Chairman: Rafael Toledo-Moreo*

❖ **Title: Situation awareness & Risk based navigation in dynamic environments 10:30**

**Keynote speaker: C. Laugier (Inria Grenoble, France)**

❖ **Title: From Structure to Actions: Semantic Navigation Planning in Office Environments 11:05**

**Authors: K. Uhl, A. Roennau, R. Dillmann**

❖ **Title: Situation Assessment and Trajectory Planning for AnnieWAY 11:25**

**Authors: C. Stiller, J. Ziegler**



# *Outline of the workshop*

## *Session III: Interactive session 13:30*

**Chairman: P. Martinet**

❖ **Title: Proposition for propagated occupation grids for non-rigid moving objects tracking**

Authors: B. Lefaudeux, G. Gate, F. Nashashibi

❖ **Title: Probabilistic Road Geometry Estimation using a Millimetre-Wave Radar**

Authors: A. Hernandez-Gutierrez, J. I. Nieto, T. Bailey, E.M. Nebot

❖ **Title: Safety robotic lawnmower with precise and low-cost L1-only RTK-GPS positioning**

Authors: J.M. Codol, M. Poncelet, A. Monin, M. Devy

❖ **Title: Odometry from Planar landmarks**

Authors: K. Narayana, B. Steux

❖ **Title: Probabilistic autonomous navigation using Risk-RRT approach and models of human interaction**

Authors: J. Rios-Martinez, A. Spalanzani, C. Laugier



# *Outline of the workshop*

## *Session IV: 2D and 3D Mapping & Localization 14:30*

*Chairman: C. Laugier*

❖ **Title: 2D/3D mapping and localization 14:30**

**Keynote speaker: C. Stiller (Karlsruhe Institute of Technology) 30min + 5min questions**

**Co-Authors: A. Geiger, F. Moosmann**

❖ **Title: A New Strategy for Feature Initialization in Visual SLAM 15:05**

**Authors: G.Bresson, T. Feraud, R. Aufrere, P. Checchin and R. Chapuis**

❖ **Title: Building Facade Detection, Segmentation, and Parameter Estimation for Mobile Robot Localization and Guidance 15:25**

**Authors: J.A. Delmerico, P. David, J.J. Corso**



# *Outline of the workshop*

## *Session V: Mobile robot modeling and control 16:30*

**Chairman:** *U. Nunes*

❖ **Title:** **Generic algorithm for high accurate trajectory control in different conditions** *16:30*

**Keynote speaker:** **R. Lenain (Cemagref, France)**

Co-Authors: B. Thuilot, C. Cariou, P. Martinet

❖ **Title:** **A control strategy taking advantage of inter-vehicle communication for platooning navigation in urban environment** *17:05*

Authors: P. Avanzini, B. Thuilot, P. Martinet

❖ **Title:** **Semiautonomous Longitudinal Collision Avoidance Using a Probabilistic Decision Threshold** *17:25*

Authors: J. Johnson, Y. Zhang, K. Hauser



# Workshop closing remarks

❖ *Workshop is linked to IEEE-TC on « Autonomous Ground vehicles & ITS »*  
<http://tab.ieee-ras.org/committeeinfo.php?tcid=10>

❖ *Workshop material will be accessible on the workshop website (paper, presentation, videos)*

❖ *Journal special issue*

- *in the past one book (Springer Star) and one special issue in IEEE-Trans on ITS*
- *RAS magazine Special issue on Perception and Navigation for Autonomous Vehicles - CFP October 2011, publication March 2013 (topics: Road scene understanding, Pedestrian and vehicle detection, Localization, detection and tracking, SLAM in dynamic environments, Collision prediction and avoidance, Situation awareness, Autonomous navigation, Real-time motion planning in dynamic environments, Human-Robot Interaction, Behavior modeling and learning, Control of autonomous vehicles, Cooperative vehicles, Mobility systems of intelligent vehicles)*

❖ *Next workshop at IROS12 in Coimbra, Portugal, PNAVHE12 (call for contributions)*

❖ *Invited session at ICARCV12, Guangzhou, China in 5~7 December*





*Thanks for your attention*

*Any questions*



<http://www.lasmea.univ-bpclermont.fr/rosace>

[Philippe.Martinet@irccyn.ec-nantes.fr](mailto:Philippe.Martinet@irccyn.ec-nantes.fr)

