Jose C. Rubio

Contact Information

Advanced Driving Asistance Systems Group
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Citizenship

Spain

Research Interests

Bayesian Networks, Data Association, Video Sequence Understanding, Tracking, Graph Matching.

Education

Universitat Autonoma de Barcelona, Barcelona, Spain

PhD in Computer Vision, (thesis defense Sept. 2012) **Oct. 2009 - present**

- Advisor: Professor Joan Serrat
- Area of Study: Graphical Models and Optimization

M.S., Artificial Intelligence and Computer Vision, **Sept. 2008 - Sept. 2009**

- Master Thesis: *Data association with graphical models for night vehicle detection*

University of Portsmouth, Portsmouth, UK

Erasmus student exchange program **Sept. 2006 - June 2007**
Final Year Project, *Kinematics of human motion*

- Developed an interactive kinematic simulation of human movement.
- Investigated and applied concepts including direct and inverse kinematics, robotics, quaternion interpolation, and body dynamics.
- Nominated for the best project award of the Computer Science department.

Universitat de Valencia, Valencia, Spain **Sept. 2000 - June 2007**

M.S Computer Science

Research Experience

École Centrale Paris, Paris, France **Sept. 2010 - March 2011**

Six month internship at MAS Laboratorie, under the supervision of Professor Nikos Paragios.

- Proposed a hierarchical image representation to perform region matching using higher order graphs.

Universitat Autonoma de Barcelona, Barcelona, Spain

- PhD Thesis: *Many-to-many high order feature matching, by means of inference on graphical models*
- Proposed a multi-image unsupervised foreground segmentation method based on region matching.
- Developed a hierarchical region-based image model to perform image understanding, segmentation and retrieval.
- Proposed a multiple-target tracking and data association system to perform tracking in diverse scenarios.
- Proposed a real-time system to track headlights in a real driving environment.

Teaching Experience

Universitat Autonoma de Barcelona, Barcelona, Spain

Teaching Assistant **Feb. 2009 - June 2012**

- Software Engineering, UML Design and Patterns
- Conducted discussion sessions for students, and graded programming assignments, exams and projects.

Professional Experience

e-Movilia, Barcelona, Spain.

Software Developer (.NET framework) **August 2007 - May 2008**

- Designed and implemented management utilities for PDAs in C#.

Software Developer (JAVA) **May 2008 - Sept. 2008**

- Designed and implemented mobile tracking services managed through web and mobile interfaces.

Publications

Peer reviewed articles:

- **Jose C. Rubio**, Joan Serrat, Antonio Lopez, Nikos Paragios. Unsupervised co-segmentation through region matching. *IEEE International Conference on Computer Vision and Pattern Recognition 2012*
- **Jose C. Rubio**, Joan Serrat, Antonio Lopez. Multiple target tracking and identity linking under split, merge and occlusion of targets and observations. *International Conference On Pattern Recognition Applications and Methods 2012.*
- **Jose C. Rubio**, Joan Serrat, Antonio Lopez, Dani Ponsa. Multiple target tracking for intelligent headlight control . *IEEE Transactions in Intelligent Transportation Systems. (to appear)*
- **Jose C. Rubio**, Joan Serrat, Antonio Lopez, Dani Ponsa. Multiple Target Tracking for Intelligent Headlight Control. *Intelligent Transportation Systems Conference* 2010.
- **Jose C. Rubio**, Joan Serrat. Feature Matching with Graphical Models for Night Vehicle Detection. *Fourth CVC Workshop on the Progress of Research & Development* 2009

Grants

Awarded research grant for internship at École Centrale Paris by the Generalitat de Catalunya, 2010.

Technical Skills

Extensive programming experience in several languages and paradigms, including C/C++, Java and MATLAB. Proficient in object-oriented design and software patterns, as well as common software development tools and practices such as unit testing, design by contract, and version control.

Other programming skills: iOS, OpenGL, OpenCV, Ogre3D Engine.

Languages

Spanish: native language
Catalan: native language
English: proficient, TOEFL score: 105/120