# ALEJANDRO RITUERTO

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## EDUCATION

**Nov. 2014**
Ph.D. on Systems Engineering and Computer Science
Universidad de Zaragoza
**Sept. 2011**
M.Sc. on Systems Engineering and Computer Science, Mechatronics, Robotics and Automation
Universidad de Zaragoza
**Dec. 2009**
B. Eng. Industrial Engineering: Robotics and Automation
Universidad de Zaragoza

## GRANTS & AWARDS

**2016-2018**
Smith-Kettlewell Postdoctoral Fellowship
**2010**
Best Paper Award, OMNIVIS'10
**2010-2014**
Spanish Government Ph.D. Scholarship
**2008-2009**
I3A Research Scholarship

## SKILLS

Computer Vision

Wearable Systems

Omidirectional Cameras

Programming

- Matlab
- Python, C++
- Android Developing

Software

- ROS (Robotic Operating System)
- OpenCV

## ABOUT ME:

Experienced researcher in the field of Computer Vision for Navigation with special interest in the design of assistive technologies and the use of wearable platforms to enhance and complement human abilities.

## WORK & RESEARCH EXPERIENCE

### Postdoctoral Fellow, The Smith-Kettlewell Eye Research Institute

San Francisco, California — Jan. 2016-Present
As a postdoctoral fellow I'm responsible of defining my own project and decide my own research interests. At the same time I collaborate with other researchers.

**Accomplishments**

- Set up of an initial indoor localization system using a smartphone as a sensory platform.
- Initial study of the performance of the system with real users.
- Implementation of a data acquisition app for Android

### Postdoctoral researcher, Universidad de Zaragoza

Zaragoza, Spain — Oct- 2014-Dec. 2015
As a postdoctoral researcher I was in charge of the guidance of graduate students. I worked in University-Industry collaboration projects while working on my own research.

**Accomplishments**

- Design of a solution for autonomous indoor navigation for a inventory quadrotor robotic platform involving both software and the environment adaptation for the task.

### Visiting researcher, University of California Santa Cruz

Santa Cruz, California — Aug.-Oct. 2012 & Sept.-Dec. 2013
As a visiting student I worked with Prof. Roberto Manduchi in the development of techniques for scene understanding in video sequences.

**Accomplishments**

- This work was published in two international conferences

## RESEARCH PROJECTS

**Jan. 2016-Present**
Design and Development of a Computer Vision based Navigation Assistance for Visually Impaired Persons in Indoor Environments
**May 2015-Dec. 2015**
Drone Manuel - Industrial Drone for automatic inventory, Grupo Carreras
**Jan. 2013-Dec. 2015**
VINEA - Wearable computer vision for human navigation and enhanced assistance
**Jan. 2010-Dec. 2012**
VISPA – Non-conventional Vision Systems for Personal Assistance

## REFERENCES

Available upon request.

## PUBLICATIONS

A. Rituerto, L. Puig, and J.J. Guerrero, **"Visual slam with an omni-directional camera"**, ICPR 2010

A. Rituerto, L. Puig and J.J. Guerrero, **"Comparison of omnidirectional and conventional monocular systems for visual SLAM"** (Best Paper Award), in OMNIVIS Workshop (RSS) 2010

D. Gutiérrez, A. Rituerto, J.M.M. Montiel, J.J. Guerrero, **"Adapting a Real-Time Monocular SLAM from Conventional to Omni-directional Cameras"**, OMNIVIS Workshop (ICCV) 2011

A.C. Murillo, D. Gutiérrez, A. Rituerto, L. Puig, and J.J. Guerrero, **"Wearable Omni-directional Vision System for Personal Localization and Guidance"**, CVPR Workshop on Egocentric Vision 2012

A. Rituerto, A.C. Murillo and J.J. Guerrero, **"Line Image Signature for Scene Understanding with a Wearable Vision System"**, SenseCam 2013

A. Rituerto, A.C. Murillo and J.J. Guerrero, **"Semantic labeling for indoor topological mapping using a wearable catadioptric system"**, Robotics and Autonomous Systems, Vol. 62, Issue 5, 2014

A. Rituerto, A.C. Murillo and J.J. Guerrero, **"Line-based global descriptor for omnidirectional vision"**, ICIP 2014

A. Rituerto, R. Manduchi, A.C. Murillo and J.J. Guerrero, **"3D Spatial layout propagation in a video sequence"**, ICIAR 2014

A. Rituerto, A.C. Murillo and J.J. Guerrero, "**3D layout propagation to improve object recognition in egocentric videos"**, ACVR Workshop (ECCV) 2014

A. Rituerto, **"Modeling the environment with egocentric vision systems"**, Ph.D. dissertation 2014

A. Rituerto, H. Andreasson, A.C. Murillo, A.J. Lilienthal and J.J. Guerrero. **"Building a hierarchical vocabulary from an image sequence"**, Sensors. Special Issue Robotic Sensory Systems for Environment Protection and Conservation, 16, 493, 2016.

A. Rituerto, G. Fusco, JM Coughlan. **"Towards a Sign-Based Indoor Navigation System for People with Visual Impairments"**. 18th International ACM SIGACCESS Conference on Computers and Accessibility. 2016

R. Gonzalez, A. Rituerto, JJ Guerrero. **"Improving Robot Mobility by Combining Downward-Looking and Frontal Cameras"**. MDPI Robotics.Under Review.