

# Ignacio Alzugaray

## Curriculum Vitae

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Birthdate: 10/11/1992 | Nationality: Spanish  
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## Education

- 2016 **Master Degree with honors in Automatic Control and Robotics.**  
Polytechnic University of Catalonia (UPC), Spain. GPA – 8.70/10  
Top student in Master's degree program (2014-2016).  
Master Thesis: *Path planning for MAVs with vision in the loop.*  
- Advisor: Prof. Margarita Chli. Grade: 5.75/6. ETH Zürich – International student exchange.  
- Accepted as a paper in the *International Conference on Robotics and Automation (ICRA 2017)*.
- 2014 **Bachelor Degree with honors in Industrial Engineering.**  
University of Malaga (UMA), Spain. GPA – 8.49/10  
Top student in Bachelor's degree program (2010-2014). Best Bachelor Thesis' Award.  
Thesis: *Teleoperation of Robotic Manipulators applied to Laparoscopic Surgery.*  
- Advisor: Dr. Carlos Perez del Pulgar. Grade: 9.5/10.

## Experience

### Research Experience

- Present **PhD. Student.**
- 02/2017 *ETH Zürich – Vision for Robotics Lab (V4RL), Switzerland*  
Asynchronous Event-based SLAM for robotic applications in real-time.  
Supervisor: Prof. Margarita Chli.
- 02/2017 **Research Assistant.**
- 09/2016 *ETH Zürich – Vision for Robotics Lab (V4RL), Switzerland*  
Research on CPU-only mapping with event-based cameras and active monocular-inertial SLAM.
- 02/2016 **Research Assistant Intern.**
- 06/2015 *Institute of Robotics and Industrial Informatics (IRI - UPC - CSIC), Spain*  
Research on improvement of path planning algorithms learning from expert pilots' experience.  
Paper accepted in International Conference on Intelligent Robots and Systems (IROS 2016).  
Supervisor: Prof. Alberto Sanfeliu.
- 07/2014 **Undergraduate Research Assistant.**
- 10/2013 *Andalusian Institute of Advanced Automation and Robotics (IA3R), Spain*  
Research on trajectory control algorithms for robotic arms applied to laparoscopic surgery.  
Supervisor: Dr. Carlos Perez del Pulgar.

### Teaching Experience

- Present **Master's Thesis and Semester's Project Supervisor.**
- 09/2016 *ETH Zürich – Vision for Robotics Lab (V4RL), Switzerland*  
Supervisor of 14 graduate students in state-of-the-art research topics regarding event-cameras, SLAM, deep learning and path-planning.
- 07/2015 **Teaching Assistant Intern.**
- 01/2015 *Polytechnic University of Catalonia (UPC), Spain*  
Department of Mechanical Engineering and Department of Thermal Engines and Machines.  
Creation, updating and maintenance of digital content for new courses.

- 09/2014 **Undergraduate Teaching Assistant Intern.**  
 07/2014 *Department of Applied Mathematics. University of Malaga (UMA), Spain*  
 Simulation of numerical methods applied to differential equations for teaching purposes.  
 Supervised by: Prof. Jose Manuel Gonzalez Vida.

## Awards and Scholarships

- 2016 **Best Master's Degree Academic Record (2014-2016).**  
*Polytechnic University of Catalonia (UPC), Spain*  
 Award granted to the student with the top academic performance during the Master's degree program according. The recipient is granted with an internship sponsored by KUKA AG.
- 2016 **International Student Scholarship.**  
*ETH Zürich, Switzerland. Swiss-European Mobility Programme.*  
 Competitive scholarship granted to students in an international exchange programme.
- 2014 **Excellence Scholarship in Master's Programme.**  
*Polytechnic University of Catalonia (UPC) and Catalunya-La Pedrera Foundation, Spain.*  
 Two-years scholarship granted to the student with the best academic record applying to a Master's degree program.
- 2014 **Best Graduate Academic Record and Best Bachelor's Thesis (2010-2014).**  
*University of Malaga (UMA), Spain.*  
 Award granted to the top student in the Bachelor's Degree program according to academic performance and quality of the undergraduate thesis.

## Publications

- [C4] I. Alzugaray and M. Chli. **ACE: An Efficient Asynchronous Corner Tracker for Event Cameras.** In *International Conference on 3D Vision (3DV)*. Verona, Italy, 2018.
- [J1] I. Alzugaray and M. Chli. **Asynchronous Corner Detection and Tracking for Event Cameras in Real Time.** In *IEEE Robotics and Automation Letters (RA-L)*, 2018.
- [C3] L. Teixeira, I. Alzugaray and M. Chli. **Autonomous Aerial Inspection Using Visual-Inertial Robust Localization and Mapping.** In *Conference on Field and Service Robotics (FSR)*. Zurich, Switzerland, 2017.
- [C2] I. Alzugaray, L. Teixeira and M. Chli. **Short-term UAV Path-Planning with Monocular-Inertial SLAM in the Loop.** In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*. Singapore, 2017.
- [C1] I. Alzugaray and A. Sanfeliu. **Learning the Hidden Human Knowledge of UAV Pilots when navigating in a cluttered environment for improving Path Planning.** In *Proceedings of the IEEE/RSJ Conference on Intelligent Robots and Systems (IROS)*. Daejeon, Korea, 2016.

## Languages

Spanish	<b>Native</b>	
English	<b>Fluent</b>	<i>B2.2 University of Cambridge (2013)</i>
German	<b>Intermediate</b>	<i>B1.1 University of Zürich (2017)</i>

## Skills

Languages	C++, MATLAB, Python, SIMULINK, $\text{\LaTeX}$
Tools	Linux, Ubuntu, ROS, Gazebo, OpenCV, PCL, Git