

# Daniel Maturana

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- INTERESTS      Robotics, Computer Vision, Machine Learning
- EDUCATION      ◇ **Carnegie Mellon University**, Pittsburgh, PA.  
                         · PhD in Robotics (2011–2017 (Expected))  
                         ◇ **Pontificia Universidad Católica**, Santiago, Chile.  
                         · BSc Civil Computer Engineering (2004–2009)  
                         · MSc Civil Computer Engineering (2009–2011)
- SELECTED  
PUBLICATIONS      ◇ **Maturana, D.** and Scherer, S. “Looking Forward: A Semantic Mapping System for Scouting with Micro-Aerial Vehicles”. Under review.  
                         ◇ Yang, S. **Maturana, D.** and Scherer, S. “Real-time 3D Scene Layout from a Single Image Using Convolutional Neural Networks”, International Conference on Robotics and Automation (ICRA) 2016  
                         ◇ **Maturana, D.** and Scherer, S. “VoxNet: A 3D Convolutional Neural Network for Real-Time Object Recognition”, International Conference on Robots and Systems (IROS) 2015  
                         ◇ **Maturana, D.** and Scherer, S. “3D Convolutional Neural Networks for Landing Zone Detection from LiDAR”. In International Conference on Robotics and Automation (ICRA) 2015  
                         ◇ Aubry, M., **Maturana, D.** and Efros, A., and Russell, B. and Sivic, J., “Seeing 3D chairs: exemplar part-based 2D-3D alignment using a large dataset of CAD models”, (CVPR) 2014  
                         ◇ Holz, K, **Maturana, D.** and Scherer S. “Learning a Context-Dependent Switching Strategy for Robust Visual Odometry”. In Field and Service Robotics (FSR) 2015  
                         ◇ Huang, A., Bachrach, A., Henry, P., Kraining, M., **Maturana, D.**, Fox, D. and Roy, N. “Visual Odometry and Mapping for Autonomous Flight using an RGB-D Camera”, International Symposium of Robotics Research (ISRR) 2011  
                         ◇ **Maturana, D.**, Mery, D., and Soto, A., “Learning Discriminative Local Binary Patterns for Face Recognition”, International Conference on Automatic Face and Gesture Recognition (FG), 2011 (spotlight presentation).  
                         ◇ **Maturana, D.**, Mery, D., and Soto, A., “Face Recognition with Decision Tree-based Local Binary Patterns”, Asian Conference on Computer Vision (ACCV), 2010.
- AWARDS AND  
HONORS              ◇ **Qualcomm Innovation Fellowship** (2016)  
                         ◇ **IROS Travel Grant** (2015)  
                         ◇ **Best poster award** IEEE Latinoamerican Summer School in Computational Intelligence and Robotics (2009).  
                         ◇ **Distinguished score**, School of Engineering BSc degree examination (2008).  
                         ◇ **Winner**, National GOCUP OR algorithm contest (2008).  
                         ◇ **First place** 5th IEEE Latin American Robotics Contest for Students (2006).
- SERVICE            ◇ **Reviewer** ICRA (2012-), IROS (2012-), Journal of Field Robotics, IEEE Robotics And Automation Letters, Computer Vision and Image Understanding, Neurocomputing, Machine Vision and Applications, IET Computer Vision, JVCi.

- ◇ **CMU Master’s Thesis Committee Member** Ji Zhang, Adam Werries, Humphrey Hu, Powei Chou, Alberto Candela.
  - ◇ **Summer Internship Mentor** Aman Raj, Satyaki Chakraborti, Aditya Agarwal, Mihir Garimella, Savant Krishna.
- TALKS
- ◇ “Micro Air Vehicle Scouts for Semantically Guided Exploration”, IROS 2015 Workshop on Vision-based Control and Navigation.
- PRE-PHD RESEARCH EXPERIENCE
- ◇ **P. Universidad Católica, Santiago, Chile**
    - *Research Assistant*, (2004–2005). Formed part of a multidisciplinary team researching embodied language comprehension. Implemented software for experiments measuring behavioral and electroencephalographic responses.
    - *Master’s Thesis Research*, (2009–2010). Research on improving visual descriptors for face recognition. The results have been presented in two papers at major conferences and two papers at local workshops.
  - ◇ **Massachusetts Institute of Technology, Cambridge, US**
    - *Visiting Student*, (2010–2011). Work on MIT’s Robotics, Vision and Sensor Networks Group under the supervision of Nicholas Roy. Research on visual descriptors for visual odometry and place recognition on micro aerial vehicles. Development of the FOVIS visual odometry library.
- TEACHING EXPERIENCE
- ◇ **Carnegie Mellon University**
    - *Teaching Assistant*. 16-720 Computer Vision (2012).
    - *Intern Mentoring*. Supervision of research internships for undergraduate students (Summers of 2013, 2014, and 2015).
  - ◇ **P. Universidad Católica, Santiago, Chile** *Teaching Assistant*. IIC2332 Operating Systems (2008, 2009, 2010); IIC2632 Evolutionary Computation (2010); IIC2132 Data Structures (2009); IIC2432 Data Mining (2009); PSL408 Cognitive Theory II (2005); PSB406 Methodology for Social Sciences (2005).
- WORK EXPERIENCE
- ◇ **Programmer (intern)**, Synopsys (December 2007 – February 2008), Santiago, Chile. Worked on CATS, a leading Electronic Design Automation application with a large ( $> 10^7$  LOC) C and C++ codebase.
  - ◇ **Construction worker**, Constructora Internacional S.A., Santiago, Chile (January 2007)  
Work in a concrete production plant for construction of the Santiago subway.
- OPEN SOURCE CONTRIBUTIONS
- ◇ Author of VoxNet library for 3D CNN ([github.com/dimatura/voxnet](https://github.com/dimatura/voxnet))
  - ◇ Coauthor of FOVIS Visual Odometry library ([fovis.github.io](https://fovis.github.io))
  - ◇ Minor bugfixes and features to various open source projects, including PCL, ROS, OpenCV, Lasagne, Theano, NetworkX and moviepy
- OTHER SKILLS
- ◇ Bilingual (Spanish and English).
  - ◇ Advanced knowledge of C, C++ and Python. Comfortable with R, C#, Java and Matlab/Octave. Familiar with Lisp, PHP, SQL, and various others.
  - ◇ Experience building and programming embedded systems.