

# Matías Mattamala

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## Contact Info

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## Education

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### Oxford Robotics Institute, University of Oxford

DPhil in Engineering Science

Oct 2019 - Present

### Universidad de Chile

M.Sc in Electrical Engineering

Aug 2018

Ingeniería Civil Eléctrica

Aug 2018

B.Sc in Electrical Engineering

Mar 2014

## Research Experience

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### University of Oxford

*PhD research*

Oct 2019 - Present

- Area of study: Legged robots, computer vision, visual navigation.
- Supervisor: Dr. Maurice Fallon

### Universidad de Chile

*Master thesis project*

Sep 2015 - Aug 2018

- Thesis: *Visual Localization for Resource-constrained Robots* (original title and document in Spanish).
- Area of study: Robotics, Visual SLAM, humanoids, state estimation, NAO robots.
- Advisor: Prof. Javier Ruiz-del-Solar. Internal examiner: Dr. Felipe Tobar (CMM, U. de Chile). External examiner: Dr. José Martínez-Carranza (INAOE)

*Undergraduate research*

Oct 2011 - Jun 2015

- Team Member of the RoboCup Soccer Standard Platform League (SPL) UChile Robotics Team. I competed in RoboCup 2012 (Mexico), 2013 (The Netherlands), 2014 (Brazil) and 2015 (China).
- Supervisors: Prof. Javier Ruiz-del-Solar, Dr. Pablo Guerrero, M.Sc José Miguel Yáñez

## Publications

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### International Conferences (peer reviewed)

- Ramezani, M., Wang, Y., Camurri, M., Wisth, D., **Mattamala, M.**, Fallon, M. (2020). *The Newer College Dataset: Handheld LiDAR, Inertial and Vision with Ground Truth*. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Las Vegas, USA.
- Gómez, C., **Mattamala, M.**, Resink, T., Ruiz-del-Solar, J. (2018) *Visual SLAM-based Localization and Navigation for Service Robots: The Pepper Case*. RoboCup Symposium 2018, Canada.
- **Mattamala, M.**, Olave, G., González, C., Hasbún, N., Ruiz-del-Solar, J. (2017) *The NAO Backpack: An Open-hardware Add-on for Fast Software Development with the NAO Robot*. RoboCup Symposium 2017, Japan.
- **Mattamala, M.**, Villegas, C., Yáñez, J.M, Cano, P., Ruiz-Del-Solar, J. (2015). *A Dynamic and Efficient Active Vision System for Humanoid Soccer Robots*. RoboCup Symposium 2015, China.

### Book chapters

- **Mattamala, M.** (2019) *Inteligencia Artificial: Qué es y qué no es* (in Spanish). Brossi, L. et al. (eds), *Inteligencia Artificial y Bienestar de las Juventudes en América Latina*. Conectados al Sur. (In press).

### National Conferences (peer reviewed)

- **Mattamala, M.**, Alfaro, M.J., Casado, F., Mesías, C., Holmberg, G., Higuera, F., Sanchirico, F., Palma, J., Insunza, R., Aguirre, L. (2019) *Hackers, bandas y squads: Implementación de cursos flexibles para el desarrollo transversal de proyectos en la FCFM* (in Spanish). XXXII Congreso de la Sociedad Chilena de Educación en Ingeniería (SOCHEDI), Talca, Chile.

- **Mattamala, M.**, Lasen, M., Chi, R., Caba, A., Patiño, M., Larrondo, J., Meruane, V. (2018) *Beauchef Proyecta: Implementación Curricular de Proyectos Multidisciplinarios* (in Spanish). XXXI Congreso de la Sociedad Chilena de Educación en Ingeniería (SOCHEDI), Viña del Mar, Chile.
- **Mattamala, M.**, Olave, G., Campusano, M., Gómez, C., Martínez, L., Estefó, P., Ugalde, J., Urrutia, J., San-Martín, F., Zúñiga, P., Carrasco, J., Villar, C., González, R. (2017) *Aprendizaje Interdisciplinario en Robótica: La Experiencia Innovadora de Duckietown Chile* (in Spanish). XXX Congreso de la Sociedad Chilena de Educación en Ingeniería (SOCHEDI), Santiago, Chile.

## Presentations

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- *Duckietown Chile: Enseñanza de robótica en educación superior* (in Spanish), Mesa Público-Privada de Robótica, Grupo Interparlamentario Chileno Japonés - National Congress of Chile. (Jan. 2019)
- *Towards truly explorer robots: experiments on visual SLAM for small humanoids*, International Symposium on Robotics Research - Satellite Workshop, Pontificia Universidad Católica. (Dec. 2017)
- *Fútbol Robótico* (in Spanish), Futuristas... el mundo cambia contigo, National Congress of Chile. (Nov. 2016)

## Teaching experience

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### Universidad de Chile, Santiago, Chile

#### Instructor

Mar 2017 - Sep 2019

- Co-designed and taught *EI2001 Duckietown: Developing autonomous vehicles* in 2017, 2018 and 2019. It is based on the Duckietown project, adapted for second year engineering students.
- Taught *EI3001 Project Development* and *EI4001 Project Coordination* (2018, 2019), *EI2001 Battlebots* (2019), *EI2001 Data Science for Astronomy* (2019).

#### Teaching assistant

Mar 2012 - Jul 2018

- I assisted the courses *EL5002 Design Workshop* (2018), *EI2001 Build your own Battlebot* (2018), *CC5316 Mobile Robotics* (2015, 2017), *CC1000 Computational Tools for Engineering and Sciences* (2015), *EL7008 Advanced Image Processing* (2015, 2016, 2017), *EI1102 Introduction to Engineering II* (2016), *EI2002 Electromagnetism* (2013), *EI2001 Robotics and Mechatronics* (2012).

### Mustakis Foundation, Santiago, Chile

Apr 2014 - Jun 2018

#### Mentor

- Teaching and supervision of projects of school students
- Design and implementation of a workshop based on the ALMA Observatory for youth and children.

## Work Experience

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### Beauchef Proyecta - Universidad de Chile, Santiago, Chile

Jun 2018 to Aug 2019

#### Coordinator

- Coordination and teaching of multidisciplinary courses in the Faculty of Physical and Mathematical Sciences.

### Knight Robotics, Santiago, Chile

Jan 2015 - Mar 2018

#### Part time developer

- Assembly of educational robot kits, graphic design tasks and workshop teaching.

### ALMA Observatory, San Pedro de Atacama, Chile

Jan 2013 - Mar 2013

#### Engineering Intern

- Intern in the Front-End team, implementing a Python-based graphical user interface to monitor the antennas.

## Students

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### Supervisor - Universidad de Chile, Santiago, Chile

#### Mattias Prieto - Bachillerato (Associate degree)

Jun 2019 - Oct 2019

- Automatización sustentable

#### Matías Zamora - Ingeniería Civil Eléctrica (Professional Degree)

Sep 2018 - Sept 2019

- Sistema de Vermicompostaje con Aplicación Móvil IoT

**Examiner - Universidad de Chile, Santiago, Chile**

*Andrés Astudillo - Ingeniería Civil Mecánica (Professional Degree)*

Mar 2019 to Oct 2020

- Diseño y Construcción de Robot SCARA Multipropósito

#### Awards and Grants

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<b>Government of Chile</b> <i>Conicyt - Becas Chile Scholarship for doctorate studies</i>	2019-2023
<b>ROSCon</b> <i>Diversity Scholarship to attend ROSCon 2018 in Madrid, Spain</i>	2018
<b>Department of Graduate Studies, Universidad de Chile</b> <i>Graduate Students' Projects Grant to implement Duckietown</i>	2016
<b>Faculty of Physical and Mathematical Sciences, Universidad de Chile</b> <i>Outstanding Student</i>	2013, 2014

#### Skills

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*Languages:* Spanish (Native), English (Advanced, TOEFL iBT: 107 pts)  
*OS:* Windows, Linux.  
*Programming:* C/C++, MATLAB, Python, Java, Arduino, ROS.  
*Software:* Adobe Illustrator, Adobe Premiere, Inkscape, GIMP, Fusion 360, Eagle.

#### Other activities

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- Volunteer for ICCV 2015, ISRR 2017 and IROS 2018.
- Volunteer for Teens Lab, organized within the Singularity Summit 2016. I supported Stefania Druga from Hackidemia in some robotics workshops for children (2016).
- Technical assistance to Dr. Kohei Ogawa during the presentations of Geminoid HI-4 at the V Congress of the Future organized by the National Congress of Chile (2016).
- President of the Electrical Engineering Students Union (2012).
- Graphic design of posters for several talks at the Faculty of Physical and Mathematical Sciences organized by the Humanities Area, the Engineering Students Union, and the Department of Electrical Engineering (2011-2018).