Gonzalo Olguín Moncada

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👤 **GitHub:** github.com/gonzal0lguin   🌐 **Website:** gonzal0lguin.github.io

📍 **Home:** Providencia, Santiago (Chile)

ABOUT ME

Student passionate and devoted to Science and Engineering, with ability to solve problems using the tools an knowledge gained by studies and the abstraction in mathematical logic.

EDUCATION AND TRAINING

MSc in Electrical Engineering
University of Chile [01/12/2023 – Current]

City: Santiago
Country: Chile

BSc Electrical Engineering
University of Chile [01/03/2019 – 19/12/2023]

City: Santiago
Country: Chile

Exchange semester in Electrical Engineering
Technical University of Munich [01/04/2022 – 30/09/2022]

City: München
Country: Germany

WORK EXPERIENCE

Engineering Intern
AMTC - Advanced Mining Technology Center [01/01/2024 – Current]

City: Santiago
Country: Chile

- Documented and proposed electrical system for a laboratory version LHD-mini.
- Carried experiments for a Bachelor thesis on coverage navigation.
- Implemented soft-geofencing, path sampling for BT's and Minimum Oriented Bounding Box for map division algorithms.

Embedded developer
URacing Team Chile (FSAE) [01/12/2023 – Current]

City: Santiago
Country: Chile

Part of the electronics and data team of the first Formula SAE car in Chile.

Laboratory co-manager and project lead
Robotics Laboratory - University of Chile [01/10/2023 – Current]

City: Santiago
Country: Chile

- In charge of coordination, activities, projects and weekly meetings.
- Lead of the autonomous navigation team, focusing on all 3 mobile platforms in the laboratory.

Robotics engineer
Maquintel Robotic Services [01/09/2023 – 30/12/2023]

City: Santiago
Country: Chile

- Prepared on-board software of robot for 3D-mapping of tailings channels.
- Helped post-process data for aligning point clouds using ICP, RANSAC and other methods, combined with IMU data.

Engineering Intern
Maquintel Robotic Services [03/01/2023 – 03/01/2023]

City: Santiago
Country: Chile

- Created simuated version of Vizca D400 robot and appropiate tunnel/ditch like environments.
- Implemented sensor-fused odometry for robust data acquisition.

RESEARCH EXPERIENCE

Autonomous navigation team - Robotics Laboratory

[01/09/2021 – Current]

Permanent member, working on service robots.

- Implemented the full navigation stack (with custom packages) of Bender, a humanoid robot designed and built 100% at University of Chile.
- Created robot skills that are cross-platform and easy to implement on state machines for solving RoboCup@home tasks.
- Developed human-robot interactions modules for Bender, such as speech recognition, text processing via LLM's and command execution routines.
- Made custom packages to compress RGB-D point clouds into 2D and merge it with LiDAR data.

Research assitant - Computer Vision Laboratory

[01/01/2022 – 31/01/2022]

Assistant in an investigation concerning multi-target tracking using Poisson Labeled Multi-Bernoulli (PLMB) filter

TEACHING EXPERIENCE

Duckietown Engineering Chile

[01/08/2023 – 19/12/2023]

Entry level adaptation of MIT's Duckietown course for 2nd year students. I was in charge of two projects:

- Fault detection in pipes using LiDAR.
- Mapping of Duckietown's streets using LiDAR + IMU.

Computational Intelligence and Robotics Laboratory

[01/08/2023 – Current]

TA of the introductory course to the specialization of Computational Intelligence and Robotics. We focus mainly on teaching ROS and programming for robotics.

Introduction to classical physics

[01/03/2021 – 20/07/2021]

TA of the first year course. In charge of doing extra classes and grading exams.

Niñas Pro Foundation

[01/07/2021 – 31/07/2021]

Volunteer mentoring girls at schools in electronics projects, as an attempt to reduce the gender gap in STEM careers.

DIGITAL SKILLS

Programming
Python / C++ / ROS (Robot Operating System) / Arduino / Matlab/Simulik

Development
Git / Linux / Docker

Publishing and design
LaTeX / Adobe Photoshop (basic elements) / Adobe Premier

Others
FUSION360 / Microsoft Office

LANGUAGE SKILLS

Mother tongue(s): **Spanish**

Other language(s):

English

LISTENING C1 **READING** C1 **WRITING** C1
SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user