

## SKILLS

Python | C | C++ | Git | GDB | MATLAB | CMake | Bazel | PyTorch | CUDA | Omniverse | Warp | OpenGL | OpenCV | Linux | Deep Learning | Reinforcement Learning | Machine Perception | Docker | ROS | Gazebo | Point Cloud Library | OpenGL | L<sup>A</sup>T<sub>E</sub>X | Rust | Julia | Blender | Embedded Systems | Spanish (native) | English (bilingual) | Catalan (proficient)

## EDUCATION

**MSc Robotics, Systems and Control** — ETH Zürich  Zürich, CH  9/2021 – Present

- Excellence Scholar: Merit based scholarship and mentorship given to the top 3% of ETH MSc applicants of 2021.
- Focus: Computer vision and machine perception, machine learning, underactuated robotics.
- GPA: 5.68/6.0.
- **Master Thesis @ Robotics Systems Lab:** Safe Reinforcement Learning for wheeled-quadrupedal robots with semantic perception.
  - \* Created a procedural and semantic hiking trail generator using Blender and Python.
  - \* Trained locomotion policies with end-to-end reinforcement learning using Isaac Gym, Warp and Python.
  - \* Supervised by Dr. Joonho Lee, Dr. Marko Bjelonic and Prof. Marco Hutter.
- **Semester Project @ Computational Robotics Lab:** Learned actuator dynamics for Whole Body Controllers
  - \* Applied learned dynamics to optimization-based control methods for legged robots.
  - \* Turned into a research assistantship for summer 2022.
  - \* Supervised by Dongho Kang, Dr. Joonho Lee and Prof. Stelian Coros.


**BEng Robotics** — University of Alicante  Alicante, ES  9/2017 – 6/2021

- Extraordinary award: graduated best-in-class (1st out of 271 students).

## EXPERIENCE

**NVIDIA** — Software Engineer Intern  Zürich, CH  2/2024 – Present

- Created a synthetic automotive data generation pipeline for multi-camera calibration using NVIDIA's Omniverse.
- Increased dataset calibration efficiency over 10x through refactoring and parallelism (C++).
- Implemented interactive data visualization of KPIs over calibrated datasets.
- Improved the user interaction of the End-of-Line routines, by decoupling the interface and the execution with a client/server architecture.

**SONY R&D Center** — Research Engineer Intern  Zürich, CH  9/2022 – 2/2023

- Trained and deployed on the edge Deep Learning models for object detection with event cameras.
- Implemented a CNN-RNN baseline architecture using Pytorch, Lightning and Hydra.
- Implemented a state-of-the-art Vision Transformer (ViT) model that outperformed the baseline's IoU by 50% while having 5x less parameters.
- Created a large dataset pipeline: speed-up of 100x while handling 1TB of data.

**Human Robotics** — Research Intern  Alicante, ES  10/2020 – 6/2021

- Research funded by the merit based Collaboration Grant issued by the Spanish Ministry of Education.
- Bipedal gait generation and tracking through trajectory optimization and a custom made WBC, using C++ and ROS.
- Supervised by Prof. Jorge Pomares.

**QuixMind** — Engineering Intern  Alicante, ES  10/2019 – 6/2020

- Created a robot forklift simulation with ROS, Gazebo and Docker.
- Pallet pose estimation and alignment on a real forklift, using the Point Cloud Library, ROS Controllers and C++.

## PUBLICATIONS

- Path generation and control of humanoid robots during extravehicular activities.  
Ramón JL, **Calvo R**, Trujillo A, Pomares J, Felicetti L. 73rd International Astronautical Congress (IAC-22), 18-22 September 2022, Paris, France
- Trajectory optimization and control of a free-floating two arms humanoid.  
Ramón JL, **Calvo R**, Trujillo A, Pomares J, Felicetti L. Journal of Guidance, Control and Dynamics 45 (9), 1661-1675. 2022

## AWARDS

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### **Ideathon For a Novel Sustainable Packaging Material**

*First prize (Proposed a method to obtain PHA candidates using ML and produce them at scale)*

Student Biolab – ETH Zurich

*November 2022*

### **ESOP (Excelence Scholarship & Opportunity Program)**

*Merit based scholarship and mentorship awarded to the top 3% MSc applicants of 2021 at ETH Zürich.*

ETH Zurich

*March 2021*

### **Extraordinary Bachelor's Award**

*Graduated with Honors*

University of Alicante

*November 2021*

### **National Graduate Ranking**

*2nd position in my engineering category*

SEDEA (Spain)

*November 2021*

### **Santander's Progreso Grant**

*Awarded for being one of the best students in campus.*

Santander Bank

*December 2020*

### **Ministry Collaboration Grant**

*Research internship in University of Alicante's DFESTS department.*

Spanish Ministry of Education

*2020 – 2021*

## ACTIVITIES

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### **Robotics Summer School**

*Participated in a week-long summer school, worked on autonomous robots.*

ETH Zurich / RobotX

*July 2023*

### **Volunteer**

ICIAM 2019

*July 2019*

### **Volunterer**

*IEEE stand*

IROS 2018

*October 2018*