

## Education

### Pontifical Catholic University of Peru (PUCP)

Mar 2019 – Dec 2024

BSc in Mechatronics Engineering

- **Summa Cum Laude** (Grade: 17.72/20) – **Rank: 1<sup>st</sup>** out of 80 students.
- Thesis: Visual Navigation for wheeled quadruped with fall recovery capability (advised by [Prof. Diego Quiroz](#)).

### University of Stuttgart

Sept 2023 – Mar 2024

Exchange Student in Computer Science

- Grade: 1.3 (scale 1–6, 1 best).
- Relevant Coursework: Foundation Models, Computer Vision, Deep Learning for NLP, Machine Learning.

## Research Experience

### Yale University

Connecticut, USA

Research Affiliate (advised by [Dr. Josue Ortega](#))

Jan 2025 – May 2025

- Finetuned **Visual Language Models** (Llama Vision and Qwen VL) on fMRI data for clinical variable prediction.
- Implemented a GPT-based architecture alongside a pretrained visual encoder for clinical variable prediction.
- Implemented **Vector Quantized VAE** for fMRI reconstruction and aligned Text-fMRI using **adversarial training**.

### Max Planck Institute for Intelligent Systems (MPI-IS)

Stuttgart, Germany

Research Intern (advised by [Prof. Katherine Kuchenbecker](#))

Jul 2024 – Sep 2024

- Adapted Minsight, a vision based **soft tactile sensor**, for high frequency sensing by embedding a microphone.
- Developed **motion patterns** for a dexterous hand and a 3-axis machine to interact with fabrics and surfaces for data collection.
- Implemented **temporal DL models** to classify surfaces and fabrics dynamically in-hand using audio data.

### Pontifical Catholic University of Peru (PUCP)

Lima, Peru

Research Assistant (advised by [Prof. Diego Arce](#))

Aug 2022 – Aug 2023

- **Compared traditional and DRL algorithms** for autonomous navigation of mobile robots in simulation.
- Tested mapping, localization, and evaluated traditional local planners in **highly dynamic environments**.
- Implemented and evaluated DRL algorithms for map-based and mapless autonomous navigation.

## Industry Experience

### Robot.com (formerly Kiwibot)

San Francisco, USA

Robotics Engineer

Aug 2025 – Present

- Implemented simulation for wheeled quadruped, including **mapping and localization stack**.
- Implemented data collection stack in LeRobot format for custom **bimanual manipulators**.
- Fine-tuning **Visual Language Action models** for diverse bimanual manipulation tasks.

### Bosch Center for Artificial Intelligence (BCAI)

Renningen, Germany

Working Student

Oct 2023 – Mar 2024

- Developed hardware for robotic AI demonstrators: lane follower RC car and dice anomaly detector.
- Implemented an **Imitation Learning** pipeline for autonomous RC car and optimized inference with TensorRT.
- Automated data collection and trained **LSTM autoencoder** for anomaly detector demonstrator.

## Publications

- **Solano J, Quiroz D.** “Stand, Walk, Navigate: Recovery-Aware Visual Navigation on a Low-Cost Wheeled Quadruped”. **IROS 2025 - Workshop on Wheeled-Legged Robotics**. [\[Paper\]](#)
- Andrussow I, **Solano J**, Richardson B, Martius G, Kuchenbecker K. “Adding internal audio sensing to internal vision enables human-like in-hand fabric recognition with soft robotic fingertips” (Oral). **Humanoids 2025**. [\[Website\]](#), [\[Paper\]](#)
- **Solano J**, Cisneros J, Sarmiento L, Quispe G, Hermitaño A, Quiroz D, Balbuena J. “Design and Implementation of an Inspection Robot for Crack Detection in Flooded Pipes.” **IEEE INTERCON 2023**. [\[Paper\]](#)

- Arce D, **Solano J**, Beltrán C. “A Comparison Study between Traditional and Deep-RL Algorithms for Indoor Autonomous Navigation in Dynamic Scenarios.” **Sensors** **2023**. [[Paper](#)]

## Competitions

### European Rover Challenge

Kielce, Poland

Computer Vision & Autonomous Navigation Member

2023, 2025

- (2023) Developed algorithms for **ArUco 3D pose estimation** and robot arm motion planning.
- (2025) Implemented 3D reconstruction and SLAM modules integrating depth and LiDAR data.

### Latin American Space Challenge

São Paulo, Brazil

Electronics and Controls Lead

2021, 2023

- (2021) Designed and programmed the electronics system for a CanSat mini-satellite.
- (2023) Developed the **Go-to-goal PID navigation algorithm** for a comeback rover CanSat.

## Teaching and Mentorship

### Pontifical Catholic University of Peru (PUCP)

Oct 2025 - Jan 2026

Lecturer – ROS2 Specialization Program

Mobile Robot Navigation and Robot Manipulation courses, focusing on applied autonomy with ROS2.

### Mision Tech

Aug 2025

Mentor – Robotics Bootcamp

Mentored high school students through hands-on robotics and programming challenges.

### Pontifical Catholic University of Peru (PUCP)

Mar 2025 – Jul 2025

Teaching Assistant – Robotics and Artificial Intelligence

Assisted lectures and labs on kinematics, navigation, and AI, and helped test educational robotics modules.

### Teens in AI

Mar 2022

Mentor – Women’s Day Hackathon

Taught participants core machine learning concepts while mentoring teams building AI prototypes solutions.

## Honors and Awards

### 1st Place – Class of 2024

2025

Awarded distinction at the graduation ceremony for ranking 1st out of 80 Mechatronics graduates in the 2024 class.

### CaCTüS Cohort

2024

9 selected from 700+ applicants worldwide to participate in a fully funded internship at the Max Planck Institute. [[Link](#)]

### DARI Scholarship

2023

Awarded an exchange scholarship for academic excellence. Ranked 1st among PUCP exchange applicants. [[Link](#)]

### Latin American Space Challenge

2023

Awarded 1st prize among 40+ teams from Latin America and Asia in the CanSat and Overall Satellite categories. [[Link](#)]

### COAR National Scholarship

2018

Awarded full bachelor scholarship. Ranked 1st among 400+ applicants from high performing schools (COAR). [[Link](#)]

### ONAM National Mathematics Olympiad

2017

Awarded 1st Place in the ONAM Trilce National Mathematics Olympiad. [[Link](#)]

## Leadership and Community Service

### PUCP Mechatronics Students Association

2023

Academic Affairs Representative: Supported academic community by organizing talks and compiling past exams.

### PUCP Robotics Club

2022

Project Coordinator: Coordinated multidisciplinary robotics projects and organized technical workshops for competitions.

## Skills

- **Programming:** Python, C/C++, MATLAB.
- **Tools & Simulation:** ROS 1/2, Gazebo, Isaac Sim/Lab, Docker, Git, Rerun.
- **Libraries & Frameworks:** Transformers, PyTorch, Tensorflow, OpenCV, MoveIt, NAV2.
- **Languages:** English (Fluent), Spanish (Native), German (Basic).