Jans Solano

Education

Pontifical Catholic University of Peru (PUCP) *Dec 2024*
BSc in Mechatronics Engineering

- Grade: 17.72/20 — **Rank: 1/80**.
- Thesis: Autonomous **RL-based wheeled quadruped** for **irregular terrain** locomotion with **fall recovery** capability.

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, Applied Machine Learning.

Research Experience

Yale University *Connecticut, USA*
Research Affiliate (advised by Prof. David van Dijk) *Jan 2025 – May 2025*

- Finetuned **Llama 3.2 Vision** and **Qwen 2.5 VL** for predicting clinical fMRI variables using QLoRA and Unsloth.
- Designed a **GPT-based multimodal architecture** and a **VQ-VAE** for fMRI reconstruction via adversarial alignment.

Max Planck Institute for Intelligent Systems (MPI-IS) *Stuttgart, Germany*
Research Intern (advised by Prof. Katherine Kuchenbecker) *Jul 2024 – Sep 2024*

- Adapted the **MInsight tactile sensor** to high-frequency sensing by integrating a MEMS microphone.
- Designed motion patterns for a UR5 robotic hand to explore fabrics and surfaces for multimodal data collection.
- Developed sequential deep learning models for in-hand material recognition using audio signals.

Pontifical Catholic University of Peru (PUCP) *Lima, Peru*
Research Assistant (advised by Prof. Diego Arce) *Aug 2022 – Aug 2023*

- Compared classical and deep reinforcement learning algorithms for autonomous navigation in simulation.
- Evaluated mapping, localization, and DRL-based planners in dynamic environments.

Industry Experience

Robot.com (formerly Kiwibot) *San Francisco, USA*
Robotics Engineer *Aug 2025 – Present*

- Building a **bimanual manipulation** stack: data collection and **robot learning** (BC/ACT-style policies), teleoperation tooling, and benchmarking.
- Developing the **navigation stack** for **wheeled quadruped**.

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 driving and optimized inference with TensorRT.
- Automated data collection and trained an LSTM autoencoder for visual anomaly detection.

Competitions

European Rover Challenge *Kielce, Poland – Remote*
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

- Lecturer for two courses: **Mobile Robot Navigation** and **Robot Manipulation**.
- Focus on applied autonomy using ROS2: Nav2, Moveit.

Mision Tech
Mentor – Robotics Camp and Hackathon *Aug 2025*

- Guided high school students through hands-on robotics and programming challenges.
- Provided technical mentorship on sensors, control, and prototyping.

Pontifical Catholic University of Peru (PUCP)
Teaching Assistant – Robotics and Artificial Intelligence *Mar 2025 – Jul 2025*

- Assisted lectures and labs on kinematics, manipulators, autonomous navigation, and AI fundamentals.
- Supported the design and testing of educational robotics modules.

Teens in AI
Mentor – Women's Day Hackathon *Mar 2022*

- Taught participants the basics of machine learning and data preprocessing.
- Supported student teams in developing socially oriented AI prototypes.

Leadership and Community Service

PUCP Mechatronics Students Association *2023*
Academic Affairs Representative

- Supported academic community by organizing talks and compiling past exams to aid student preparation.

PUCP Robotics Club
Project Coordinator *2022*

- Coordinated multidisciplinary robotics projects and organized technical workshops for student competitions.

Honors and Awards

- **REPU** Cohort 2025 – Selected for Yale CS research internship.
- **Graduation 1st Place** – Ranked 1/122 in the graduating class of 2024.
- **CaCTüS** Cohort 2024 – One of 9 selected from 700+ applicants worldwide.
- **DARI Scholarship** – Ranked 1st among PUCP exchange applicants.
- **1st Place** – Overall Satellite & Cansat, Latin American Space Challenge 2023.
- **COAR-PUCP National Scholarship** – Ranked 1st among 400+ national applicants.
- **International Baccalaureate Diploma** – Colegio Mayor Secundario Presidente del Perú.
- **1st Place** – ONAM National Mathematics Olympiad.

Publications

- 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.*" **IEEE Humanoids 2025**. [Website]
- **Solano J**, Cisneros J, Sarmiento L, et al. "*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]

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).