Jans Solano

Education

Pontifical Catholic University of Peru (PUCP) *Mar 2019 – Dec 2024*
BSc in Mechatronics Engineering

- **Summa Cum Laude** (Grade: 17.72/20) – **Rank: 1st** 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**.

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.*" **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).