Ricardo Huaman

rotvie@gmail.com | Google Scholar | LinkedIn
GitHub | rotvie.github.io | YouTube

Research Interests

Robot Learning, VLA, Computer Vision, Natural Language Processing, Deep Reinforcement Learning

Education

Universidad Privada Antenor Orrego (UPAO), Trujillo, Peru

B.E. Electronic Engineering **July 2017 – July 2022**

- Class Rank: 1st
- Thesis supervisors: Dr. Sixto Prado & Clayder Gonzalez, MSc

Research Experience

Cardiff University, Cardiff, UK

Research Assistant, Human-centred Computing Laboratory **January 2024 – April 2024**

- Advisors: Dr. Carolina Fuentes & Dr. Fernando Alva
- Through the REPUcs 2024 Program, led the integration of foundational AI models with a humanoid robot, enhancing human-robot interaction in educational environments
- Implemented large language models (LLMs) into a quadruped robot simulation for autonomous indoor navigation, enabling more adaptive and intelligent behaviors in complex environments

Universidad Privada Antenor Orrego, Trujillo, Peru

Research Assistant, Multidisciplinary Research Laboratory **May 2021 – December 2023**

- Advisors: Dr. Sixto Prado & Clayder Gonzalez, MSc
- I worked on the development of an agricultural mobile robot's autonomous navigation system, incorporating SLAM, path planning, and motion control algorithms. The components were integrated using the ROS middleware. This project aimed to enhance automation and productivity in the agricultural sector. Supported by government grant 171-2020-FONDECYT
- I worked on creating computer vision pipelines using deep learning to address specific agricultural challenges. Some examples include artichoke seedling classification, pre-harvest blueberry ripeness categorization, and the detection of missed seeding in plug trays. Supported by government grant 79170-2022-PROCIENCIA

Industry Experience

Banco de Crédito BCP, Lima, Peru

Machine Learning Engineer **October 2025 – Present**

- Develop and maintain end-to-end Machine Learning pipelines to support internal banking systems and production workloads

IP Noticias LATAM, Lima, Peru

Analytics Team Lead **October 2024 – September 2025**

- Led a team of two engineers to implement innovation projects and develop business intelligence (BI) indicators using Tableau, empowering stakeholders with data-driven insights for strategic decision-making

Artificial Intelligence Engineer **May 2024 – September 2025**

- Implemented object detection systems that reduced manual processing time by 60%, significantly enhancing operational efficiency and lowering labor costs
- Designed a scalable, microservices-based infrastructure to deploy text classification and named entity recognition (NER) models, optimizing inference speed across 50+ models by applying MLOps best practices
- Developed a real-time facial recognition system for streaming signals using gRPC for high-efficiency inter-service communication, successfully identifying over 1,000 individuals in multimedia content
- Built RAG agents powered by large language models (LLMs), leveraging LangChain, Agno, and vector/relational databases to deliver highly relevant and context-aware user responses
- Created a thematic discovery pipeline for unstructured data using embedding techniques and clustering algorithms, enabling automated topic identification across large volumes of text

CorAll Development and Research, Trujillo, Peru

Engineering Intern **February 2022 – June 2022**

- Oversaw the proper administration of data and the development of datasets
- Provided assistance with coding Machine Learning and Deep Learning algorithms, according to the specific needs of each project

Selected Publications

[1] **R. J. H. Kemper**, P. A. Zamora Manrique, D. D. Herrera Rosas and S. R. Prado Gardini, "Performance Evaluation of Detection and Tracking Algorithms for Automated Grape Cluster Counting," 2025 IEEE Colombian Caribbean Conference, 2025, pp. 1-6, doi: 10.1109/C366505.2025.11340275

[2] **R. Huaman**, C. Gonzalez and S. Prado, "Comparative Analysis of LiDAR Inertial Odometry Algorithms in Blueberry Crops," Engineering Proceedings, vol. 83, no. 1, 2025, doi: 10.3390/engproc2025083009

[3] **R. Huaman**, C. Gonzalez and S. Prado, "Performance Evaluation of the ROS Navigation Stack using LeGO-LOAM," Proceedings of the 9th Brazilian Technology Symposium (BTSym'23), Lima, Peru, 2024, pp. 173-183, doi: 10.1007/978-3-031-66961-3_16

[4] P. B. Cubas Muñoz, **R. J. Huaman Kemper** and S. R. Prado Gardini, "Artificial vision strategy for Ripeness assessment of Blueberries on Images taken during Pre-harvest stage in Agroindustrial Environments using Deep Learning Techniques," 2023 IEEE XXX International Conference on Electronics, Electrical Engineering and Computing (INTERCON), Lima, Peru, 2023, pp. 1-6, doi: 10.1109/INTERCON59652.2023.10326058

[5] P. B. Cubas Muñoz, **R. J. Huaman Kemper**, E. M. Fiestas Sorogastua and S. R. Prado Gardini, "Deep Learning-based Segmentation and Classification System for Artichoke Seedling Grading," 2023 IEEE XXX International Conference on Electronics, Electrical Engineering and Computing (INTERCON), Lima, Peru, 2023, pp. 1-6, doi: 10.1109/INTERCON59652.2023.10326060

[6] J. A. B. Quispe, **R. J. H. Kemper** and S. R. P. Gardini, "Linear Quadratic Regulator (LQR) Control for the Active Suspension System of a Four-Wheeled Agricultural Robot," 2023 IEEE XXX International Conference on Electronics, Electrical Engineering and Computing (INTERCON), Lima, Peru, 2023, pp. 1-6, doi: 10.1109/INTERCON59652.2023.10326049

[7] **R. J. H. Kemper**, C. Gonzalez and S. R. P. Gardini, "Autonomous Navigation of a Four-Wheeled Robot in a Simulated Blueberry Farm Environment," 2022 IEEE ANDESCON, Barranquilla, Colombia, 2022, pp. 1-6, doi: 10.1109/ANDESCON56260.2022.9989865

Academic Talks and Poster Sessions

P. Cubas*, **R. Huaman*** and S. Prado, "Deep Learning Approach for Accurate Pre-Harvest Blueberry Ripeness Classification". Poster, *Workshop on Robotics in Agriculture at **IROS***. October, 2023

C. Gonzalez*, **R. Huaman*** and S. Prado, "Comparative Analysis of Lidar Odometry Algorithms in Blueberry Crops". Poster, *Workshop on Robotics in Agriculture at **IROS***. October, 2023

R. Huaman, C. Gonzalez, and S. Prado, "Integration of an Autonomous Navigation System for an Agricultural Mobile Robot in a Simulated Blueberry Cultivation Environment". Talk, *XIII International Scientific Meeting of the North at UPAO*. December, 2022

R. Huaman, C. Gonzalez, and S. Prado, "Implementation of an Autonomous Navigation System for a Mobile Robot in a Simulated Environment of a Blueberry Agro-Industrial Farm". Talk, *I International Congress of Research and Innovation Incubators at UPAO*. November, 2022

R. Huaman, "Path Planning for Autonomous Robots". Talk, *Electronics Engineering Dept. at UPAO*. May, 2022

Programming & Software

Python, C++, PyTorch, TensorFlow, ROS 1 & 2, Git, Linux, MATLAB, AWS, Azure, Docker, Kubernetes, OpenCV, LangChain

Languages

Languages Spanish (*native*), English (*TOEFL iBT 104/120*), Japanese (*JLPT N2*)