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Summary: Robotics researcher advancing foundation-model pipelines by combining VLM open-vocabulary perception, LLM-generated reward design, and early VLA policies grounded in prior multi-sensor (RGB-D/LiDAR/multispectral) perception work.

Interests: VLMs, VLAs, Robotic manipulation, Open-vocabulary & 3D perception and Data generation & sim-to-real.

Education

02/2022 – 07/2025	**PhD in Computer Science**, University of Alicante, Alicante, Spain Focus: RGB, RGB-D, LiDAR and multispectral perception and analytic grasping methods Dissertation: *Multisensorial perception for grasping objects with multifingered grippers*, directed by Prof. Santiago T. Puente 8+ international conference papers (ICRA, IFAC, VISAPP), 4 journal articles (T-RO, JINT) Final grade: 10.0/10.0 (Cum laude) Merits: *NOVA Talent 2024*
12/2023 – 05/2024	**Research Stay at ISIR**[1], Sorbonne Université, Paris, France Focus: Grasping dataset generation using evolutionary algorithms Collaboration with Prof. Stéphane Doncieux
09/2020 – 07/2021	**Master's in Automation and Robotics**, University of Alicante, Spain Focus: Using controllers on spatial humanoids Master thesis: Design, simulation, and control of a humanoid space robot Final grade: 9.56/10.0 *1st in class, class average: 8.33* Merits: *Extraordinary Master's Award* and *EPS-UA Hall of Fame*
09/2016 – 06/2020	**Bachelor's in Robotics Engineering**, University of Alicante, Spain Focus: Image-based satellite control for on-orbit operations Bachelor thesis: Guiding robotic satellites using image-based control Final grade: 7.69/10.0 *Top 6 out of cohort, class average of 7.1* Merits: *COITIA*[2] *Best Final Thesis* and *SEDEA*[3] *Academic Excellence Ranking 2020: 6th in Other Engineerings*

[1] Institut des Systèmes Intelligents et de Robotique
[2] Colegio Oficial de graduados e Ingenieros Técnicos Industriales de Alicante
[3] Sociedad Española de Excelencia Académica

Work Experience

Since 12/2025	**Postdoctoral Research Fellow**, Cognitive Robotics Lab, Automation Technology and Mechanical Engineering Unit, Tampere University Exploring ViT multi-patch-size analysis for VLM-based perception, targeting open-vocabulary recognition across scales Investigating fault-tolerant manipulation strategies, with an emphasis on recovery behaviors in cluttered scenes
12/2024 - 12/2025	**Adjunct Lecturer** / **Docent**, Department of Physics, Systems Engineering and Signal Theory, University of Alicante Lectured on teleoperation and robot design techniques
12/2024 - 11/2025	**Research Assistant**, Automation, Robotics and Computer Vision (AUROVA) Lab, University Institute for Computer Research, University of Alicante Developed a new robotic platform Designed a force feedback system for a haptic sensor
04/2022 – 12/2024	**Research Assistant**, Automation, Robotics and Computer Vision (ARVC) Lab, Systems Engineering and Automation Department, Miguel Hernández University of Elche Derived an analytic grasping method for multi-fingered grippers Designed RGB, RGB-D, LiDAR and multispectral perception algorithms to analyze the environment
09/2021 – 02/2022	**Technical Research Assistant**, Automation, Robotics and Computer Vision (AUROVA) Lab, University Institute for Computer Research, University of Alicante Developed a complete robotic pipeline to collect household waste outdoors

Extracurricular activities

Since 2020	IEEE Robotics and Automation Society member
Since 2017	IEEE member

Further Education

11/2023	**Deep Reinforcement Learning Course**, Hugging Face
06/2023	**Advanced Course on Data Science & Machine Learning**, University of Cambridge & University of Florida, held in Italy
08/2022	**Building AI**, University of Helsinki, Finland
07/2022	**Robotics and AI**, Institut de Robòtica i Informàtica Industrial / CSIC UPC, Spain
11/2021	**Robot Perception for interacting with humans and for manipulating soft objects**, The Hong Kong Polytechnic University, Hong Kong
07/2021	**Elements of AI**, University of Helsinki, Finland

Languages

Spanish	Native speaker
English	C2
Catalan	C1
French	A2

Computer Skills

Programming Languages	C, C++, Python
ML/FM	TensorFlow, PyTorch
Robotics	ROS/ROS 2, Gazebo, RViz, OpenCV, MATLAB
Ops	Docker, Singularity, Slurm

Publications (selected)

[J1] S.T. Puente, **I-L. Páez-Ubieta**, M. Fernández-Herrero and C. Mateo-Agullo (2025). "Comparative of LLM-generated rewards for training RL agents in robot manipulation tasks" in *IEEE Transactions on Robotics (T-RO)*. Under review. [LLMs, Grasping, Rewards]

[J2] **I-L. Páez-Ubieta**, S.T. Puente and D. Frau-Alfaro (2025). "GeoGraspEvo: multi-fingered grasp pose estimation" in *Journal of Intelligent and Robotic Systems (JINT)*. Under review. [Grasping, Analytic, Multifinger]

[J3] **I-L. Páez-Ubieta**, J. Castaño-Amorós, S.T. Puente and P. Gil (2023). "Vision and Tactile Robotic System to Grasp Litter in Outdoor Environments" in *Journal of Intelligent and Robotic Systems (JINT)*. doi: 10.1007/s10846-023-01930-2. [Pipeline]

[IC1] J. Huber, F. Hélénon, M. Kappel, **I-L. Páez-Ubieta**, S.T. Puente, P. Gil, F.B. Amar and S. Doncieux (2025). "QDGset: A Large Scale Grasping Dataset Generated with Quality-Diversity" in *42nd IEEE International Conference on Robotics and Automation (ICRA). doi: 10.1109/ICRA55743.2025.11127427*. [Dataset, Grasping, Evolutionary algorithms]

[IC2] **I-L. Páez-Ubieta**, D. Frau-Alfaro and S.T. Puente (2025). "Transferability of labels across multispectral imagery" in *20th International Conference on Computer Vision Theory and Applications (VISAPP)*. doi: 10.5220/0013154100003912. [Multispectral, Data Label]

[IC3] **I-L. Páez-Ubieta**, E.P. Velasco-Sánchez and S.T. Puente (2025). "LiCAR: pseudo-RGB LiDAR image for CAR segmentation" in *5th International Conference on Robotics, Computer Vision and Intelligent Systems (ROBOVIS)*. doi: 10.1007/978-3-032-00986-9_5. [LiDAR, Data Generation]

[IC4] **I-L. Páez-Ubieta**, E. Velasco-Sánchez, S.T. Puente. and F. A. Candelas (2023). "Detection and depth estimation for domestic waste in outdoor environments by sensors fusion" in *22nd IFAC World Congress*. doi: 10.1016/j.ifacol.2023.10.211. [Depth Estimation, LiDAR, RGBD]

[IC5] E. Velasco-Sánchez, **I-L. Páez-Ubieta**, F. A. Candelas and S. T. Puente (2023). "LiDAR data augmentation by interpolation on spherical range image" In *28th IEEE International Conference on Emerging Technologies and Factory Automation (ETFA)*. doi: 10.1109/ETFA54631.2023.10275512. [LiDAR, Data Generation]

References

Roel Pieters	Postdoc advisor at Tampere University
Santiago T. Puente Méndez	PhD advisor at University of Alicante
Stéphane Doncieux	Research stay responsible at Sorbonne Université