

## Ignacio de Loyola Páez Ubieta

28/05/1998 (Spanish) Living in Alicante (Spain) Phone: +34 626 054 111  
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Estimated PhD defense on July 2025. Looking forward to a PostDoc to continue my research career on reinforcement learning, robotics or grasping in France, Switzerland, USA or Canada.

## EDUCATION

**02-2022 / XX-XXXX**  
*Alicante - Spain*

### Computer Science Philosophy Degree (University of Alicante)

- Specialization in Robotics inside AUROVA group.
- Thesis on "Demonstration-based learning for robotic manipulation", directed by Santiago T. Puente (University of Alicante).
- Two research stays at Sorbonne University (France).

**12-2023 / 05-2024**  
*Paris – France*

### PhD. Research Stay (Sorbonne University - CNRS)

- Worked on data driven methods for grasping objects in a new SOTA method.
- Supervised by Stéphane Doncieux (ISIR director) at AMAC/ASIMOV research teams.
- Two consecutive research stays: 1/12/2023 – 29/2/2024 & 14/3/2024 – 14/5/2024).

**09-2020 / 06-2021**  
*Alicante - Spain*

### Automatic and Robotics Master's Degree (University of Alicante)

- Average mark of 9.56, including 5 A and 3 A+.
- Thesis on "Design, simulation and control of a robotic humanoid robot", with Jorge Pomares Baeza (University of Alicante) and Leonard Felicetti (Cranfield University) as tutors.
- Extraordinary award for the best academic record of the course 2020/2021.

**09-2016 / 06-2020**  
*Alicante - Spain*

### Robotics Engineering Bachelor's Degree (University of Alicante)

- Average mark of 7.69, obtaining 7 A and 3 A+.
- Thesis on "Robotic satellites guidance with image-based control", with Jorge Pomares Baeza (Universidad of Alicante) and Leonard Felicetti (Cranfield University) as tutors. Considered by both COITIA and university teachers as the best thesis of 2020.

**07-2021 / XX-XXXX**

### Courses in Data Science and Machine Learning (University of Catania and University of Florida), Deep Learning Introduction (University of Alicante), Elements of AI/Building AI (Helsinki University)

**09-2001 / 05-2016**  
*Alicante - Spain*

### Sagrado Corazón HH. Maristas School

- Marks over 9.75 in all years, culminated with honours in 2º BACH.

**07-2015 / 07-2015**  
*Madrid - Spain*

### Summer scientific camps (Universidad Carlos III de Madrid)

- Specialization in Robotics.

**Languages:** **Spanish** : Native.

**English** : Certificate in Advanced English by Cambridge University (C1) -> Preparing C2 level.

**Valencian / Catalan** : Grau Mitjà de coneixements en valencià (C1).

**French** : studying A1 level.

**Programation Languages** : C, C++, C#, Python, ROS, Assembly and VHDL.

**Automatization** : TIA Portal, PSIM, Unity Pro, CCS, Arduino and Verilog.

**Modeling and Simulation** : Autodesk Inventor, Matlab / Simulink, RoboGuide and RobotStudio.

**Tools**: Tensorflow, Pytorch, OpenCV, Dockerfile, Singularity and Slurm among others.

**Operating Systems used** : Windows, Linux and Raspbian.

## WORK EXPERIENCE

**04-2022 / XX-XXXX**  
*Elche - Spain*

### Pre-doctoral Researcher (Miguel Hernández University of Elche)

- Working on "Towards greater integration of intelligent robots into society: navigate, recognize and manipulate" project, funded by the Regional Government of Comunidad Valenciana (PROMETEO/2021/075). AUROVA research group.
- Research in robotic manipulation and imitation / demonstration-based learning techniques.

**09-2021 / 02-2022**  
*Alicante - Spain*

### Advanced Technician (University of Alicante)

- Worked on "Mobile manipulation for non-structured outdoor environments" project, funded by Ministry of Science, Innovation and Universities (RTI2018-094279-B-I00). AUROVA research group.
- Used 2D and 3D artificial vision techniques, neural networks, trajectory controllers and robotic graspers.

**02-2021 / 05-2021**  
*Elche - Spain*

### Internship at Scignals

- Detection of the sleep stage in humans by using EEG signals, machine learning and deep learning.
- Done during the Master's Degree.

**02-2020 / 05-2020**  
*Elda - Spain*

### Internship at Automatización y Control Numérico S.L.

- 2D and 3D artificial vision, collaborative robots and cloud apps.
- Done during the Bachelor's Degree.

## ACTIVITIES AND INTERESTS

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| <b>10-2017 / XX-XXXX</b>                             | <b>IEEE member</b>   |
| <b>09-2009 / 07-2018</b><br><i>Alicante - Spain</i>  | <b>Professional Swimmer at CNB Maristas and CN Top Ten</b> <ul style="list-style-type: none"><li>- Swimming, Lifesaving and Monofin.</li><li>- Lifesaving Course by FSSCV</li><li>- Elite athlete in promotion and B class (until 2018).</li><li>- Participation in several Spanish Championships (last one in 2016), 2 World Championships (RESCUE 2014 y World Cup 2015) and 3 Championships by autonomous communities (last one in 2017).</li></ul> |
| <b>02-2018 / 06-2018</b><br><i>Elche - Spain</i>     | <b>Pharmacy Bachelor's Degree (Miguel Hernández University of Elche)</b> <ul style="list-style-type: none"><li>- Three passed subjects with B qualifications.</li></ul>  |
| <b>09-2020 / 06-2021</b><br><i>Guipuzkoa - Spain</i> | <b>Previous subjects of Biomedical Technologies Master's Degree (University of Mondragon)</b> <ul style="list-style-type: none"><li>- Passed with A qualifications.</li></ul>  |
| <b>06-2021</b><br><i>Elche - Spain</i>               | <b>Nanotechnology Introductory Course (Miguel Hernández University of Elche)</b>   |

## HONORS AND AWARDS

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|----------------|---|
| <b>03/2024</b> | <b>Nova member – Global Top Talent Network</b> <ul style="list-style-type: none"><li>- Nova is the merit-based access network where the top 3% of talent connect, develop and accelerate their careers.</li></ul>   |
| <b>06/2023</b> | <b>Santander Bank / UA - Mobility Scholarships for international PhD mention</b> <ul style="list-style-type: none"><li>- Scholarship to facilitate opting for the International Mention in the PhD.</li></ul>   |
| <b>02/2022</b> | <b>Outstanding Student EPS/UA Hall of Fame 2022</b> <ul style="list-style-type: none"><li>- Achieved by showing up the EPS-UA beyond the school environment.</li><li>- Issued by University of Alicante.</li></ul>  |
| <b>01/2022</b> | <b>Master's Degree Extraordinary Award</b> <ul style="list-style-type: none"><li>- Best academic record of the academic year (2020/2021) in the "Automation and Robotics Master's Degree".</li><li>- Issued by University of Alicante.</li></ul>  |
| <b>10/2021</b> | <b>Best Final Bachelor's Degree Thesis 2020</b> <ul style="list-style-type: none"><li>- Prize received after achieving the Special Mention in the Final Bachelor's Degree Thesis.</li><li>- This thesis was called "Robotic satellite guidance using visual servoing" and was conducted by Jorge Pomares Baeza (University of Alicante) and Leonard Felicetti (Cranfield University) as conclusion of the Bachelor's Degree (2016/2020).</li><li>- Issued by Official Association of Industrial Engineers of Alicante (COITIA).</li></ul> |
| <b>10/2020</b> | <b>National Ranking of Academic Excellence 2020</b> <ul style="list-style-type: none"><li>- Included in the "National Ranking of Academic Excellence 2020". Achieved position 6 out of 30 in the field "Other Engineering Degrees". Distinction awarded to the top 1% of graduates of Spanish universities.</li><li>- Issued by Spanish Society of Academic Excellence (SEDEA).</li></ul>   |
| <b>06/2016</b> | <b>Baccalaureate Extraordinary Award</b> <ul style="list-style-type: none"><li>- Granted to a limited number of students per group when their marks are close to the best possible grade (typically to up to 5% of the students).</li><li>- Issued by Sagrado Corazón HH. Maristas School.</li></ul>  |

### A) Journals

- [J1] I-L. Páez-Ubieta, D. Frau-Alfaro and S.T. Puente. "GeoGraspEvo: Multifinger 6DoF Grasp Pose Estimation". Machine Vision and Applications (MVA). Under review.
- [J2] I-L. Páez-Ubieta, J. Castaño-Amorós, S.T. Puente and P. Gil. "Vision and Tactile Robotic System to Grasp Litter in Outdoor Environments", Journal of Intelligent and Robotic Systems (JINT), 109, 36 (2023), doi: 10.1007/s10846-023-01930-2. Impact Factor (JCR): 3.1, indexed in ROBOTICS and COMPUTER SCIENCE, ARTIFICIAL INTELLIGENCE fields.
- [J3] J. Castaño-Amorós, I-L. Páez-Ubieta, P. Gil, S.T. Puente. "Manipulación visual-táctil para la recogida de residuos domésticos en exteriores". Revista Iberoamericana de Automática e Informática Industrial (RIAI), 20(2), (2022), pp. 163-174, doi: 10.4995/riai.2022.18534. Impact Factor (JCR): 1.5, indexed in ROBOTICS and AUTOMATION & CONTROL SYSTEMS fields.

### B) International conferences

- [IC1] I-L. Páez-Ubieta, D. Frau-Alfaro and S.T. Puente. "Transferability of labels across multispectral imagery", 20<sup>th</sup> International Conference on Computer Vision Theory and Applications (VISAPP 2025), Porto, Portugal, 2025. Under review.
- [IC2] J. Huber, F. Hélión, M. Kappel, I-L. Páez-Ubieta, S.T. Puente, P. Gil, F.B. Amar and S. Doncieux. "QDGset: A Large Scale Grasping Dataset Generated with Quality-Diversity", 42<sup>nd</sup> IEEE International Conference on Robotics and Automation (ICRA 2025), Atlanta, U.S.A, 2025. Under review.
- [IC3] I-L. Páez-Ubieta, E.P. Velasco-Sánchez and S.T. Puente. "LiCAR: pseudo-RGB LiDAR image for CAR segmentation", 5<sup>th</sup> International Conference on Robotics, Computer Vision and Intelligent Systems (ROBOVIS 2025), Porto, Portugal, 2025. Under review.
- [IC4] D. Frau-Alfaro, S.T. Puente, I-L. Páez-Ubieta and E. Velasco-Sánchez. "Robotic approach trajectory using Reinforcement Learning with Dual Quaternions", 7<sup>th</sup> Iberian Robotics Conference (ROBOT 2024), Madrid, Spain, 2024. Accepted. Upcoming conference.
- [IC5] D. Frau-Alfaro, S.T. Puente and I-L. Páez-Ubieta. "Trajectory generation using Dual-Robot haptic interface for Reinforcement Learning from Demonstration", 6<sup>th</sup> Iberian Robotics Conference (ROBOT 2023), Coimbra, Portugal, 2023. Springer Lecture Notes in Networks and Systems, 976(444-455), doi: 10.1007/978-3-031-58676-7\_36.
- [IC6] I-L. Páez-Ubieta, E. Velasco-Sánchez, S.T. Puente. and F. A. Candelas. "Detection and depth estimation for domestic waste in outdoor environments by sensors fusion", 22<sup>nd</sup> IFAC (International Federation of Automatic Control) World Congress 2023, Yokohama, Japan & IFAC-PapersOnLine, 56(2), 2023, pp. 9276-9281, doi: 10.1016/j.ifacol.2023.10.211. Impact Factor (no JCR): 1.8, 2023.
- [IC7] E. Velasco-Sánchez, I-L. Páez-Ubieta, F. A. Candelas and S. T. Puente. "LiDAR data augmentation by interpolation on spherical range image", 2023 IEEE 28th International Conference on Emerging Technologies and Factory Automation (ETFA), Sinaia, Romania, 2023, pp. 1-4, doi: 10.1109/ETFA54631.2023.10275512.
- [IC8] I-L. Páez-Ubieta, E. Velasco-Sánchez, S. T. Puente, P. Gil and F. A. Candelas. "GeoGraspEvo: grasping points for multifingered grippers", 2023 IEEE 28th International Conference on Emerging Technologies and Factory Automation (ETFA), Sinaia, Romania, 2023, pp. 1-4, doi: 10.1109/ETFA54631.2023.10275406.
- [IC9] V. Morell, D. Mira, C.A. Jara, J. Pérez, A. Bertomeu, J.L. Ramón, M.J. Blanes, D. Sánchez, I-L. Páez-Ubieta and G.J. García (2021). "Project-based learning in robotics subject of a Master's Degree". International Symposium on Project Approaches in Engineering Education; Active Learning in Engineering Education Workshop; International Conference on Active Learning in Engineering Education (PAEE/ALE), pp. 176-183, July 7-9, Braga (Portugal), doi: 10.5281/zenodo.5095636.

### C) National conferences

- [NC1] J. Castaño-Amoros, I-L. Paez-Ubieta, M. A. Muñoz-Bañón, E. Velasco, F. A. Candelas, S. T. Puente, P. Gil, F. Torres. "Desarrollos en BLUE para Manipulación Móvil en Entornos Exteriores No Estructurados". 43<sup>rd</sup> Spanish National Automation Conference (JA), pp. 851-857, september 7-9, 2022, Logroño (La Rioja), doi: 10.17979/spudc.9788497498418.
- [NC2] J. Castaño-Amoros, I-L. Paez-Ubieta, S. T. Puente and P. Gil. "Hacia la recogida de residuos domésticos en exteriores: enfoque visual-táctil". Spanish National Robotics, Education and Bioengineering Conference (JREB), pp. 851-857, may 18-20, 2022, Málaga, uri: <http://hdl.handle.net/10045/123911>

### D) Other

- [O1] I-L. Páez-Ubieta, J. Pomares, L. Felicetti (2020). "Guiado de satélites robóticos mediante control basado en imagen". La Revista, pp. 4-15, July-December 2020, ISSN: 1696-9200, url: [http://www.coitalicante.es/repositorio/documentos/revistas/2020/revista\\_cogitia\\_125.pdf](http://www.coitalicante.es/repositorio/documentos/revistas/2020/revista_cogitia_125.pdf)