Javier Páez Franco

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Education

Imperial College London Sep. 2024 – Sep. 2025
M.Sc. Computing (Artificial Intelligence and Machine Learning) *London, UK*
- **Relevant courses**: Deep Learning, Reinforcement Learning, Robot Learning, Probabilistic Inference

Delft University of Technology Sep. 2021 – July 2024
B.Sc. Computer Science and Engineering *Delft, Netherlands*
- **Grade**: Cum Laude with Honours
- **Relevant courses**: Minor in Robotics, Machine Learning, Computational Intelligence, Algorithm Design, Software Engineering Methods

CERN IdeaSquare Summer School May 2023 - July 2023
Summer Programme *Delft, Netherlands - Geneva, Switzerland*
- Selected as one of the 20 students from the leading universities in the Netherlands.
- Collaborated with an interdisciplinary team to create UltraGPU, which is 50% more energy-efficient and has a 5000% longer lifespan than typical GPUs, significantly accelerating neural network training.

Research Experience

Bio-inspired Navigation of Multi-Agent Systems in Extreme Environments Nov. 2023 - July 2024
- Researched state-of-the-art bio-inspired algorithms for path planning in extreme environments, with the guidance of Professor Raj Thilak Rajan.

Distributed Algorithm to Maximize the Lifetime of a Swarm of Rovers Jan. 2023 – Oct. 2023
- In collaboration with Lunar Zebro, a team developing cutting-edge lunar rover technology, I succesfully developed a distributed algorithm aimed at maximizing the lifespan of a swarm of lunar rovers throughout a mission lasting 14 days.

How Educational Techniques Foster Creativeness and Innovative Thinking Jun. 2023 – Oct. 2023
- Written a paper in collaboration with CERN, discussing how diverse educational tools and techniques foster creativeness and innovative thinking among students.
- Submitted to the CERN IdeaSquare Journal of Experimental Innovation (CIJ).

Work experience

SHV Energy - **Industrial robot** Sep. 2023 - Feb. 2024
Robotics Engineer *Delft, Netherlands*
- Led an interdisciplinary team of 6 students to design, assemble and build an industrial robot to autonomously load and unload LPG cylinders from a telescopic chain conveyor to a truck.
- Reduced the manual handling risk by loading and unloading over 1200 cylinders per hour.
- Leveraged Computer Vision and LiDAR sensors to accurately detect cylinders on the conveyor belt and avoid obstacles.

Your Next Agency - **Project Monitoring Dashboard SaaS** May 2023 – July 2023
Software Engineer Intern *Amsterdam, Netherlands*
- Led a team of 5 people as the scrum master, to develop a management dashboard SaaS application.
- Reduced manual labour in project creation and user management by automating 70% of the steps. As a result, the application has become the primary company portal for project management.
- Implemented using PHP, Laravel, TypeScript, Node.js, AWS, and PostgreSQL.
- Created unit and integration tests using Selenium and Mocha, achieving over 95% code coverage.

Panacea Cooperative Research - **Skeleton ID** July 2022 – Sep. 2022
Software Engineer Intern *Ponferrada, Spain*
- Actively developed Skeleton-ID, a forensic identification software powered by Deep Learning. Collaborated closely with anthropologists and researchers, providing essential support to drive successful project outcomes.
- Demonstrated first-hand knowledge of research methodology through active involvement in multiple research initiatives.
- Developed a comparative dental analysis tool using Kotlin, Spring Boot, PostgreSQL, TypeScript, and Angular.

Projects

Double Q-Learning algorithm for maze solving | *Python, NumPy*   March 2023 - April 2023
- Developed a Double Q-learning algorithm with ε-Greedy action selection and epsilon decay from scratch, without using any machine learning libraries or frameworks.
- The algorithm can successfully find the exit of randomly generated mazes.

Artificial Neural Network (ANN) | *Python, NumPy*   Feb. 2023 - March 2023
- Developed an ANN from scratch, without using any deep learning libraries or frameworks.
- Achieved a success rate of 93%, accurately classifying inputs of ten features into one of seven classes.
- Feedforward neural network trained with backpropagation, using RELU and Softmax activation functions, as well as Cross-entropy loss, He initialization, L2 regularization, dropout, early stopping, and Adam optimization.

Delivery Service App | *Java, Spring, Mockito, Gradle, SQL*   Nov. 2022 – Jan. 2023
- Developed a highly scalable and modular food delivery platform that seamlessly connects restaurants with customers. The system offers a wide range of features, including discount options, allergy filtering, and flexible cancellation policies, to enhance the overall shopping experience.
- Implemented robust user authentication and secure password storage using Spring Security to ensure system integrity.
- Acquired a comprehensive understanding of microservice architecture and its benefits for large-scale applications.

Certifications

- **ROS1x: Hello (Real) World with ROS – Robot Operating System:** 🔗

Volunteering

Cooperation Bierzo–South NGO   Dec. 2017 – Dec. 2021
Volunteer   *Ponferrada, Spain*
- Volunteered for four years with Cooperation Bierzo–South NGO, a non-profit association dedicated to driving social transformation in Sao Tomé y Príncipe.

Activities and interests

Krashna Musika   Oct. 2021 – July 2024
First violinist   *Delft, Netherlands*
- First violin in Krashna Musika, the symphonic orchestra and choir of TU Delft. With over 200 members, Krashna Musika is one of the largest musical student associations in the Netherlands.
- Played concerts internationally, such as in Spain, The Netherlands, France, Germany, and Poland.

Skills

Programming languages: Python, Java, Rust, Scala, C++, JavaScript, TypeScript, PHP, Kotlin, SQL, Bash
Frameworks & Libraries: Scikit-learn, ROS, PyTorch, Pandas, Spring, Spark, Angular, Node.js, JUnit, Selenium
Developer Tools: Git, Docker, Gradle, Maven, Unix, Ubuntu, Windows, LaTeX, JetBrains, VS Code
Languages: Spanish (Native), English (IELTS C1)