Luis Alvarez

R&D Engineer
Automatic Control, AI and Robotics

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in *luis-alvarez-can*

Summary

I am an experienced engineer with proficiency in mathematics, control theory, and machine learning, seeking to channel my expertise into the industry. My professional journey spans over 5 years in academic research, strengthening my skills and enhancing my understanding of complex systems. I am deeply interested in advancing AI, robotics, and motor drives by employing cutting-edge technologies.

Skills

MATLAB/Simulink, Python, C/C++, SQL, OpenCV, Web Development, Electrical Design, Embedded Systems Design (HAL: Texas Instruments, STMicroelectronics, Atmel), CI/CD (Github Actions and Gitlab pipelines), HTML/CSS, React, Django, Docker, Kubernetes.

Experience

May 2017–Present — **Research Assistant**, *Centro de Investigación y de Estudios Avanzados del IPN*
- Designing and building a Three-Phase Inverter for driving an industrial Permanent Magnet Synchronous Motor (PMSM).
- Implementing control algorithms in real-time on Texas Instruments boards (LAUNCHXL-F28069M and LAUNCHXL-F28379D) using rapid prototyping methods with MATLAB Simulink and the TI C/C++ Compiler.
- Application of neural network-based control algorithms on Electric Motor Drives.
- Developing new control methods for hybrid regulation of systems and exosystems with impulsive dynamics.
- Writing technical reports, conference papers, and journal articles.

Jan 2022–Apr 2022
Jan 2021–Apr 2021 — **Teaching Assistant**, *Centro de Investigación y de Estudios Avanzados del IPN*
Providing guidance and some lectures to master's students in the subject of Nonlinear Systems.

Apr 2022–Aug 2022 — **Research Stay**, *Università degli Studi dell'Aquila*
Researching new control methods for hybrid systems which exhibit jumps aperiodically.

May 2015–Oct 2015 — **Data Monitoring Assistant**, *Petrolink*
- Writing an application to display different alerts based on the online data retrieved from the drilling process.
- Writing reports on the oil well drilling process.

Mar 2013–Aug 2013 — **Drilling Tools and Remedial Assistant**, *SLB*
- Assistance in the inspection of drilling bits.
- Assistance in the grinding processes of the drilling bits on lathes.
- Data capture during the inspection and after the grinding processes of the drilling bits.

Education

Nov 2019–Feb 2024 (Expected) — **PhD, Engineering and Information Sciences**, *Università degli Studi dell'Aquila*

Sep 2019–Feb 2024 (Expected) — **PhD, Electrical Engineering and Automatic Control**, *Centro de Investigación y de Estudios Avanzados del IPN*

Sep 2016–Dec 2018 — **MS, Electrical Engineering and Automatic Control**, *Centro de Investigación y de Estudios Avanzados del IPN*

Jan 2015–Jun 2016 — **MEng, Robotics**, *Universidad Autónoma de Guadalajara*

Aug 2010–Aug 2014 — **BS, Mechatronics Engineering**, *Universidad Autónoma de Guadalajara*

Courses

Jun 2023 — Machine Learning
Apr 2023 — IBM Full Stack Software Developer
Nov 2022 — Cloud Application Development Foundations

Languages

Spanish - Native
English - Advanced
Italian - Beginner