

João Vieira

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EDUCATION

Polytechnic Institute of Cávado and Ave (IPCA)

BSc in Electrical and Computer Engineering

Barcelos, Braga

2022 – 2025

Polytechnic Institute of Viana do Castelo (IPVC)

Higher Professional Technical Course in Electronic and Computer Systems

Viana do Castelo

2019 – 2021

PROFESSIONAL EXPERIENCE

2Ai – Applied Artificial Intelligence Laboratory

Research Grant

Barcelos, Braga

Sep. 2024 – Jun. 2025

- 2Ai is a research laboratory focused on applied artificial intelligence, promoting technological innovations for industrial optimization.
- Development of a predictive maintenance dashboard for industrial machines using TypeScript, Next.js, React.js, PostgreSQL, Python, and Machine Learning.
- Implemented various machine learning models (XGBoost, Random Forest, SVM, Logistic Regression, KNN) to predict failures based on sensor data.
- Creation of a REST API with Next.js API Routes, ensuring efficient communication with the database and data integration.
- The project resulted in a **poster** and **scientific paper** presented at the SASYR 2025 - Symposium of Applied Science for Young Researchers.

Tecsol Energia (Freelance)

Front-End Developer

Remote

Feb. 2025 – Jun. 2025

- Development of a responsive front-end website using Next.js, React.js, and Tailwind CSS.
- Integration of Storyblok headless CMS, allowing the client to autonomously publish and manage blog content.
- Implementation of a blog section with dynamic meta tags and SEO-friendly URLs to improve search engine optimization.
- Website available: tecsolenergia.pt

Catholic University of Portugal

IT Technician

Porto

Jun. 2021 – Nov. 2022

- First-line technical support for diagnosing and resolving software and hardware issues.
- Data backup and computer preparation for faculty, staff, and classrooms.
- Use of ticketing systems (ITSM/GSTI) and Active Directory Domain Services.

iLogicRepair

Hardware Repair Intern

Vila do Conde, Porto

Feb. 2021 – Jun. 2021

- Repair and maintenance of computers (MacBooks, iMacs, and multi-brand).
- Component-level motherboard repair.

TECHNOLOGIES, TOOLS, LANGUAGES & INTERESTS

Languages & Frameworks: TypeScript, JavaScript, Python, C++, C, SQL, HTML, CSS, Matlab, React.js, Next.js, Node.js, Tailwind CSS, Highcharts, Scikit-Learn, Pandas, Matplotlib, Storyblok, PostgreSQL, MySQL, PLC Ladder

Tools & Technologies: Git/GitHub, AWS, Supabase, Prisma ORM, VSCode, Postman, Machine Learning, Automation, Robotics, Web Development, ADDS, Vercel, Windows, MacOS

Soft Skills: Communication, Teamwork, Problem Solving, Work Organization and Management, Adaptability, Creativity

Languages: Portuguese (native), English (C1)

Personal Interests: Gym, football, pool, reading, cinema, running, technology

PROJECTS

Industrial Predictive Maintenance Dashboard with Machine Learning

Final Degree Project

Sep. 2024 – Jun. 2025

- Final degree project developed within the scope of AM2R (Mobilizing Agenda for Business Innovation in the Two-Wheeler Sector), in collaboration with the 2Ai – Applied Artificial Intelligence Laboratory.
- Developed a full-stack solution using Next.js, React.js, and Tailwind CSS. Backend with Next.js API Routes and PostgreSQL relational database. Dynamic visualization with Highcharts.
- Exploratory data analysis performed with Python libraries: Pandas, NumPy, Matplotlib, and Seaborn.
- Integration of machine learning models trained in Python (scikit-learn) to predict industrial failures based on sensor data. Implemented models: XGBoost, Random Forest, SVM, Logistic Regression, KNN.
- Model evaluation using metrics such as *accuracy*, *precision*, *recall*, and *F2-score*, focusing on minimizing false negatives.
- Watch demo video: vimeo.com/1092418028
- Final grade: **18/20**.

VOLUNTEER WORK

Electronics and Robotics Club

IPCA

Active Member

2023 – 2025

- Active participation in promoting workshops and practical activities to develop technical skills and prepare students for course and professional challenges.
- Development of the club's website and collaboration in technical workshops.
- Website available: cer.est.ipca.pt

Oficina do Brinquedo

IPCA/APAC

Volunteer

2022 – 2025

- Collaboration in adapting toys for children with reduced mobility, in an initiative promoted by the School of Technology of IPCA in partnership with the Electronics and Robotics Club.
- Application of technical knowledge to promote accessibility and social inclusion.
- Repair and adaptation of more than 30 electronic toys for children with reduced mobility, ensuring their reuse and delivery to families supported by APAC - Association of Parents and Friends of Children.
- Website available: apacbarcelos.pt/pt/oficina-do-brinquedo