Miguel Pinto

Engineer in the making - Porto, Portugal

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Education

Faculty of Engineering of the University of Porto

Porto, Portugal

Integrated Master in Informatics and Computing Engineering, 18.01/20

September 2017 - July 2022

- Currently enrolled in the 4th year and member of NIAEFEUP, an organization composed by Informatics and Computing Engineering students.

Experience

INESC-TEC

Porto, Portugal

Research Assistant

July 2019 - Present

- Currently developing a distributed application for P2P energy trading in microgrids, taking into account the grid's maximum flow capacity.
- Planned, designed and implemented the system in an Ethereum blockchain, programming smart contracts in Solidity and testing them with Truffle Suite.
- Developed swift economic clearing algorithms using Python and GraphQL.
- Built a fluid exchange-style web app using React/Redux (emphasis on Hooks). Hosted on a Google Cloud VPS with Nginx.

Faculty of Engineering of the University of Porto

Porto, Portugal

Teaching Assistant

October 2020 - Present

- Assisting the teacher during the practical classes of LCOM - Computer Laboratory at FEUP.
- Helping the students regarding programming in C and developing low level software and embedded software for computer peripherals.

Critical Software

Coimbra, Portugal

Software Engineer Intern

July 2020

- Learned about the methodologies and tools used in designing robust distributed systems for critical projects, such as software for airplanes, trains and banks.
- Built a real time chat service using Java and Kafka.
- Built an automatic encryption/decryption system for smart meter data with Java, SSL and XML documents.

IKEA Industry Portugal

Paços de Ferreira, Portugal

Engineer Intern

June 2019 - August 2019

- Planned and thoroughly studied the implementation of a computer vision system reinforced with machine learning to detect missing components on packaging lines, reducing their occurence by up to a predicted 95%.
- Developed testing scripts using Python and open source computer vision libraries like OpenCV.

Projects

SHEN: Self-healing extensions for Node-RED

Node.js, Node-RED, Docker, Mocha, Stryker, Sentry, GitLab CI/CD

- Currently team leader of a Scrum team of 9 developers working on an open source project for a FEUP student's PhD thesis.
- Developed 12 nodes (working on more) that provide error detection and self-healing mechanisms for Node-RED, a flow-based development tool for visual programming in IoT systems.
- Released in the form of an npm package and Docker image with around 100 monthly downloads.

Distributed Backup Service for the Internet

Java, JSSE, Shell

- Developed a distributed P2P system with the purpose of backing up files divided in chunks in other peers.
- Protected the system against faults and raised its stability and scalability by using the Chord Protocol.
- Implemented secure communication channels and achieved high degrees of concurrency and parallelism with thread-pools and non-blocking I/O.

Covid Forecast Tool

Python, Jupyter Notebook, SKLearn, Pandas, Numpy, Matplotlib, Seaborn, Kaggle datasets

- Developed and trained several regression models that predicted Covid-19 cases and deaths with 90% accuracy.
- Compared several Machine Learning algorithms, such as: Neural Networks, Stochastic Gradient Descent, Support Vector Machines, K-Nearest Neighbours and Random Forest.

Skills

Technical C/C++, Python, Java, JavaScript, SQL, GraphQL, Solidity, Node.js, Git, Docker, GNU/Linux

Languages Portuguese (Native), English (Full Professional Proficiency), Spanish (Limited Working Proficiency)