Victor Baptista

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Recent Experience

Full Stack Developer at *Programa Água Doce*, João Pessoa, Paraíba, Brazil. 1.5 years, 7/2022 - 12/2024

Developed and launched the website for the Programa Água Doce Paraíba (aguadoce.seirh.pb.gov.br), along with an Android mobile application designed to support the operation of the program's desalination systems. Below are the technical highlights of these projects:

➢ **Frontend Development**
  - Designed and implemented a **Single Page Application (SPA)** using **React** and **TypeScript**, ensuring a responsive design and seamless user experience across various devices and browsers with **Styled Components**.
  - Integrated external APIs for enhanced functionality, including:
    - **Map visualization** with **Leaflet.js**.
    - **QR code generation** for system location access using **qrcode.react**.
    - **PDF display** on desktop and mobile devices through **Adobe Acrobat Services**.
    - **Accessibility features** for Deaf users via **VLibras**.
  - The website expanded public access to essential information about the program while simplifying communication for technical teams to manage desalination systems.

➢ **Backend Development**
  - Developed a **RESTful API** using **Node.js** and **Express**, with secure authentication and authorization implemented through **JWT**.
  - Designed and managed database schemas with **SQLite3** using the **Knex.js** query builder.
  - Deployed the server in a **Linux environment** using **Apache Guacamole**.
  - Implemented CRUD operations and specific routes, including a feature to run Python scripts in the Node.js environment, enabling a machine learning predictive model to provide real-time results to web and mobile clients.

➢ **Mobile Development**
  - Built an Android mobile application using **React Native**, **Expo**, and **TypeScript**, and published it on the **Google Play Store**.
  - Developed modular, reusable components for efficient future development.
  - The app supported technical teams in optimizing product dosages to comply with health regulations, reduce maintenance costs, and improve decision-making and operational efficiency.

➢ **Machine Learning and Data Processing**
  - Utilized **Python** for **Optical Character Recognition (OCR)** with **EasyOCR**, extracting tabular data from scanned images for automated processing.
  - Automated workflows using **AutoHotkey**, computing output data for input data and reducing manual work in legacy software (Winflows).
  - Trained and evaluated regression models, selecting the best model for deployment in the backend.

Earlier Experience

Researcher at SMART-Control Consortium, Remote. 2 years, 6/2018 - 9/2020

Member of an international team, I led field experiments on managed aquifer recharge to implement a pilot project in Brazil. Actively contributed to risk analysis and carried out hydraulic simulations and data visualization using Python in engineering contexts. Published study results in a specialized journal as first author (JEMA, https://doi.org/10.1016/j.jenvman.2023.118034).

Civil Engineer at IBI Engenharia Consultiva S/S, Remote. 8 months, 5/2019 - 1/2020

     Wrote and executed VBA scripts to automatically update hundreds of Excel spreadsheets containing critical data to update Water Resources Plan of the State of Paraíba, Brazil, published in March 2022 (http://www.aesa.pb.gov.br/aesa-website/documentos/plano-estadual/atualizacao-perh/).

Advanced Excel Instructor, João Pessoa, Paraíba, Brazil. 2 years, 2018 - 2019

     I taught Excel (mostly Intermediate and Advanced level) to several small groups in various contexts (private and public local and national events).

Education

Universidade Federal da Paraíba, Paraíba - PB, Brazil *Bachelor of Civil Engineering,* December 2016 GPA: 8.35/10	**Swansea University**, Swansea, Wales - UK *Civil Engineering Visiting Student*, Fall 2013 and Spring 2014
Universidade Federal da Paraíba, Paraíba - PB, Brazil *Msc in Civil and Environmental Engineering,* September 2020 GPA: 9.48/10	**Rocketseat Course**, Remote *Explorer Program*, March 2021 The syllabus included Front-end, Back-end, API RESTful, soft skills and more.

Technical Skills

     Although my Education background isn't directly related to Software Development, I'm very familiar with computer science fundamentals **through Harvard's CS50's**, as well as certified knowledge in Artificial Intelligence concepts via **Huawei HCIA Training** and hands-on web development experience from **Rocketseat's Explorer Program (100-hour program covering web fundamentals and advanced topics)**.

     In my free time I've been learning more about **game design** & **development**, and have been implementing a passion project card game using the open-source **Godot** game engine along with a small team. I have been implementing a multiplayer infrastructure simulation using GDScript and I developed an algorithm for 2D procedural generation of pixel-art cities with Perlin noise and contour calculations using Python.

Technical Tools:
- Frameworks and Technologies: **React.js, Node.js, Styled Components, React Native, HTML5, CSS3, HTTP, JSX, JSON, Linux**
- Programming Languages: **JavaScript, TypeScript, Python (5+ years), GDSCript, SQL, VBA**
- Version Control: **Git (3+ years), Github**
- Other Tools: **Excel (12+ years) VSCode, Beekeeper Studio, Insomnia, Miro, Kanbanflow, Inkscape**

Soft Skills

- **Analytical Thinking:** Strong problem-solving abilities demonstrated through research projects and software solutions.
- **Collaboration**: Experience working with interdisciplinary teams in both research and professional settings.
- **Adaptability**: Transitioned from civil engineering to software development, showcasing the ability to learn and excel in new domains.
- **Research and Technical Writing:** Published research and documentation skills, beneficial for creating technical documentation or reports.