
Work Experience

Internship

June of 2023 - September of 2023

Nethermind

- Engaged in team meetings, contributing to discussions on project development and company operations.
- Gained insights into professional software development processes and blockchain technology trends.
- Networked with industry professionals, enhancing understanding of Blockchain, Layer 2 solutions and consensus protocols.

Junior Researcher

September of 2022 - September of 2023

Release Lab

University of Beira Interior

- Conducted research on blockchain consensus protocols for a master's thesis, awarded a research grant for contributions to distributed systems.
- Authored an academic article on blockchains, gaining experience in formal academic writing and peer review processes.

Freelancer Software Developer

October of 2019

Multiple Companies

- Developed bespoke management tools, bots, and server/database solutions for diverse clients, enhancing their business operations and customer engagement.
- Provided expert consultancy services, translating client needs into actionable software development plans.

Relevant Projects

Research on Blockchain Consensus Protocols (Master's Thesis)

- Implemented blockchain consensus protocols for Tezos, Proof of Work and Authority. Created tools, such as Bootstrapper and Live Testing Tool, using OCaml to enhance protocol creation, performance evaluation.

Arrow Distributed Directory Protocol

- Implemented a distributed directory protocol node in Go, featuring a live visualization tool for network state and access control in distributed systems.

Distributed Database / Filesystem

- Created a distributed database and filesystem using Rust and Libp2p, focusing on efficient data storage and retrieval in a peer-to-peer network.

On-disk Key Value Database

- Engineered a key-value disk database in C, utilizing B-trees for optimized data management and access.

Language Design / Compiler

- Created Garbage Lisp, a Go-based interpreter and an OCaml-based Pascal to Assembly (X_86) compiler, demonstrating expertise in language design, parsing, and code generation.

Ethereum / EVM / Solidity

- Developed in Solidity a DEX with liquidity pool mechanics for token swaps and a game leveraging smart contracts for interactive gameplay, both deployed on the EVM.

Solana / Anchor / Rust

- Built a fully decentralized social network leveraging TypeScript and IPFS, and implemented a token holding platform with incentives, both utilizing Solana's blockchain capabilities.

Education

Master of Science (MSc) in Computer Science

2021 - 2023

Blockchain, Consensus Protocols, Compilers

University of Beira Interior (Top 3 in class)

Bachelor of Science in Computer Science

2018 - 2021

Distributed Systems (Best in Class)

University of Beira Interior

Skills

Programming

Go, OCaml, Rust, Python, Solidity, C/C++, Java, JavaScript, Bash, SQL, Assembly

Technical Skills

Linux, Git, Smart Contracts, Web Development, Libp2p, Data Structures/Algorithms, CI/CD, Containerization, Relational and Non-Relational Databases, RESTful APIs, Debugging and Troubleshooting, Web Development

Languages

Portuguese (native speaker), English (fluent), Spanish (beginner)

Interests

Technical Interests

Distributed Systems, Consensus Algorithms, Blockchains, Smart Contracts, Cryptography, Functional Programming, Compilers and Language Design, Computer Logic and Theory, Security of Systems and Software, Formal Language Verification, Operating Systems, Computer Security

Past Activities

Music Formation, Saxophone Classes (5 years)

Federated in Basketball (3 years)

Other Hobbies/Interests

Fishing, Beekeeping, Farming, Cycling

Awards and Events

Solana Breakpoint Conferences 2022 and 2023

November 2023

Received Student Fellowship Ticket

Lisbon, Portugal/Amsterdam, Netherlands

ICPC SWERC 2023

February 2023

South Eastern Europe Programming Competition

Politecnico Milano, Milan, Italy

MIUP 2022

October 2022

Portuguese National Programming Competition

Coimbra University, Coimbra, Portugal

Portfolio and Extras

Github Portfolio

Showcasing a diverse range of projects and open-source contributions, spanning blockchain protocols, distributed systems, and more. Visit: github.com/Gabulhas

Personal Blog

Offering in-depth discussions, perspectives and tutorials on blockchain technology, Web3 and more. Explore at: <https://jamusti.co>