# Mateus Figueiredo de Melos

**(Senior Blockchain Engineer)**

**Address:**   Natal, Rio Grande do Norte, Brasil
**Linkedin:** https://www.linkedin.com/in/mateus-figueiredo-de-melo-avelino-41824a2a4/
**Phone:** (+55) 84992092252
**Email:** mateusmelo0217@gmail.com

## Education

**Pontifical University, Brazil, 2015-2019, Bachelor in Computer Science**
> Programming Fundamentals (C, C++, Python), Data Structures and Algorithms, Database Systems, Computer Networks, Software Engineering, Cryptography and Information Security, Object-Oriented Programming

## Work Experience

**Senior Blockchain Engineer** (Algorand, remote, Apr 2022 - Sep 2024)

● Spearheaded technical efforts to ensure a seamless transition to the Algorand node, leveraging Rust's memory safety and performance features to achieve zero downtime and uninterrupted user service.

● Optimized the consensus mechanism using Rust, resulting in a 30% increase in transaction throughput and a 25% reduction in latency, significantly enhancing overall network efficiency compared to previous implementations in other languages.

● Successfully implemented Algorand's Pure Proof-of-Stake (PPoS) mechanism in Rust, contributing to a 40% boost in network scalability and security through Rust's strong type system and concurrency capabilities.

● Implemented parallel processing of state root calculation and pre-execution of transactions which are the most bottlenecks of improving TPS and block building latency.

● Constructed the block building pipeline working as an execution client and handled the efficient mempool operations,  state updates, transaction execution, rpc servers.

● Conducted extensive testing and validation using Rust's built-in testing frameworks, leading to the identification and resolution of critical bugs and performance issues, ensuring robust and reliable network operations.

● Implemented key protocol adjustments in Rust that improved network resilience, reducing the impact of network partitioning by 35% and enhancing block propagation efficiency by 20%, showcasing Rust's efficiency in handling complex algorithms.

● Monitoring and maintaining the CPU and memory performance of all components and identifying bottlenecks  through high and low level profiling tools.

## Blockchain Developer (Appinventiv, remote, Sep 2019 - Apr 2022)

● Developed a lot of smart contracts and unit tests, along with deployment scripts using Solidity, Rust, Truffle, Foundry, Anchor, Cosmwasm, enhancing code reliability by 35%.

● Built lending, borrowing, staking, restaking, yield farming protocol with various strategies in Ethereum, Solana, Polygon and so on.

● Designed and developed APIs to interact with Cosmos SDK modules for cross-chain compatibility and built the smart contracts on top of Cosmos chain using Cosmwasm.

● Developed secure cryptocurrency wallets, enabling users to manage their digital assets efficiently and safely, while ensuring compliance with industry standards

● Successfully implemented supply chain management solutions and digital identity verification systems, increasing transparency and trust in platforms such as the Wine Refinery App, Nova Learning.

● Designed and completed booking systems using digital currency for projects like Empire Hotel Booking Management, resulting in a 50% reduction in transaction processing time.

● Integrated with various chains and produce the products interacting with smart contracts, RPC nodes, API providers utilizing Javascript(Ethers.js, Web3.js), Rust, Python libs.

● Utilized advanced technologies, including Express, REST APIs, and PostgreSQL, to customize and enhance eCommerce applications, leading to a 25% increase in user satisfaction.

## SKILLS

● **Language:** Rust, Go, Solidity, C++, Python, JavaScript, Shell.

● **Platform:** Ethereum, Optimism, Cosmos, Base, Arbitrum, Polygon, Solana, Polkadot, Alchemy, Chainlink, ZKSync, Fuel, Starknet.

● **Library & Tools:** Reth, Geth, GoOptimism, Alloy, foundry, truffle, hardhat, openzeppelin, soldeer, anchor, cosmwasm, substrate, forc, sway, cairo, web3.js, ethers.js, wagmi, viem.

● **Deploy & Run:** Docker, Kubernetes, AWS, GCP, CI/CD tools

● **Monitoring & Profiling:** Prometheus, Grafana, Loki, Promtail, Opentelemtry
  perf, samply, flamegraph, bytehound, valgrind, tokio-console, heaptrack, coz.