JAYAKUMAR S

Smart Contract Engineer — DeFi Security Researcher — Blockchain Developer

Location: **Chennai, Tamil Nadu, India (UTC + 5.30)**

✉ Mail   in Linkedin   ⌂ Github   ✈ Telegram   X (Twitter)   🖥 Personal website   🖥 Medium

Key Achievements

- **Built detection modules that uncovered over $500K worth of hidden mints across EVM networks in 2024**, previously undetected by the broader community. See: Webacy Blog   Trugard Article

- **Designed and implemented smart contracts** for GuardianLink and clients across DeFi and NFT platforms.

- **Winners of the CERTORA 'Capture the Spec' challenge at DeFi Security Summit 2024.**

- **Won multiple bounties at ETHGlobal and Devfolio hackathons** around the globe (in-person).

Technical Skills

Languages & Databases : Solidity , JavaScript , Python , Rust , SQL , Mongo DB , Arango DB.

FrameWorks : Node js , React js , Next js , Wagmi , Foundry , Hardhat , Brownie , Ape .

Tools & Platforms : Halmos , Slither , Bytegraph , Power Bi , Dune Analytics , Tenderly , Remix , Docker.

Libraries : Web3.py , Web3.js , Ether.js, Viem , Pandas , Matplotlib , Seaborn.

Experience

Trugard Labs   Feb 2023 - Jan 2025
Smart contract Research Engineer   *remote*

- Developed a web3 Monitoring tool for **contract and wallet security** on EVM blockchains.
- Created a **digital signature module using OpenZeppelin libraries, leading to the discovery of multiple scam networks, a $250,000 scam on the Base network just in August 2024**.
- Implemented a **bytecode analysis module incorporating fuzzing and low-level transaction simulation on a mainnet fork within a Python-based environment.**
- Researched static analysis tools such as **Slither, Rattle, MythX and wake, developed custom modules like Hidden Mint and Hidden Balance** for detecting rug pulls and scams.
- **Conducted research and experimentation on dynamic analysis tools (Echidna, Halmos, Manticore), decompilers (Heimdall, Dedaub), and formal verification tools (Certora).**
- **Traced malicious wallets using transaction analysis, pattern matching and investigated ML model hits.**
- Assisted in ML model development by preparing datasets, reviewing results, and adding new features.
- Supported the above developments on the engineering side by deploying them in a **Docker and Kubernetes setup, including interactions with G-Cloud, ArangoDB, and ETL pipelines**.
- Collected blockchain datasets and created charts on contract risks and attack trends for blogs and presentations.
- Engaged in client calls to explain API usage and actively participated in blockchain events and marketing activities.

GuardianLink   Mar 2022 - Dec 2022
Blockchain Developer   *Chennai,Tamilnadu*

- Conducted smart contract R&D at **GuardianLink marketplaces (monthly volume: $400K–$500K)**
- Engaged with Internal **Smart Contract Auditing** and **Research** of new frameworks and tools.
- Researched and developed POCs for **Raffling, ENS, EIP-998, auctions, and ERC-721 variants.**
- Researched and developed POCs of new **custom blockchains in Avalanche and Cosmos.**
- Implemented NFT drop with **Merkle tree authentication and raffle mechanism.**
- Developed a **CI/CD pipeline with automated scripts for metadata generation, image stitching, and rarity plots using Python** for NFT project **MCL, which generated $1.2 million in revenue during the drop** and achieved **monthly trading volumes of $100,000 − $150,000.**
- Research and Implementation of **prediction smart contracts similar to pancake swap prediction platform** with custom features such as **automated house bets, automated funds collection and distribution.**

Blockchain App Factory   **Sep 2021 - Nov 2021**
Blockchain Developer Intern   *Chennai,Tamilnadu*
- Worked in a **TDD** set-up, focusing on **Attack-Vector analysis** using security tools and manual analysis.
- **Decreased deployment fee and gas fees by 30%** by optimizing and restructuring code flow.
- Developed automated script in Typescript which queried more than **100K random numbers continuously without any breakage** with help of **ChainLink oracle in Polygon Mainnet for dynamic NFT generation.**
- Created a **Token Bridge(ETH-BSC)** with Burn and Mint Interfaces and utilized **Web3 js** for **event listeners**.

BYTEX   **Aug 2021 - Sep 2021**
Blockchain Developer Intern - 🔗   *Remote*
- Created two **ERC20 Tokens and a DeFi Staking smart contract** entirely from scratch.
- **Designed tokenomics and integrated smart contracts** with a polished front end and complete test suite.

Open Source

- **Halmos**
  - **Enhancement #54** – **Enabled dynamic env values injection** in symbolic tests via env cheatcodes support.
  - **Enhancement #510** – **Improved error messages by listing unsupported opcodes.**
  - **Fix #365** – **Implemented cheatcodes for random value generation** to enhance fuzz testing flexibility.
  - **Issue #251** – Added validation for JUMPDEST instructions to improve symbolic execution safety and coverage.
- **EVM-Storage-Slot-Reader** 🔗 Live - deprecated (2023)
  - Works on **verified and unverified contracts across all EVM-compatible** chains.
  - **Parses and displays storage layout dynamically from contract address.**
- **Slither**
  - **Fix #2524** - **Fixed incorrect slot calculation for variables crossing 32-byte storage boundaries.**

Web3 Projects

- **Proof-Of-Stake (Prototype) -** 🔗
  - Built a peer-to-peer Proof-of-Stake blockchain prototype with real-time node synchronization, secure communication, and transaction validation via REST APIs (/blockchain, /transactionPool, /transaction).
  - Implemented PoS-based block forger selection, where validator probability is proportional to stake, with full block validity checks and demo keypairs for testing.
- **MultiMon -** 🔗 Live - A cross-chain Pokemon-style game where NFTs evolve over time across blockchain realms.
- **StopLoss -** 🔗 - A smart wallet with stop-loss, trailing, and hedging features set by risk scores and oracle feeds.
- **SlicePay -** 🔗 - A Splitwise-like mobile app for sending and receiving any tokens across preferred chains.
- Completed CTF's like Damn Vulnerable DeFi - 🔗 , Rare Skills Gas-puzzles - 🔗 , Ethernaut , Paradigm CTF's.

Education

M.Tech in Blockchain and Cloud Computing   **2025 – 2027 (Expected)**
SRM Institute of Science and Technology, Chennai

B.E. in Mechanical Engineering   **2018 – 2022**
R.M.K. Engineering College   *CGPA: 8.53*
- **Final Year Project**: **Tracked temperature and location of COVID vaccines using IoT sensors and stored data on blockchain for immutability**, enabling detection of wastage and compromised doses

Certificates

BEC Vantage – Business English Certificate (B2 level) from Cambridge for professional communication.

Advanced Solidity Bootcamp – Encode Club – Focused on DeFi protocols and their smart contract implementations.

Advanced Solidity – Udemy – Focused on understanding and optimizing gas costs in smart contract development.