Tirth Patel

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Skills

Core Languages: (Python, Golang, Solidity, C++, Javascript, Java, PHP, MATLAB, Bash)

Tools/Frameworks: (Smart Contracts, Ethereum, Hardhat, Metamask, gRPC, Docker, AWS, GCP, NodeJs, Flask, Flutter, EthersJs, Web3Js, REST, Ganache, Git, Kali Linux)

Relevant Professional Experience

Blockchain Engineer, *Dandelion Networks (Startup) | Golang, gRPC, Solidity, Docker* ⧉   05/2022 – present
- Achieved more than **250,000** transactions per second by implementing their patented lightning-fast client-leader paradigm
- Developing an innovative client-leader **consensus architecture** to outperform traditional Layer-1 PoW and PoS algorithms
- Single-handedly decoupling their node validation mechanism using **Golang** to formulate their version of the Byzantine Agreement
- Designed and deployed **Docker** containers with custom networks using Docker Compose to streamline **P2P** communication
- Leveraging protocols such as **gRPC** and **protobuf** to develop robust services and methods that effectively cater to diverse use cases
- Enforced various **OOP** design patterns; extensively applied the **Factory Pattern** and **Builder Pattern** for scalable, distributed systems
- Created a thread-safe in-memory data structure to maintain transactions associated with smart contract addresses

Software Engineering Intern, *AlertDriving | PHP, PostgreSQL, DBeaver, Javascript*   01/2022 – 04/2022
- Reduced **64%** of server complaints by leading the automation of an audit log using **PHP, Javacsript**, and **MySQL**
- Created several full-stack components for an internal dashboard using the **LAMP** (Linux, Apache, MySQL, PHP/Python/Perl) stack, aggregating ~**7500** key data points
- Sped up tasks for the Operations Team by **50%** by automating the transfer of global client data across various spreadsheet suits
- Designed and developed live HTML to PDF API endpoint providing up-to-date PDF reports for users; reducing time from **30 to 2 min**

Software Engineering Intern, *Lumentum | C#, AWS, VB, Python, SQL*   01/2020 – 04/2020
- Saved **$12,000** / quarter by spearheading the design of an operational **KPI dashboard** from scratch with **C#, Azure, SQL, JMP, JSL, and Python** which processed and visualized batch data; collaborated with **11+** other product/test engineers
- Boosted unit-search operation speed by ~**70%** by refactoring algorithms and data processes in **VB6** and **SQL**
- Optimized runtime complexities from $O(n^2)$ to $O(n)$ of internal **Visual Basic** and **C#** tools, speeding up common tasks by **3x**
- Used **AWS** to build an end-to-end log analytics solution that collects, ingests, processes, and loads both batch data and streaming data
- Successfully designed and integrated **Scrum/Agile** methodologies with **CI/CD** pipelines using Infrastructure as Code (IaC) principles

Projects

Blockchain Based Discord Clone, *dApp*   04/2023
- Leveraged **Solidity** and **Hardhat** to create smart contracts that utilized NFTs for memberships, allowing users to join specific channels on the Discord clone platform, with transactions being executed through the **Metamask** wallet
- Utilized **JavaScript**, **web3.js**, **React**, and **node.js** to add interactivity/functionality to the dApp, ensuring a seamless user experience
- Implemented **ERC721** tokens for the creation of NFTs, incorporating custom logic and functionality for ownership and access control
- Employed **Socket.io** to create a real-time, chat-based platform that could easily handle **1500+** users, ensuring efficient communication and interaction between users on the platform

AI NFT Generator, *dApp* ⧉   02/2023
- Deployed **Solidity** smart contracts with **Hardhat** and designed UI with **React** to implement a user-friendly, decentralized app that uses **AI**-generated art to mint NFTs
- Utilized **web3.js** for interacting with the **Ethereum** blockchain, **MetaMask** for secure user interaction, **Node.js** for building a backend server that communicated with blockchain and **AI** APIs, and **IPFS** for NFT storage, resulting in a fully functional and reliable platform

Triangular Arbitrage, *Cryptocurrency Arbitrage Bot* ⧉   06/2022
- Achieved instant **1.5%** ROI by building a custom triangular arbitrage bot with **Python** and **REST APIs;** leveraged real-time market data to execute profitable trades across multiple exchanges
- Tuned advanced trading patterns (**BUY-BUY-SELL/BUY-SELL-SELL)** to exploit inefficiencies across both **CeFi** & **DeFi** exchanges
- Leveraged the **Poloniex** and **Uniswap V3** exchanges which enabled profitable trading opportunities and provided in-depth knowledge of market trends and dynamics in the rapidly evolving world of cryptocurrency.

Education

Bachelor of Applied Science, Nanotechnology Engineering, *University of Waterloo*   09/2018 – 04/2023
- Relevant courses: Data Structures and Algorithms, Cryptography and System Security, Computer Networks, Computational Methods, Machine Learning A-Z, Engineering Programming, Simulation Methods, Advanced Statistics, Ethical Hacking