Tirth Patel

✉ t38patel@uwaterloo.ca   📞 306-513-5508   ⏻ github.com/t38patel   🄳🄴🅅 https://devpost.com/t38patel

Skills

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

Core Libraries: (TensorFlow, Pandas, Keras, Scikit-learn, OpenCV, MediaPipe, Selenium, openpyxl, tkinter)

Tools/Frameworks: (Smart Contracts, gRPC, Flask, Flutter, Google Cloud Platform, Firebase, REST, Git, Bash, Kali Linux)

Professional Experience

Blockchain Engineer, *Dandelion Networks (Startup)*   05/2022 – present
- Formulated Dandelion's **Byzantine Agreement** in **Golang** by decoupling the node validation mechanism for the network
- Enhanced **epoch block generation** by allowing **smart contract transactions** to be appended to the epoch chain
- Created a **thread-safe in-memory data structure** to maintain transactions associated with smart contract addresses
- Promoting Dandelion's **client-leader** consensus mechanism to provide a solution to the **Buterin Trilemma**
- Improved communication between **goroutines** by implementing **mutexes** and **go channels** for node addresses
- Developed services and methods for node engines by utilizing protocols such as **gRPC** and **protobuf**
- Identified, debugged, and fixed **3** logic-errors using **Ginkgo** to improve interoperability of the **TLDAG** and smart contracts

Software Engineer, *AlertDriving*   01/2022 – 04/2022
- Lead the integration of the license management audit trail using **PHP, Javacsript**, and **MySQL** to improve license inquiry and search
- Fixed **6** functional bugs in **PHP**, greatly enhancing user interactions and visual experience for their license management system
- Sped up tasks for the Operations Team by **50%** by automating the transfer of global client data across various spreadsheet suits

Data Analyst Intern, *University of Waterloo*   09/2020 – 04/2021
- Significantly reduced grading time by over **650%** by coding an **openpyxl Python** script, scheming each student's final grade
- Vigilantly detected **3** methods for bypassing MOSS (plagiarism detection software for code) by creating **C++** and **Python** scripts

Software Engineering Intern, *Lumentum*   01/2020 – 04/2020
- Boosted unit-search operation speed by **70%** by refactoring algorithms and data processes in **VB6** and **SQL**
- Saved **$12, 000 / quarter** by designing an internal tool (Statistical Process Control system) from scratch with **C#, MS Access, SQL, JMP, JSL**, and **Python** which processed and allowed data to be visualized and analyzed by product engineers
- Optimized runtime complexities from $O(n^2)$ **to** $O(n)$ of internal **Visual Basic** and **C#** tools, speeding up common tasks by **3x**
- Developed, presented, and effectively utilized technology roadmaps using **Scrum** and **Agile** methodologies

Data Analyst Intern, *McCain Foods*   05/2019 – 08/2019
- Cut downtime by **22.5%** by data processing and root cause analysis on a 100% robotic packing line using **Python** and **Excel**
- Improved first-time yield by **3%** by developing a monitoring system for thousands of food items using **Python** and **Pandas**

Projects

Triangular Arbitrage, *Cryptocurrency Arbitrage Bot*   06/2022 – present
- Writing **Python** bots that make money by exploiting discrepancies in cryptocurrencies across both DeFi and CeFi exchanges
- Made multiple instant **2%** returns with low risk by automating **BUY-BUY-SELL** and **BUY-SELL-SELL** orders for crypto combinations
- Exploring **Rest API** endpoints with Poloniex, and other exchanges; reading blockchain price information with **Web3** and **Ethers.js**

Molar.ai, *Startup*   09/2022 – present
- Using **AI** technology with near-infrared imaging to detect dental cavities before they happen
- Supplying the **Raspberry PI** with light data shone across the teeth from a 1100nm camera/lens system
- Polishing advanced algorithms for crack detection using Gaussian blurring and Sobel edge detection in **Python**
- Semi-finalists for RBC Pitch Competition and Quantum Valley Investments Problem Pitch Competition

Calisthenics Technologies, *Startup*   08/2022 – present
- Using **Python's OpenCV** and **MediaPipe ML** solutions library to provide analytical feedback on user's advanced calisthenics skills

Form Checker, *Hack the North* 2021   09/2021
- Integrated **Google Cloud Platform** and **Firebase** to host our app which classifies pushup form
- Utilized **Python** and the **Flask API** to create the backend to process data fetched from a gyroscope and accelerometer

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, Statistical Thermodynamics, Engineering Programming, Simulation Methods, Statistics, Ethical Hacking