Silliman University Campus,
Dumaguete City, PH

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Employment History

Software Engineer **Archax, Philippines** **February 2021 - Present**

- Implemented Risk Management for Archax OMS.
- Created High-level design Architecture for some OMS features.
- Implemented API handlers in NodeJS to process data from OMS to DB.
- Created Docker images for the Crypto Matching Engine projects to ease developer environment setup and server deployment.
- Implemented admin API functionalities in the Crypto Matching Engine Library to interface between the Crypto Matching Engine and OMS.
- Implemented a Python test client that will send messages on behalf of the OMS or the admin application.
- Implemented round-robin connection/reconnection logic for preparation for Hot-Warm High-Availability.
- Created a cross-project utility library. Extracted and refactored common helper functions from across projects.
- Implemented a message version check upon logon which validates if both client and the Crypto Matching Engine messages are aligned.
- Implemented a performance tool for the Crypto Matching Engine which will send a payload of orders and calculate acceptable latency metrics.
- Implemented reconnect and timeout logic for non-blocking client connections in the internal library which is consumed by OMS and the Crypto Matching Engine .
- Implemented buffer(executions, orders, etc.) processing and storage by session in the internal library which is consumed by OMS and the Crypto Matching Engine.

Software Engineer **Retone, Remote** **July 2020 - February 2021**

- Worked on C++ DSP code for a new approach on guitar pickups.
- Implemented a Python based C++ code formatter to be called from Bazel.
- Implemented sharding of multiple guitar string renders to increase the speed of magnetic field computation then after merging it.
- Implemented a Bazel script(Starlark) to do an end to end computation of magnetic fields based on magnetic file input.
- Implemented a guitar knob controller which sends and receives data through software based UartReader/Writer, which will then be relayed to the actual MCU.

Senior Engineer **CryptoBLK, Hong Kong** **March 2019 - March 2021(Consultant)**

- Created the ABE token with solidity.
- Core developer for Abelian cryptocurrency, a Monero fork which aims to be quantum resistant.
- Integrated the quantum signature scheme Dilithium for Abelian and exchanged some of the ed25519 computations.
- Created and modified unit-tests and functional with google test and python to further improve code quality.
- Created python scripts to run functional block and transaction testing using the RPC.
- Researching *(ongoing)* about Ring Signatures, RingCT, and Lattice based cryptography.
- Integrated new scheme on quantum proof linkable ring signatures(https://github.com/salrs/salrs).
- Created integration tests, flow test, and contract test and APIs for Corda smart contracts for trade finance applications.
- Implemented Backend modifications on Contour trade finance application specifically in Letter of Credit amendments, which the whole Backend codebase is under Spring and smart contract development with Corda, all using Kotlin.

Firmware Engineer **Lexmark, Philippines** **November 2018 - March 2019**

- Developed a feature to have different handle for Apple SMTP server*(Embedded C++)*.
- Migrated some projects from Unix Makefile to *CMake*.
- Fixed some functional issues on printer firmware code as well as Coverity and Canary issues.

Software Engineer **Zcoin, Remote** **July 2018 - September 2018**

- DevOps work. Implemented a CI/CD server using Travis CI, Circle CI, Jenkins CI which calls a gitian-builder and results 3 platform builds.
- Integration of new MTP(Merkle Tree Proof) to electrumx server, a python based server for the electrum client.

Software Engineer **Horizen, Remote** **January 2018 - June 2018**

- Integrated Horizen to the Ledger Nano S Hardware Wallet.
- Implemented and integrated Domain fronting with ZenCash Light Wallets*(Arizen wallet, ElectronJS)*.
- Added build capabilities with macOS for Horizen source.
- Added Horizen support to Trezor T hardware wallet.
- Developed automated unit tests on Ledger Nano S and Trezor T hardware wallets.
- Integrated advanced daemon specific features for the Horizen Java swing wallet.

Software Engineer **NCR Corporation, Philippines** **August 2012 - February 2018**

Post Office UK, Ltd.

- Implemented a parser in MFC C++ using the MSXML library to gather data from the service to be shown on the device UI.
- Implemented a scale wrapper for the Avery scale in MFC C++ to integrate the 3rd party device into the system.
- Created a build machine using Jenkins CI for Post Office UK Integration processes.

Walmart

- Designed and implemented UI using MFC C++ as language used for the Model and Controller, and XML as for the View.
- Integrated and supported Walmart Mobile Payment for Self Serve Checkout lanes, using MFC C++ and XML.*(Bentonville, AR)*
- Developed a standalone Mobile Simulator written in Java in Linux that will connect to the IBM POS and simulate the mobile payment service.
- Developed a log parser in C# which uses telnet to connect to the IBM POS and extract the data for the efficient log tracing.

Australia Post Office

- Developed a router in C# and C++ to POS web service for Australia Post which handles all the business logic and data.
- Developed and integrated AMEX payment in MFC C++ into the Australia Post SST.
- Designed and implemented UI using MFC C++ as language used for the Model and Controller, and XML as for the View.

Education

Dumaguete City, Philippines **Silliman University** **June 2007 - March 2012**

- B.S in Computer Engineering, March 2012
- Undergraduate Coursework: Operating Systems, Data structures and Algorithms, Microcontroller Design, Computer Architecture, C++ Programming, Digital Systems, Control system design
- Thesis work: Android Phone controlled Quadrotor with Bluetooth as medium of communication.

Remote **Consensys Academy** **October 2019**

- Graduated on the October 30 Cohort Bootcamp
- Dapp Development with Ethereum and Solidity
- Project link: https://github.com/josephnicholas/proposal-dapp

Technical Experience

Github Profile

- www.github.com/josephnicholas

Additional Experience and Awards

- **1st Prize, 1st Engineering Robotics competition:** Maze Traversal and Line Following category

Programming languages and Technologies

Language(arranged according to proficiency, last 3 ones are basic knowledge)

- C++11/14/17, C, Kotlin, Python, JavaScript, Solidity, SQL

Paradigms

- Object Oriented Programming, TDD with Catch2 and Google test

Libraries

- C++-STL, Boost, Smart Contracts(Corda and Ethereum), Abseil-C++, Radia, Protobuf, Unix Socket Library

Database

- PostgresSQL, SQLite

Tools

- Visual Studio, CLion, IntelliJ, VSCode, JIRA, SVN, Git, Github, Vim, CMake, Bazel, Docker

Platform

- Windows OS, macOS, Linux Ubuntu

Frameworks

- Qt, Corda, Ethereum, ReactJS(used only for the Solidity developer bootcamp), Spring + Kotlin, NodeJS