DUC THANH NGUYEN

Developer

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WORK EXPERIENCE

Software Development Student

BlackBerry

May 2019 - Aug. 2019 | Mississauga, ON, Canada

- Built a prototype SDK in **Java** and a proof-of-concept **Android** app to detect malicious APKs using an internal ML model.
- Optimized the APK scanning process in the production SDK by implementing in **C++** a two-layer cache (in memory and **sqlite3**), a bloom filter and an efficient way to generate a lookup key of an APK.
- Implemented an **ExpressJS** backend server to score APKs using an internal APK ML model. The server was made highly configurable for testing purposes. Distributed the server as a **Docker** image.

Web Developer

Carbon8

May 2018 – Aug. 2018 | Nha Trang, Vietnam

- Developed three commercial websites with user authentication, animations and shop features with **HTML5**, **CSS3**, **JavaScript**, **JQuery**, and **Bootstrap**.

Research Intern

A*STAR Institute of High Performance Computing

Feb. 2017 - July 2017 | Singapore

- Built a cross-platform **GTK3** GUI **Python** application to execute a **MATLAB** mode solver script with multi-processing to speed up heavy computations.
- Modelled waveguides in **TCAD** softwares for performance benchmarking.

PROJECTS

UWCourse

- Developing a backend server written in **Javascript** using **NodeJS/ExpressJS**, **MongoDB** that serves course data, and manages users and course reviews.
- Implemented task runner using **NodeJS** to fetch course data from UWaterloo's API and execute other background tasks.
- Developing the frontend using **VueJS**.
- Set up **Docker** environment for every component (frontend, backend, documentation, database) to facility developments on different platforms.

Project Lynn3D

- Developed a **Python** demo API to convert geometric and texture data to .gltf/.glb as specified by Khronos Group's specifications with the application of byte padding, binary container and Data URI.
- Implemented a demo **Android** application with **OpenCL** and **C++** modules to parallel compute array sums using the power of both the CPU and the GPU.
- Implemented a demo **Android** application that uses **OpenCV** to apply filters, like Gaussian blur and Linear Interpolation, to real-time camera feed.

Baby Vim

- Built a baby version of Vim using **C++**, **ncurses** and good **OOP** practices, with all the essential commands like the movement commands, the yank and copy commands and the basic colon and slash commands.
- Implemented the complex but efficient Rope data structure to handle text, and implemented a finite state machine to support more complex Vim commands.

EDUCATION

B.S. in Computer Science

University of Waterloo

Sept. 2017 – April 2022

Courses:

- CS 341: Algorithms
- CS 350: Operating Systems
- CS 370: Numerical Computation
- CS 348: Introduction to Database Management
- CS 246E: Object-oriented Programming in C++ (Advanced)
- CS 240E: Data Structure and Data Management (Advanced)

SKILLS

C/C++ | Object-Oriented Programming | JavaScript (NodeJS) | Java (Android) | Git | Python | HTML5/CSS3/JavaScript | VueJS | MongoDB | SQL | bash | JNI (Android)

VOLUNTEER

- Donated blood three times to the Canadian Blood Services.
- Served as Road Marshall for the 2017 Ground Zero Run hosted by Mercy Relief to spread awareness about natural disaster.
- Cleaned homes of senior citizens, who lived alone, as a volunteer for CDC's Silver Homes 2015 and 2016.
- Raised fund for the 2015 Nepal Earthquake as a volunteer for Mercy Relief.