

# Long Chung Chan **Harry**

FPGA RESEARCHER · EMBEDDED SOFTWARE DEVELOPER · ANDROID DEVELOPER · TECH ENTHUSIAST

Unit 307, 250 Lester Street, Waterloo, Ontario, Canada

☎ (+1) 226-606-1053 | ✉ lc6chan@uwaterloo.ca | 📱 HarryChanLongChung | 🌐 lcchan2020

## Education

### UNIVERSITY OF WATERLOO

Sept. 2015 - Apr. 2020 (*expected*)

**BASc**, Electrical and Computer Engineering

*Waterloo, Canada*

May. 2020 - Apr. 2021 (*expected*)

**MASc**, Electrical and Computer Engineering

*Waterloo, Canada*

## Academic Research

### UWaterloo Configurable Architecture Group

*University of Waterloo*

UNDERGRADUATE RESEARCH ASSISTANT

*Jan. - Aug. 2019*

- Published a paper called - '**Partitioning FPGA-Optimized Systolic Arrays for Fun and Profit**' and presented in the **ICFPT 2019** hosted in TianJin and received the **Best Paper Award**
- Built simulation tool in Python for modeling specific memory structure to generate cycle-accurate read/write traces allowing estimation on hardware performance before implementation

### Real-Time Embedded Software Group

*University of Waterloo*

ENGINEERING PROJECT COURSE - ECE499

*Jan. 2020 - Present*

- Studied and design a benchmark suite for testing **Apache Flink's Data Streaming API** measuring the latency created by the framework
- Set up a cluster using **Docker Swarm Mode** to evaluate the impact of the parallelism with varying amount of nodes

## Work Experience

### Smartwave Technologies

*Toronto, CA*

EMBEDDED SOFTWARE ENGINEERING

*Aug. - Dec. 2019*

- Designed a custom advertising format allowing various products to communicate under the **Bluetooth 5** standard using only the advertising channel reducing battery consumption
- Implemented a firmware targeting **Scilicon Labs Bluetooth Low Energy Series** to send data in periodic, burst and random pattern
- Refactored and modularized the company's code base into libraries allowing reduction code size by 30%

### Envieta System LLC

*Maryland, US*

FPGA CRYPTO DEVELOPER

*Aug. - Dec. 2018*

- Implemented a post-quantum cryptosystem - **CRYSTALS-Kyber** on **FPGA** board using **VHDL** allowing future-proof security standard to increase product value
- Verified the implementation on **DE10-Nano board** running drivers written in C to ensure run-time requirements and security standards
- Incorporated the usage of multi-port memory allowing a **4x speed up** on the system's critical path

### Sensibill Inc.

*Toronto, CA*

ANDROID DEVELOPER

*Jan. - Apr. 2018*

- Integrated a smoother UI experience allowing the user to capture longer receipts by using **shape and contour detection** in **OpenCV**, resulting in better image quality and higher accuracy data extraction from the receipt
- Redesigned receipt capture function using **Kotlin** from scratch for higher readability and cleaner architecture

### Ritual Technologies Inc.

*Toronto, CA*

MOBILE DEVELOPMENT ENGINEERING

*May. - Aug. 2017*

- Accomplished smooth transition to **Android Oreo** by restructuring notifications using **Notification Channels** and adding **AutoFill** onto the sign-in flow
- Added easy-switching between testing servers to visualize in-progress features in the compiled application, resulting in 30% shorter development time for new features

## Skills

**Programming Languages** Python, C/C++, JAVA, Kotlin, VHDL, Verilog

**Web** Django with Python, React

**Tools** Docker, Adobe PhotoShop, Adobe XD

**Languages** English, Madarin, Cantonese