Long Chung Chan **Harry**

FPGA Researcher · Embedded Software Developer · Android Developer · Tech Enthusiast

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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*

- Pubished 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 designed 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 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 patterns
- Refactored and modularized the company's code base into libraries reducing 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
- Incoporated 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