Brian Chami

Researcher / Embedded Software Engineering

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Professional Experiences and Projects

Co-founder and CTO

Informedin Inc. *Vancouver, Canada* *Nov. 2018 – Dec 19*

- Design custom IoT solutions and pilots for customers, encompassing facilities and energy optimizations in government, retail, fitness, medical, and agriculture sectors
- Oversee technical logistics of all projects
- Develop software and hardware aspects of IoT solutions and architecture

Embedded Software Engineering/ researcher - intern

imec (Leuven) / EnergyVille campus (Genk) *Leuven/Genk, Belgium* *Oct. 2017 – April 18, Oct. 18 – May 19*

- Characterize electrical and thermal performance of custom PV module layouts to optimize a fabrication process currently in development into commercial stage
- Custom build and setup measurement and characterization equipment
- Build an IoT platform to monitor and enhance energy generation, storage, and usage, potentially to be used as a part of a smart energy grid system for smart city applications

Research Assistant (Microelectronics/ Embedded systems)

Simon Fraser University *Surrey, Canada* *Jan. 2014 – Present*

- Design, fabricate, and characterize of a prototype and microfabricated vector optical sensor in Si for position sensing detection applications.
- Design, fabricate, and characterize carbon based nanoparticles (graphene and MWCNT)/ polymer composites as well as vanadium oxide thin films on 3D structures for infrared sensing applications.

Research Assistant (Embedded systems)

BC Cancer Agency – Fraser Valley Center – Medical Physics Department *Surrey, CA Sept. 2012 – June 2013*

Project goals: Build a translucent lung/ heart phantom that induces signal patterns similar to those of breathing and heartbeats'. Use image analysis tools to detect tumors in CT scans.

- Wrote a program (Matlab) to control a microcontroller (and motors) to stimulate lungs/heart signals
- Implemented the translucent lung/ heart phantom system as a member of an interdisciplinary team of physicians, medical physicists, engineers, and technicians

Technical and Personal Projects

Smart cities/ Internet of Things- Lead Researcher

Project: Energy efficient integration setup for autonomous agriculture. Hardware-AI integration to monitor and control several parameters in agricultural hubs with some extent of precisely controllable parameters, as well as connect the systems to the city's smart city network.

- Design and build the custom IoT solution
- Develop software and hardware aspects of IoT solutions and architecture

Smart cities/ Internet of Things- Supervisor – Capstone project (Tech-E)

Project goals: Build an indoor positioning systems to provide retailers with shopping patterns as well as provide users with indoor navigation tools.

- Supervised the project from the idea phase to implementation at a national grocery store chain
- Implemented a system (BLE and WiFi) for data acquisition

Smart cities/ Internet of Things- Supervisor –project

Project goals: Build and integrate an IoT analytics system to track facility usages in public parks as well as use the system to predict energy savings models and future usage patterns for cities within the Lower Mainland, BC.

- Supervised the project from the idea phase to implementation of a full-scale pilot program at one the cities in the Lower Mainland, BC
- Designed and custom built hardware (Arduino based and compatible sensors) to monitor sensors, establish communications between individual sensors as well as detect faculties' usages.

Medical- Project goals: Build a program in Matlab to estimate the probability of patients incurring or recurring myocardial infraction (MI) or cardiac arrest (CA) based on training data including patient history file and normal ECG signals.

- Used signal processing tools in Matlab to study and analyze ECG signals
- Used statistical analysis/ visualize analyzed data to predict patients' likelihood to incur or recur MI or CA

Software/ Hardware Skills

- Programming languages: Matlab, python, C/C++, Arduino IDE, IoT device programming, Azure IoT Services, IoT solutions Architecture, Data analytics and visualization
- Design/simulation software: CoventorWare, SolidWorks, and comfortable with Comsol and CrossLight
- Statistical Data Analysis/ Data visualization: Matlab, python, Power BI, Azure IoT services, and Microsoft Office
- Experienced with characterization tools such as semiconductor analyzer tools, SEM, XRD, TEM
- Comfortable operating and programming lab equipment
- Experienced with using microcontroller boards such as Arduino and compatible sensors

Education and Certificates

PhD Mechatronics Systems Engineering
Simon Fraser University *(Surrey, Canada (GPA 3.93/4.33))* *Sept 2014 – Present*

International Scholar - Engineering Science
Katholieke Universiteit Leuven (KU Leuven) *(Leuven, Belgium)* *Oct 2017 – April 2019*

BSc Biophysics
Simon Fraser University *(Burnaby, Canada)* *Sept 2008 – April 2012*

Microsoft IoT Analysis Professional Certificate *July 2019*
Microsoft Professional Program for Internet of Things (IoT) track *July 2019- present*

7Gate Academy, Machine Learning Bootcamp *present*

Achievements and Awards

- Microsoft AI for Earth Grant award 2019-2020
- Katholieke Universiteit Leuven (KU Leuven) international scholar scholarship 2017,2018,2019
- Finalist- SFU Community Student Engagement Competition 2017/18, 2018/19
- Top 25– Microsoft Online Challenge –AI Challenge: Sustainable Life, Toronto 2019
- Winner of the Lions' Den Pitch award– What The Hack Brussels, Belgium 2019
- Winner of the audience award– What The Hack Leuven, Belgium 2019
- Winner of the healthcare section – What The Hack Leuven, Belgium 2019
- Most likes for Deloitte Online Garage Hackathon – Mobility– Amsterdam, Netherlands 2019
- Finalist- The Medical Device Development Centre 2019 Student Awards 2019
- 3rd place - Lumohacks Hackathon – Vancouver, Canada 2018
- Winner - Best hardware team - Lumohacks Hackathon – Vancouver, Canada 2018
- Winner - MolenGEEK IoT Hackathon, Brussels, Belgium 2018
- Winner- Coast Capital Savings Venture Idea Prize 2017
- International co-op award SFU 2017
- Graduate Fellowship MSE- Simon Fraser University 2016, 2017
- SFU - International travel research award 2016