VITHURSAN THANGARASA

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EDUCATION

MASc, Machine Learning & Artificial Intelligence
Machine Learning Research Group (MLRG), University of Guelph
May 2017 – Present Guelph, ON

- Advisor: Dr. Graham W. Taylor

Deep Learning & Reinforcement Learning Summer School
University of Montréal
June 2017 – July 2017 Montréal, ON

- Accepted with Canadian Institute for Advanced Research (CIFAR) scholarship

BEng, Engineering Systems & Computing (Honours, Co-op)
University of Guelph
Sept 2012 – Apr 2017 Guelph, ON

EXPERIENCE

Data Scientist
Scotiabank - Artificial Intelligence & Machine Learning
Sept 2016 – Dec 2016 Toronto, ON

- Proposed and worked on an AI-Powered Financial Chatbot to provide significant business value for Scotiabank's Customer Intelligence
- Implemented a generative dialogue model using novel Deep Learning techniques for Natural Language Understanding and Generation
- Trained generative models on Amazon EC2 P2 instances using dialogue datasets, DevOps Tools and Distributed TensorFlow

Hardware and Systems Developer
ON Semiconductor - Medical & Wireless Products Division
May 2016 – Aug 2016 Waterloo, ON

- Implemented a power supply and clock calibration firmware library for RSL10, an ultra-low-power multi-protocol BLE 5.0 SoC
- Performed hardware and firmware verification on the BLE 5.0 Security Stack: GAP/GATT pairing and bonding process for RSL10

Software Engineer (Video)
Evertz Microsystems Ltd. - Canadian Headquarters
Jan 2015 – Aug 2015 Burlington, ON

- Developed a Bit Estimator module with 91% accuracy, as well as an Artifact Reduction Filter for the HEVC encoder software library
- Independently researched and implemented a Capped Variable Bit-rate algorithm for Real-Time H.264 video encoders/transcoders

Mobile Application Developer (Android)
Jamdeo Ltd. (Flextronics & HiSense Joint Venture)
May 2014 – Aug 2014 Oakville, ON

- Developed security libraries for secure D2D communication in the core of an Internet of Things (IoT)-based Android application
- Explored Smart Home Automation APIs from Nest, Honeywell and Apple, in order to be used as a preliminary reference for the app

SOFTWARE EXPERTISE

Languages: Python C Java MATLAB

Software Tools: TensorFlow MXNet NLTK scikit-learn Eclipse Vim

DevOps Tools: AWS CloudFormation Docker Kubernetes Jira Git

Operating Systems: Ubuntu CentOS macOS Windows μC/OS-II

HARDWARE EXPERTISE

Languages: VHDL Verilog

Design Tools: Xilinx ISE Vivado HLS GNU ARM Eclipse ModelSim

Hardware: Embedded Systems Xilinx Zynq-7000 ARM Cortex-M

PROJECTS

Sequence-to-Sequence Regression
One of two contributors for an open-source Deep Learning API in TensorFlow that can be used for time-series analysis and automatic feature extraction tasks outside of NLP

Solar-Powered Roadside Monitoring System (Capstone Project)
Monitors the presence of construction workers using computer vision and Beacon technology, then adjusts the speed-limit sign in real-time

Posture Correction Smart Apparel
Designed a Smart Shirt with built-in all-textile sensors to improve a person's posture and provide biometric monitoring on an Android mobile app via Bluetooth

Ultra-Compact AES-128 IP Core
Created a synthesizable Verilog implementation of AES-128 using Rijndael cipher encoding and decoding for an Actel FPGA