# VITHURSAN THANGARASA

41074 Pajaro Dr. Fremont, CA 94539 (510)-324-6084 vthangar@uoguelph.ca
embedding.ai github.com/vithursant linkedin.com/in/vithursant

## EDUCATION

### MASc, Machine Learning & Artificial Intelligence

**Machine Learning Research Group (MLRG), University of Guelph**

May 2017 – Present Guelph, Ontario

- Research focuses on developing lifelong learning, meta-learning and curriculum learning algorithms for DNN models to autonomously learn online over continuous streams of non-stationary data
- Supervised by Dr. Graham W. Taylor

### BEng, Engineering Systems & Computing (Honours, Co-op)

**University of Guelph**

Sept 2012 – Apr 2017 Guelph, Ontario

## EXPERIENCE

### Machine Learning Engineer (Computer Vision)

**Tesla, Inc.**

May 2017 – Present Fremont, California

- Working with the Advanced Technology Group (ATG) on confidential future products and computer vision systems for Tesla's vehicles

### Machine Learning Engineer

**Scotiabank - Artificial Intelligence & Machine Learning Group**

Sept 2016 – Dec 2016 Toronto, Ontario

- Proposed and worked on an AI-Powered Financial Chatbot to provide significant business value for Scotiabank's Customer 360°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, Ontario

- 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 Compression)

**Evertz Microsystems Ltd. - Canadian Headquarters**

Jan 2015 – Aug 2015 Burlington, Ontario

- 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, Ontario

- Developed security libraries for secure D2D communication in the core of an Internet of Things (IoT)-based Android application

## SOFTWARE EXPERTISE

**Languages:** Python C MATLAB

**Deep Learning:** PyTorch TensorFlow

**Deep Learning Models:** CNN RNN LSTM GAN VAE Seq2Seq

**Software Tools:** Scientific Python Stack NLTK Visual Studio Code Atom

**DevOps Tools:** AWS Terraform CloudFormation Docker Jira Git

## HARDWARE EXPERTISE

**Languages:** VHDL Verilog

**Design Tools:** Xilinx ISE Vivado HLS GNU ARM Eclipse

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

## PROJECTS

**Magnet Loss for Metric Learning**
PyTorch implementation of the Magnet Loss paper from Facebook AI Research

**VAE with Gumbel-Softmax**
TensorFlow implementation of the Concrete Distribution paper from Google DeepMind

**Terraform + AWS**
Built a tool to automate provisioning of AWS Spot Instances for Deep Learning workloads using Terraform

## ACHIEVEMENTS

### Deep Learning & Reinforcement Learning Summer School

**University of Montréal**

June 2017 – July 2017

- Accepted with Canadian Institute for Advanced Research (CIFAR) scholarship
- 1 of 225 admitted out of an applicant pool of 1,130 from around the world