

## Biography

I'm an electrical engineer interested in finding applications for deep learning in computer-science and engineering fields. I enjoy working with embedded systems and playing with microcontrollers. Eventually, I want to bridge the gap between humans, machines, and AI, and find ways to combine them to make something greater than the sum of its parts. In my off-time, I follow my interests through online courses such as those offered by Coursera or edX.

## Skill Summary

Programming	Tools	Competencies	
C	Ngspice	Schematic Capture	Machine Learning
Python	Altium	PCB Fabrication	Pattern Recognition
Matlab	NI LabView	Embedded Systems	Deep Learning
L <sup>A</sup> T <sub>E</sub> X	GNURadio	Firmware Development	Neural Networks
Git	AutoCAD	Analog/Digital Design	Medical Image Processing

## Experience

**Research Intern - Department of Neuroinformatics** Kyoto, Japan  
**Advanced Telecommunications Research Institute International** *June 2013 - August 2013*

- Researched application of deep learning to fMRI for decoding object representations in the brain.
- Implemented a stacked denoising autoencoder using Theano, a Python module for symbolic optimization of multi-dimensional math.
- Applied denoising autoencoder to generic object decoding in preparation for further experiments.

**Research Intern - Department of Cognitive Neuroscience** Kyoto, Japan  
**Advanced Telecommunications Research Institute International** *July 2012 - April 2013*

- Developed visual attention and neuroplasticity experiments using MATLAB, psychophysical stimulus generators, and EEG data capture software.
- Preprocessed fMRI data to allow longitudinal and cross-sectional analysis of data.
- Extracted patterns from fMRI, EEG, MEG, and behavioural experiment data.
- Built classifiers from experimental data to predict spatial attention.

**Lab Supervisor** Calgary, Alberta  
**Southern Alberta Institute of Technology** *September 2010 - May 2011*

- Supervised Electrical Engineering Technology lab during open lab hours
- Helped first-year students with unfinished labwork.

**Communications Technician** Rocky Mountain House, Alberta  
**Oras Communications** *June 2006 - August 2009*

- Installed 2-way radios, cellular handsfree kits, and other communication equipment into vehicles
- Diagnosed and maintained vehicle-mounted communication and safety equipment.

## Education

**Bachelor of Engineering in Electrical Engineering** University of Victoria  
GPA: Blah/BLAH *Graduating August 2014*

**Diploma in Electronics Engineering Technology** Southern Alberta Institute of Technology  
GPA: Shoop/SHOOP *Graduated 2011*

- Graduated in the Dean's List

**Massively Open Online Courses**

- Web Intelligence and Big Data
- The Brain and Space

## Projects

- Designed a portable USB battery pack as a capstone project at the University of Victoria.
- Designed a 20 MHz arbitrary signal generator as a capstone project at SAIT.
- Implemented an unsupervised image segmentation algorithm by Deng and Clausi using Markov Random Fields.
- Developed a software-defined PSK31 transceiver using GNU Radio.
- Planned a satellite tracking and communication ground station with UVic ECOSat team as part of the Canadian Satellite Design Competition.

## Extracurricular Activities

### **ATR Machine Learning Club**

- Read journal articles about recent developments in the machine learning field.
- Presented recent journal articles to colleagues at ATR (Advanced Telecommunications Research Institute International).

### **Microprocessor Group**

- Built Engenuics embedded microcontroller kit.
- Developed hardware drivers for peripherals.

### **Language Learning**

- Received private lessons in Japanese for one year.
- Self-directed study in Mandarin Chinese.

## Affiliations

- ASET (Past Member)