Jason Bens

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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
C/C++
Python
LaTeX
Matlab/Octave
ARM Assembly

Tools
Altium
NI LabView
SolidWorks Electrical
AutoCAD
SPICE

Technologies
I^2C
SPI
ARM

Competencies
Analog Design
Digital Design
Mixed Signal Design
Schematic Capture
PCB Layout/Fab
Embedded System Design
Firmware Development
Footprint Definition
Soldering and Rework
GPIB Test Automation
Prototyping
Low Power Design
Battery Systems
Lab Instrumentation
DSP
Machine Learning
Pattern Recognition
Deep Learning
Neural Networks
Medical Image Processing

Experience

Electrical Engineer — Mukilteo, Washington
Electroimpact — *September 2014 - Present*
- Engaged in all phases of the product lifecycle management of aircraft assembly automation equipment for leading aerospace manufacturers such as Boeing.
- Acted as a key point of contact during on-site functional testing and support.
- Developed electrical subsystems of larger assemblies to contract specifications and in compliance with national codes.

Electrical Engineer — Seattle, Washington
Fensens — *April 2015 - Present*
- Ongoing development of a battery-powered bluetooth-enabled vehicle parking sensor
- Designed, prototyped, and evaluated ultrasonic transducer transceiver and driver circuitry.

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.

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.

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.
- Maintained vehicle-mounted communication and safety equipment.
- Diagnosed and repaired non-compliant equipment.

Education

Bachelor of Engineering in Electrical Engineering — University of Victoria
GPA: 7.58/9.00 — *Graduating August 2014*
- Specialization in Computational Intelligence
- Specialization in Electromagnetics and Photonics

Diploma in Electronics Engineering Technology — Southern Alberta Institute of Technology
GPA: 3.82/4.00 — *Graduated 2011*
- Graduated with Honours.

Massively Open Online Courses
- Web Intelligence and Big Data
- The Brain and Space
- Machine Learning

Projects

Automated Fiber Placement
- Developed sensor system for monitoring safety brakes along multiple axes of motion.
- Interfaced CNC with various devices for realtime monitoring and control of mobile gantry for carbon fiber placement.
- Designed 24V, 120V, 208V, 400V, and 480V AC and DC power distribution systems.

Vertical Panel Assembly Line
- Assembled fixtures for vertical loading and riveting of aircraft wing skins to horizontal support ribs.
- Planned and enacted retrofits to new and existing equipment to meet required specifications.
- Designed a covered cable management system for protecting exposed cable runs between equipment.

Portable USB Battery Pack
- Designed a portable USB-charged battery pack to recharge USB devices.
- Implemented using high capacity lithium-polymer cells.
- Capable of 5-volt, 2-amp USB output.

ECOsat
- Joined University of Victoria's ECOsat team to take part in the Canadian Satellite Design Competition.
- Planned a satellite tracking and communication ground station.

Activities

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

Engenuics Microprocessor Group
- Developed hardware drivers for peripherals.
- Developed simple pong game using a barebones real-time OS.

Language Learning
- Enrolled in private lessons in Japanese for one year.
- Self-directed study of Mandarin Chinese.

Certifications

Canadian Amateur Radio Operator Certificate — *VE7SBX*
- Basic with Honours.
- Advanced.