Erik C.M. **Johnson**

Engineer in Training · Electronics, Computation and Systems

1954 Mulberry Crescent, Ottawa, Ontario, Canada

+1 (613) 325-6983 | ecmjohnson@gmail.com | ecmjohnson | ecmjohnson

Objective

I have never been satisfied with just attending lectures and doing coursework. I have never been satisfied with just getting average grades. I have only ever worked hard and I will continue working hard. The people around me are what makes everything worth doing so well and I've had some of the best mentors possible with my peers, co-workers, and professors. These mentors have inspired me to give back to my community through organizing workshops, project management, and teaching.

Education

Carleton University

Ottawa, Ontario, Canada

B.Eng in Electrical Engineering (Minor in Mathematics)

Sept. 2012 - Present

- Currently completing last year of studies, expected graduation date: April 2017
- CGPA of 11.78 / 12 (A+) or GPA of 3.97 / 4
- Five four month co-op work terms completed

Work Experience

Carleton University

Ottawa, Ontario, Canada

Mathematics Teaching Assistant

Sept. 2016 – Present, Sept. 2015 – June 2016, Sept. 2013 – April 2014

- Led tutorials and offered individual assistance to help students achieve their academic goals for the following courses:
  - MATH 2004 · Multivariable Calculus for Engineering or Physics (Fall 2016, Fall 2015, Winter 2014)
  - MATH 2107 · Linear Algebra II (Winter 2016)
  - MATH 1104 · Linear Algebra for Engineers and Scientists (Fall 2013)

Fraunhofer IIS (Institute for Integrated Circuits)

Erlangen, Bavaria, Germany

Music/Audio Processing Research Intern

May 2016 – August 2016

- Contributed to an open source library (mir_eval) used by music/audio researchers by adding additional evaluation metrics and improving performance resulting in greater accessibility to high quality audio separation evaluation for audio researchers
- Investigated methods for improving performance of math-intensive python code, including code refactoring and GPU optimization

GasTOPS, Ltd.

Ottawa, Ontario, Canada

Electronics Product Design Intern

May 2014 – August 2015

- Developed automated tests in Python for verifying correct firmware operation of a multiprocessor (Microchip dsPIC33) system
- Tested Modbus RTU and CAN bus 2.0B communication protocols using Python scripts
- Replaced aging spectrum analyzers with a windows application written in C# that controlled a function generator and oscilloscope using the VISA interface
- Specified and executed hardware testing to evaluate the safety of critical components
- Performed a Monte Carlo simulation in Mathematica for design optimization
- Executed test specifications requiring the use of DAQ devices, a thermal control chamber, a thermal shock chamber, a shaker table and automated signal injection devices

Virtual Ventures

Ottawa, Ontario, Canada

Weekend Camp Instructor

Jan. 2014 – Feb. 2014

- Educated future scientists and engineers in grades 7-10 on the topic of electronics and programming using the Arduino open-source microcontroller system resulting in increased excitement to pursue studies in STEM fields

Department of Electronics - Carleton University

Ottawa, Ontario, Canada

Electronics Research Intern

May 2013 – August 2013

- Assisted in the ongoing design, assembly and testing of an Atmel microcontroller (ATmega1284p) system resulting in a new revision of the PCBs
- Designed footprint designs in gEDA for new component sensors (e.g. BMP180, MPU6050) allowing for use in a wider range of applications
- Developed post-processing software using Python to provide meaningful data visualizations
- Device was later used by other students in their capstone project

Applied Projects

Carleton University

Ottawa, Ontario, Canada

Carleton CanSat Team Member (Team Raven Knights)

Jan. 2015 - June 2016

- Developed real time software in C for a Freescale Kinetis (KL16Z128; ARM Cortex-M0+ core) device
- Resulted in securing 2nd place out of 60 international teams in 2016 and 3rd place out of 42 teams in 2015
- Contributed as software team lead, software developer and electrical team lead for mock satellite competitions
- Used Git version control system to maintain team coherence
- Implemented software performing the following functions:
  - Gathered and transmitted sensor data to a remote ground station
  - Tracked flight state and modified mode of descent based on state
  - Recovered state and calibration from momentary power loss
  - Used PID feedback control to maintain constant orientation during descent

Volunteering

IEEE (Institute of Electrical and Electronics Engineers)

Ottawa, Ontario, Canada

IEEE - Carleton Chapter

Sept. 2012 - Present

- Held the positions of Secretary, Office Directory and Workshop Director for the Carleton chapter of IEEE
- Organized and prepared the agenda and took minutes for IEEE Carleton executive meetings leading to increased meeting efficiency
- Increased visibility of IEEE in the Ottawa engineering community through outreach events and regular workshops
- Provided academic support services to students in electronics, systems and software courses

Skills

General Computers	Linux, Windows, Embedded Linux, Microsoft Office Suite including VBA in Excel
Programming Languages & Tools	Python, Git, C/C++, ROS, C#, LaTeX, Verilog, MATLAB, Mathematica, Java, VBA
Communication Protocols	I2C, SPI, UART, CAN bus 2.0B, Modbus RTU (over RS485)
Test Instruments	Oscilloscope, Logic Analyzer, Function Generator, Spectrum Analyzer
Design & Simulation Software	Codewarrior IDE, Keil (μVision IDE), EagleCAD, gEDA, Inkscape