Erik C.M. **Johnson**

Engineer in Training · Electronics, Computation and Systems

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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, Visual Studio, EagleCAD, Keil (μVision IDE), gEDA, OrCAD, Inkscape