Erik C.M. **Johnson**

ENGINEER IN TRAINING · ELECTRONICS, COMPUTATION AND SYSTEMS

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Education

Carleton University   *Ottawa, Ontario, Canada*

B.ENG IN ELECTRICAL ENGINEERING (MINOR IN MATHEMATICS)   *Sept. 2012 - Present*

- Currently completing last year of studies
- CGPA of 11.78 / 12 (A+) or GPA of 3.97 / 4
- Five co-op work terms completed
- Dean's Honour list 2012-2014
- Faculty of Engineering Scholar award
- Entrance scholarship awarded at the highest level

Work Experience

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
- Investigated methods for improving performance of math-intensive python code, including code refactoring and GPU optimization

Carleton University   *Ottawa, Ontario, Canada*

MATHEMATICS TEACHING ASSISTANT   *Sept. 2015 – June 2016*

- Led tutorials and offered individual assistance for the courses:
    - MATH 2004 · Multivariable Calculus for Engineering or Physics (Fall 2015)
    - MATH 2107 · Linear Algebra II (Winter 2016)

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

Carleton University   *Ottawa, Ontario, Canada*

MATHEMATICS TEACHING ASSISTANT   *Sept. 2013 – April 2014*

- Led tutorials and offered individual assistance for the courses:
    - MATH 1104 · Linear Algebra for Engineers and Scientists (Fall 2013)
    - MATH 2004 · Multivariable Calculus for Engineering or Physics (Winter 2014)

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

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) device resulting in a newly released revision of the PCBs
- Designed footprint designs in gEDA for new component sensors (e.g. BMP180, MPU6050)
- 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*

- 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
- Developed real time software in C for a Freescale Kinetis (KL16Z128; ARM Cortex-M0+ core) device
- Used Git version control system to maintain team coherence
- Implemented software performing the following functions:
    - Developed the ability to recover from momentary power loss
    - Gathered and transmitted sensor data to a remote ground station
    - Tracked flight state and modified mode of descent based on state
    - Used PID feedback control to maintain constant orientation during descent

Volunteering

Carleton University   *Ottawa, Ontario, Canada*

IEEE - Carleton Chapter   *Sept. 2012 - Present*

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

Skills

Programming	Python, C/C++, C#, Verilog, LaTeX, MATLAB, Java, Mathematica, JavaScript
Communication Protocols	I2C, SPI, UART, CAN bus 2.0B, Modbus RTU (over RS485)
Test Instruments	Oscilloscope, Logic Analyzer, Function Generator, Spectrum Analyzer, ESD Simulator