Michael Elliot King — Curriculum Vitæ

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Born: February 14, 1991 — Quincy, MA
Nationality: American

Education

2009 - 2014 **B.Eng., Mechanical Engineering**
McGill University – Montreal, Quebec

Experience

3/2016 - Present **Mechanical Engineer II**
Charles River Analytics – Wakefield, Rhode Island

- Was awarded and lead a Phase I SBIR effort to design and prototype a ruggedized touch-screen button interface for Navy aircaft carrier display systems
- Created the large displacement unmanned underwater vehicle [LDUUV] user manual for asset transfer to the Navy fleet
- Lead the redesign of a system of communication, command, and control pressure vessels for unmanned vehicles

3/2015 - 3/2016 **Mechanical Engineer I**
Charles River Analytics – Wakefield, Rhode Island

- Designed, tested, and implemented a submersible pneumatic and electrical system for urgent surfacing maneuvers in unmanned vehicles
- Designed a pressure-balanced oil-filled electronics enclosure & proved it in a hyberbaric chamber to full ocean depth
- Lead the design of operations logistics & tools for a next generation LDUUV

9/2014 - 3/2015 **Mechanical Research & Development Intern**
Charles River Analytics – Wakefield, Rhode Island

- Lead the design of an emergency safety system for LDUUVs
- Operated, tuned, and performed open-water tests of Hydroid REMUS UUVs
- Supported open-water autonomy tests of LDUUVs

8/2013 - 8/2014 **Co-Founder & Mechanical Engineering Lead**
McGill Robotics – A.U.V. Design Team – Montreal, Quebec
3rd place static, 10th place overall – AUVSI International RoboSub Competition in San Diego
Judges Award – Best Branding and Business Development ($500)

- Lead all mechanical design, manufacturing and testing for the team of 60 creating an autonomous underwater vehicle
- Delegated work to and solved problems with 16 members of the mechanical division
- Designed the vehicle assembly with Inventor for FEA, dynamic modeling, 3D printing, machine drawings and simulations
- Created and implemented a comprehensive structure, brand, environment, and management system from scratch for a student organization with 98 members

9/2013 - 7/2014 **Development of a Variable-Friction Shoe-Surface Mechanism**

Interdisciplinary Design Project – Montreal, Quebec

Independent 9-month design & manufacturing project

Supervised by Professor Jeremy Cooperstock, *McGill Centre for Intelligent Machines*

- Created from scratch a mechanism to fit in the sole of a shoe and dynamically simulate the friction of a full range of surfaces
- Designed the mechanical, electrical and software systems using Autodesk Inventor and Arduino
- Manufactured complete functioning prototype of mechanism to 0.05mm tolerances using conventional milling & turning, CNCing, and welding
- Implemented a PD controller to actuate two compact braking pads using a stepper motor, gear system, and lead screws
- Verified full functionality through a series of static and kinetic friction tests

9/2013 - 5/2014 **Development of the Propulsion & Control System for an A.U.V.**

Mechanical Engineering Senior Capstone Project – Montreal, Quebec

Collaborative 7-month design & implementation project

Client: McGill Robotics | Supervisor: Professor Meyer Nahon

- Designed a 5-DOF propulsion & control system using C++ and ROS
- Arranged 6 thrusters around the COG for surge, sway, heave, pitch, and yaw control
- Simulated the controls with dummy sensor data in a 3D environment within Gazebo
- Implemented the system by interfacing with the autonomous planner, computer vision and motor control
- Created test platforms and wet-tested the full system in a pool, for both tethered and autonomous missions

Summer 2013 **Control Systems & Engineering Internship**

T. Davlin Glass – Cambridge, Massachusetts

Designer gold-leaf glass tiles and glass products

- Designed, manufactured, and wired systems to control the temperature of custom-built, high-powered glass kilns
- Aided in the design and construction of additional kilns

1/2013 - 8/2013 **Front End & Usability Lead**

Braille University iPhone Application – Montreal, Quebec

Tool to aid in teaching Braille to blind children using an electronic medium

Supervised by Professor Jeremy Cooperstock, *McGill Center for Intelligent Machines*

- Created a mobile application focusing on usability and the user interface
- Using a user-centered design approach, created prototypes, conducted user-tests, and coded the application to be easy to use, even without the use of vision
- Collaborated with Braille education professionals to create an authentic curriculum and legitimate learning tool (Anne Jarry, Nathalie Martiniello: *Univerisité de Montréal*)

8/2012 - 8/2013 **Material Collection System Leader | Marketing & Media Director**

McGill LunarEx Robotics Design Team – Montreal, Quebec

12th place out of 50 international teams at NASA's Lunabotics Mining Competition – Orlando, Florida

Supervised by Professor Peter Henry Radziszewski

- Member of a team of 40 students creating an autonomous mining lunar robot
- Lead the efforts of a five person group responsible for designing, constructing and assembling the mechanism that collects and dumps lunar regolith simulant
- Brought original concepts to realization through sketching, CADing, machining, assembly, and testing
- Machined & CNCed aluminum, molded composites, 3D printed new materials, and fabricated sheet metal parts
- Developed rebranding strategies to increase interest and team credibility
- Enhanced project marketing and sponsorship visibility through media exposure
- Directed, shot, and edited a promotional film that was sent to all sponsors and shared on social media outlets

Summer 2012 & Summer 2013 **Engineering Internship**

Robies Heating & Cooling HVAC – Hyannis, Massachusetts

- Developed and implemented automated programs for generating project estimates
- Calculated thermal loads
- Developed a work flow and integrated inventory management system
- Recorded and analyzed inside climate data
- Provided company-wide technical support
- Prepared reports for clients and staff
- Analyzed sales trends and provided detailed reports

Software & Programming Skills

Computer Aided Design: *SolidWorks, Inventor, AutoCAD, MasterCAM*
Data Analysis: *MATLAB, Excel*
Programming Languages: *Python, C, C++, Objective-C, ROS*
Version Control Systems: *Git, Autodesk 360*
Web Development: *HTML5, CSS, Markdown, Jekyll, Google Analytics*
Digital Typesetting: *LaTeX, XeLaTeX*
Media & Graphics: *Illustrator, Lightroom, Photoshop, InDesign, Final Cut Pro*

Activities & Interests

2017 - Present Boxing - Newport Boxfit
2015 - Present Beach & Indoor Volleyball - Newport Volleyball Club
2010 - 2015 Photography - Instagram (previously michaelelliotphotography.com)
2009 - 2014 McGill University Intramural Ultimate Frisbee (1st Place 2010, 2011)
2012 - 2013 Photo Contributor - The McGill Tribune
2011 - 2012 McGill Engineering Undergraduate Society Website Committee
2010 - 2011 McGill University International Student BUDDY Mentor Program