

Andrew Flemming

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Objectives

1. Create things that are awesome and send them out into the world in volume
2. Work with a team of great people, with a sense of humour
3. Work in a small growing company, with stem-to-stern involvement in the product(s)

Overview of Skills and Qualifications

- Application for P.Eng designation under review with PEO, should be only weeks away
- Electro-mechanical product and system design, working closely with electrical and software engineers
- Design of mechanical parts and assemblies
- Design of parts for injection moulding, working with tool-makers (primarily located in China) remotely and in-person to produce quality parts in a timely manner
- Design for aluminum extrusion, CNC, and some die-casting
- Design for manufacturing and design for assembly
- CAD - 3D and engineering drawings - I live in Solidworks most days, and am currently test-driving Onshape
- Volume manufacturing, primarily in China working closely with a mid-sized EMS provider
- Design and implementation of end-of-line testing
- Writing software - skilled in C and Objective-C, have gotten my feet wet in Python
- Basic PCB layout
- Additive manufacturing - my 3D printer is running most days
- Of course, all the basics as well: communication, hard working, team player, etc.

Work History

Accelerated Systems Inc., Waterloo ON

Product Designer, Mechanical

2013 - Present

- Designed products and brought them through volume production in China as a 'product owner'
- Designed e-bike handlebar UI components (LCD displays, control-button-pods) - optimized for industrial design, water ingress, user interaction, and overall 'niceness'
- Designed mechanical enclosures for motor controllers ranging from 250W to 8kW packages - optimized for thermal management, size, ruggedness, and cost
- Implemented a cost-reduction of the mechanical design for our core e-bike motor controller product, removing over 80% of the mechanical BOM cost, resulting in a radical increase in sales
- Acted as product manager for a modular connected e-bike component system currently in development, specifying connectivity, features, and protocol
- Responsible for manufacturing and end-of-line test for the parts and products I have designed
- Extensive multi-week trips to China to work through new product introduction, implement test equipment and procedures, investigate new suppliers, and resolve quality issues with our suppliers and contract-manufacturers
- Directed my own work, managed my own schedule

Mechanical Designer

2011 - 2013

- Created prototype electric vehicles including lawn mowers, an electric snow blower, and e-bikes
- Designed components for an all-electric lawn mower system - produced part and assembly drawings, managed BOMs, and worked through mass production of the lawn mower system in China
- Acted as a gatekeeper and technical-rep for the UL certification of our electric lawn mower system

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Canadian Curling Tools Ltd.

2012 - Present

Co-founder, Grand Overseer of Development

- Invented the SmartBroom (<http://smartbroom.ca>), which within a year became the international standard for measuring and comparing the effectiveness of sweeping in the sport of curling
- Designed (with a partner) the product end-to-end, from initial prototypes to production
 - Interfaced with sensors (strain gauges and accelerometer) to collect data
 - Wrote embedded software to analyze sensor data and present user-friendly information
 - Designed PCBs, hardware enclosure, and strain gauge mounting package
- Currently sell SmartBrooms around the globe to national programs and high performance teams

Self Employed

2009 - Present

Independent Software Developer

- Develop, maintain and sell applications for iPhone and iPad
- High performance curling coaching software for iPhone used by the Canadian Curling Association at the Olympic Games, and can be found being used by the best coaches at every major curling event

Accelerated Systems Inc., Waterloo ON

August - December 2010

Software Engineering Co-op Student

- Created software for an embedded system on an e-bike with an accompanying iPhone application, and communication via USB between the two

COM DEV, Cambridge, ON

July - December 2009

Test Engineering Co-op Student

- Designed and built new test setups for microwave components, allowing parallel testing and saving valuable time in thermal and vacuum chambers

Education

Bachelor of Engineering–Mechanical Systems Engineering

2007 - 2011

Conestoga College Institute of Technology and Advanced Learning, Kitchener, ON

- Completed courses in mechanical design and analysis, material science, electrical systems, industrial engineering, quality assurance, strategic management, and financial management, among others
- Year-long projects integrated with all courses, applying theory in practical applications
 - Pick-and-place work-cell
 - Part feeder and pick-and-place work cell
 - 1.25 meter diameter architectural clock
 - Personal rapid transit, hanging mono-rail system
- Awarded Best Project for my presentation at the 2010 Ontario Centres of Excellence Discovery Conference

Extracurricular Activities

- Curling - many provincial level successes in the past, though mostly recreational play now, occasionally providing coaching and instruction
- Photography - I have recently taken a shallow dive into photography, documenting my travels with photos, and having a lot of fun doing it
- Tinkering - I always have some silly little projects on the go - for example, I am currently working on a bluetooth interface for the deadbolt on my front door