

PATRICK LAVERTU FAIRBANK

Mountain View, CA • pat@patfairbank.com

SUMMARY OF QUALIFICATIONS

- Leadership, communication and organizational skills refined through ten years of FIRST Robotics team involvement and two years of engineering co-operative work
- Two years of experience in professional software engineering
- Familiarity with control system design, embedded systems, sensors and manufacturing process engineering
- Mentored the first Canadian team to win the FIRST Robotics World Championship, and won the Waterloo 2010 Woodie Flowers Finalist Award for mentorship
- Proficiency in numerous programming languages including C, C++, Java, Python and Assembly, and in SolidWorks and Inventor CAD software

EDUCATION

University of Waterloo, Waterloo, ON 2006 – 2011

Bachelor of Applied Sciences in Mechatronics Engineering

- Cumulative GPA of 88% and winner of the Sandford Fleming Award for Co-operative Proficiency
- Designed and built a self-balancing telepresence robot for final year design project

WORK & VOLUNTEER EXPERIENCE

Software Engineer

Ooyala Inc., Mountain View, CA

June 2011 – present

- Development and maintenance of a distributed, parallelized video transcoding system
- Creation of dashboards and metrics to track machine utilization and costs
- Focus on decreasing data center costs while maximizing processing speed
- Implementation of a centralized logging and alerting system for use across the company

Software Engineering Intern

Google Inc., Mountain View, CA

May – Aug. 2010

- Developed and maintained web services for Gmail related to extracting useful data from e-mail content
- Designed and implemented an administrative web console using Java and Google Web Toolkit
- Wrote a regression-testing utility to validate server releases using Python
- Worked extensively with Google's distributed storage and computing technologies
- Received an "Outstanding" internship evaluation

Lead Design & Programming Mentor

FIRST Robotics Team #1503 - Westlane Secondary School, Niagara Falls, ON

2007 – 2011

- Designed, prototyped and manufactured several robots using SolidWorks and Autodesk Inventor
- Implemented robot control systems incorporating encoders, gyroscopes, cameras and PID control
- Managed a construction and programming team of over 20 high school students and mentors
- Led the team to a championship divisional win, two regional wins and two finalist finishes over five years

Software/Controls Engineering Intern

Patient Care Automation Services Inc., Oakville, ON

Sept. – Dec. 2009

- Managed the development and testing of robotic control software for a prescription-drug-dispensing kiosk
- Designed and optimized pick and place algorithms for decreasing dispense cycle time
- Implemented a system to manage inventory and optimize layout for the kiosk's configurable storage area
- Developed UI and backend features for the company's C# .NET operations support applications
- Received an "Outstanding" internship evaluation

Controls Engineering Intern

General Motors of Canada Limited - St. Catharines Powertrain, St. Catharines, ON

Jan. – Apr. 2009

- Developed control programs for V8 engine machining and assembly lines
- Investigated controls issues and made improvements to quality, cycle time and HMI usability
- Worked extensively with industrial controls technology including PLCs, Profibus devices and cameras
- Received an "Outstanding" internship evaluation

Software Engineering Intern

Google Inc., Mountain View, CA

May – Aug. 2008

- Developed and maintained Java/AJAX web services for rendering and cataloging OpenSocial gadgets
- Wrote unit tests and integration tests for web services using the JUnit framework
- Contributed to the open-source Apache Shindig project
- Received an "Outstanding" internship evaluation

Software Engineering Intern

Sony Creative Software Inc., Waterloo, ON

Sept. – Dec. 2007

- Implemented an XML-based UI skinning framework in C++ for Sony Media Go
- Created a customizable user interface, working with the Win32 API and Graphics Device Interface

Process Engineering Intern

General Motors of Canada Limited - St. Catharines Powertrain, St. Catharines, ON

Jan. – Apr. 2007

- Planned and conducted studies to determine root causes of manufacturing defects in gears
- Designed coolant deflector shields for gear production machines

Mentor & General Manager

FIRST Robotics Team #296 - Loyola High School, Montreal, QC

2005 – 2006

- Mentored and managed the team that became the first Canadian team to win the World Championship, in a competition comprising over 1200 teams

SKILLS

- Proficiency in several programming languages, including C, C++, C#, Java, Ruby, Python, PHP, x86 Assembly and Javascript, and proficiency with SQL databases and HTML
- Experience with programming Microchip PIC processors in C and Assembly
- Industry and class experience with SolidWorks, AutoCAD and Autodesk Inventor CAD software
- Fluency in French

AWARDS & SCHOLARSHIPS

- Woodie Flowers Finalist Award, Waterloo FIRST Robotics Regional Competition, 2010
 - Celebrates a mentor who leads, inspires and empowers students using excellent communication skills
- Governor General's Academic Bronze Medal, Loyola High School, 2004
 - Awarded to the top student of each high school graduating class in Canada
- UW/FIRST Mechatronics Scholarship, University of Waterloo, 2006
- President's Scholarship of Distinction, University of Waterloo, 2006
- Local Excellence Award, Canadian Millennium Scholarship Foundation, 2006

PROJECTS & INTERESTS

- "frclinks.com": A Google App Engine project which provides the FIRST Robotics Competition community with easy access to multiple sources of information using memorable URLs
- "Sundial": A wireless-network-based software system, used at FIRST Robotics events to provide teams with upcoming match data, match results and standings
- Avid interest in music, playing piano, bass guitar and organ