

Leigh Pauls

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4A Mechatronics Engineering
Graduating April 2014

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Summary

- Software Developer interested in problems involving interacting devices
- Die-hard Emacs user with an affinity for *nix systems
- Enjoy open-ended development of new features
- Strong Experience with C, C++, Python, Java, JavaScript, and C#

Personal/Open Source Projects

I like having a personal project in progress. These are a few of the substantial projects I've developed.

Current Project (December 2012 - present):

Cortex OPT - An Operational Transform library for structured data

- Driven by a personal interest in unifying user experience over multiple devices
- A variation of Google Wave's Operational Transform applied to tree-structured data
- Recently completed a Python proof of concept, now developing a usable product in Java

https://github.com/leighpauls/opt_algos

Past Project (February 2012 - November 2012):

CrO₄ Browser - Experiment in synchronizing viewed pages over multiple devices in real-time

- User experience experiment in synchronizing the DOM state of multiple browsers
- Uses multiple thin-clients on different devices to control a centralized browser
- Based around a NodeJs server and a Chrome plugin
- Runs on a custom fork of Chromium, developed in C++
- Ended as a user experience failure, but served to define the problem for Cortex OPT

<https://github.com/leighpauls/cro4>

Completed Project (August 2011 to November 2011):

TwitchTetris - World's first Html5 Tetris clone to meet the Official Tetris Guidelines

- Developed due to frustration with existing Flash-based Tetris implementations
- JavaScript/Html5 frontend with a Python/Django backend on AppEngine
- Addictively successful!
 - Commonly cited reason for my classmates' poor grades that school term

<http://www.twitchtetris.com/>

Employment

Menlo Park, California - Nick Reynolds nreynolds@fb.com (Spring/Summer 2013)

Software Engineering Intern - Facebook, Inc.

- Developer on Facebook Messenger for Android:
 - Focused on improving bandwidth performance through protocol and sync design
 - Decreased the app's user bandwidth consumption by up to 70% for typical users
- Developed a complete feature vertical, coordinating with very layer-divided teams
- Significantly modified client and backend logic on a massively distributed application

<http://facebook.com/>

Palo Alto, California - Eric Migicovsky eric@getpebble.com (Fall 2012)

SmartWatch Embedded Developer - Pebble Tech.

- Designed and implemented major components of PebbleOS, including:
 - Pebble's filesystem and resource manager
 - Loader, linker, installation environment, and SDK tools for Pebble Apps
 - Drivers for the accelerometer and backlight
- Developed embedded/operating system code in C, and internal/SDK tools in python
- Experienced the last 4-month stretch of bringing a highly anticipated product to market

<http://getpebble.com/>

Technical Interests

Hackathons

I enjoy doing hardware and device centric hacks, as opposed to "Web service X, but for Y" style hacks. Of my hackathon submissions, my favorites include:

- Winner of the 2013 Waterloo Facebook Hackathon, hacked a Pebble SmartWatch to control a computer's cursor
- TechCrunch Disrupt SF 2012, hacked together an alarm clock which requires you to run around your house to deactivate multiple "nodes" before hitting the snooze button.

FIRST Robotics Competition

FIRST Robotics is a program for high school students based around the idea that having teens working closely with mentors from the technology industry on something awesome (ie. a robot) will inspire them to achieve greater feats of science and engineering later in life. Through FIRST, I'm proud to have:

- Mentored High School students in Software and Mechanical Engineering for 4 years
- Worked under professional mentors as a High School Student for 2 years
- Won the FIRST Robotics World Championship in 2008, against 2000 teams world-wide