Peter Cottle

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Education

M.S. / PhD Mechanical Engineering, *University of California, Berkeley, GPA: 3.92* 2012 / 2016

Graduate Computer Science Researcher, *Professor Sara McMains PhD*

B.S. Mechanical Engineering, *University of California, San Diego, GPA: 3.96 Major, 3.95 Cumulative* June 2011

Awarded the *Highest Academic Achievement Award* for Mechanical Engineering

Relevant Coursework and Experience

- Extensive Python and Javascript background
- C++, Matlab, Java experience
- Django, CSS, HTML5, Ajax, jQuery expertise
- CentOS, Ubuntu, Unix server management

Foundations of Computer Graphics, www-inst.eecs.berkeley.edu/~cs184-eh/hw4.html *Fall 2011*

- Programmed a complete ray tracer in C++ that provided support for reflections, soft shadowing, anti-aliasing, arbitrary transformations, and primitives. Ellipsoids were generated with object-to-world transformations.
- Supplemented ray tracer with a Python scene generator script that used equations of motion and random seeds to generate complex and beautiful scenes; pictures available at the above hyperlink.

Graduate Computer Science Research, UC Berkeley, Professor Sara McMains *Present*

- Developing and researching algorithms for command-based draining of sand-casted engine blocks. Past work takes in engine block geometry and uses directed node-graph traversal to determine water trap locations.

Founder & Developer, MSWorddit.com and MSOutlookit.com *Summer 2011*

- Site launch obtained 103,000 unique visitors and 700,000 hits within the first 27 hours
- MSWorddit replicates the UI of Microsoft Word but fills the document window with stories and media from Reddit.com. It utilizes a recursive tree crawler that processes raw HTML DOM trees fetched via JSONP from Yahoo Query Language servers, effectively acting as a specialized HTML renderer and forward proxy server
- MSOutlookit replicates the Microsoft Outlook UI and Windows XP window interface, but emails are instead Reddit.com stories. The back-end server supports logging into Reddit accounts by dumping "pickled" cookies into a database, effectively managing thousands of simultaneous logged-in sessions.

Autopilot Software Development Intern, General Atomics Aeronautical, San Diego, CA *Summer 2011*

- Designed and wrote a Python script that performed a step test against plane autopilot PID controllers. The script used a precisely-timed feedback loop to simulate sensor voltages, eliminating the previous statistics-based test
- Ported, improved, and wrote autopilot regression test scripts that interacted with the in-house physics simulation framework, the ground control station software, and the flight control software all in synchronization.

Awarded First Place at the Facebook Cal vs Stanford 24 hour Hackathon, Facebook *Fall 2011*

- Utilized a node.js instance to synchronize YouTube video playback and embedded functionality inside FB chat

Campus Tour Guide, UC San Diego *December 2009 – Spring 2011*

- Perfected speaking and interpersonal skills during a 10-week training program and three years of campus tours

References

Sara McMains, UC Berkeley Research Professor: 510.642.9359 • mcmains@me.berkeley.edu

Jessica Rogers, Campus Tour Guide Manager: 858.534.4414 • jsrogers@ucsd.edu