

David G Underhill

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WORK EXPERIENCE

Pocket Gems (*Director of Backend Engineering and Backend Hacker*) 2010-Present

- Led and built from scratch the backend team (including 8 engineers)
- Architected and built Vertica analytics cluster from scratch; ingested over 200MM data points per day
- Built out game servers; millions of daily users; one of the largest Google App Engine deployments
- Actively involved in tech vision and strategy; helped shape recruiting efforts and interviews

Navy Nuclear Power Training Command, Charleston, SC 2009-2011

- Designed and created a program for balancing and managing training assignments

Research and Teaching Assistant, Stanford, CA 2007-2009

- Worked with Prof. Nick McKeown's high performance networking research team
- Compilers Instructor; CS344A Head TA (router implementation); CS227 Reasoning Methods in AI TA

Internships

- **Naval Surface Warfare Center Dahlgren** – Machine Learning Summer 2006
- **Lawrence Livermore Natl. Labs** – Physics Simulator C++ Optimization Summer 2005

SIGNIFICANT PROJECTS

Race Photo Hub – Python, JavaScript – <http://www.racephotohub.com/> 2011-Present

A community-driven site which enables spectators to reunite racers with photographs taken during a race. This project is a mashup with SmugMug built on Google App Engine.

gae-sessions 2010-2011

Open Source Sessions Library – Python – <http://github.com/dound/gae-sessions>

The fast Google App Engine sessions library used by hundreds of projects and watched by nearly 200 developers on GitHub. It is orders of magnitude faster than alternatives at both small and large sessions.

Virtual Network System 2008-2010

Open Source Educational Platform – Python, JavaScript – <http://yuba.stanford.edu/vns/>

Implemented VNS 2.0 which gives students hands-on experience with networking internals. It has been used by thousands of students at 28 universities around the world.

ENVI: Extensible Network Visualization and Control Framework 2008-2009

Open Source GUI Framework – Java, Python – <http://www.openflowswitch.org/wp/gui/>

Networking research demonstration platform; used by SIGCOMM 2008 & 2009 Best Demo winners.

Undergraduate Thesis: Dimensionality Reduction Impact on Text Mining 2006-2007

Evaluated dimensionality reduction algorithms on machine learning techniques such as classification, clustering, & literature-based discovery; implemented test framework & algorithms in Java, Bash, and R.

Dound System – LAMP 2004-2006

Created a web application to reduce administrative burdens within the Naval Academy student body. Used by over 1,000 students, faculty, and staff.

THESE ARE A FEW OF MY FAVORITE THINGS

Favorite Languages: Bash, C, Haskell, JavaScript, Python, SQL

Favorite Platforms & Tools: Amazon Web Services, coreutils, Google App Engine, Linux, tcpdump, Vertica

Hobbies: Marathonning, Photography, Skiing, Software Development

EDUCATION

- Stanford University** 2007-2009
- M.S. Computer Science, graduated with distinction in research (3.97 GPA)
 - Accepted to Ph.D. Computer Science program in 2009; deferred to 2011 but ultimately declined
- United States Naval Academy** 2003-2007
- B.S. Computer Science, graduated with distinction (3.8 overall GPA, 4.0 major GPA)

SELECT RESEARCH, PRESENTATIONS, AND AWARDS

- ACM WiTECH Workshop at MobiCom 2009, Beijing, China** September 2009
- *The Stanford OpenRoads Deployment*
- ACM SIGCOMM 2009**, Barcelona, Spain August 2009
- **Best Demo Award:** *Carving Research Slices Out of Your Production Networks with OpenFlow*
 - *OpenPipes: Prototyping high-speed networking systems* (demo)
- Algorithm Efficiency Competition: Minimum Spanning Trees** February 2009
- <http://wiki.github.com/dound/mst/>
Implemented a highly optimized, open source, C library of minimum spanning tree algorithms for a competition involving over 100 students at Stanford University. This implementation outperforms the boost library's implementation on a variety of graph sizes and types and was the top performer in the Stanford competition by a wide margin.
- ACM SIGCOMM 2008**, Seattle, WA August 2008
- **Best Demo Award:** *A Demonstration of Virtual Machine Mobility in an OpenFlow Network*
 - 2nd Best Demo Award: *Experimenting with Programmable Routers in Real Networks*
- IEEE Information Reuse and Integration 2007**, Las Vegas, NV August 2007
- Presented *Enhancing Text Analysis via Dimensionality Reduction*
- National Science Foundation Graduate Fellowship Honorable Mention** March 2007
- Trident Scholar:** *Exploring Dimensionality Reduction for Text Mining* 2006-2007
- 1 of 14 scholars. Please see "Undergraduate Thesis" above for more information.

PAST LEADERSHIP POSITIONS

- Brigade Midshipmen Information Liaison Officer** Fall 2006-2007
- Developed & managed information systems utilized by the 4,000+ member student body
- Plebe Summer Squad Leader** Summer 2006
- Led 10 new students through their initial military indoctrination at the United States Naval Academy
- Cyber Defense Exercise Leader** Spring 2006
- Led team of 40 peers to design & defend a network against NSA attacks