# EVAN PEDRO GREENBERG

**egreenbe@gmail.com** | **http://linkedin.com/in/EvanPedroGreenberg** | 650-387-9082

Backend software engineer with rigorous background in both theory and practice of Operating Systems, Networking, and Distributed Systems seeking a role that will challenge and inspire. Rapidly translates ideas from concept to working prototype implementation with robust, elegant, and extensible code that scales.

## Education

**Stanford University** *Department of Computer Science, School of Engineering*

PhD (incomplete), September 2000 to March 2008 - Distributed Systems Group

MS, August 2002 - Distributed Systems Group

**Princeton University** *Department of Computer Science, School of Engineering*

BSE Magna Cum Laude, June 2000 - Overall GPA 3.9, Departmental GPA 4.1

## Experience

**Google Inc** Mountain View, CA

Senior Software Engineer; Staff Software Engineer; Senior Staff Software Engineer *December 2012 to Present*

- Managed a team of 20 engineers focused on the storage stack and core infrastructure for the Google search index
- Responsibility for improving performance, monitoring, and debuggability of the Google search index (Caffeine)
- Shared ownership for transactional system on bigtable (Percolator)
- Selected projects (please ask for details):
  - Bigtable cache optimizations: automated analysis toolkit
  - Extensible monitoring dashboard
  - Percolator:
    - Improvements to auxiliary locking mechanism including deadlock-free persistence across transactions
    - New membership management service
    - Improved tools for debugging transactions
  - Ownership of cross-datacenter backup for full Caffeine repository:
    - Resource saving lower latency redesign of incremental backup system
    - Automated management system

*Technologies: C++, Bigtable, Javascript, HTML, CSS, HTTP*

---

**Veetle Inc** Palo Alto, CA

Software Engineer *July 2006 to November 2012*

- First (non-founder) employee at live streaming video startup; effective role: Chief Architect
- Took startup from founder's concept to 15M monthly unique website visitors and over 20M installs of custom browser plugin
- Grew team from 2 to 15 (primarily engineers); helped manage, design, and oversee software development and hardware planning/acquisition
- Selected projects:

- Custom Hardware: designed and built-out a custom x86 hardware solution for highly efficient video streaming
- Browser Plugin (player): helped design, implement, and package for distribution browser plugins built around VLC allowing users to view video streams directly in their browsers on Windows, Mac, and Linux
- Browser Plugin (core): developed a novel next-generation p2p video distribution network for live video providing best-in-class performance in the real world and under a variety of challenging network conditions
- Simulation Framework: developed a custom network simulation that allowed testing and verification of the actual protocol implementation across a range of likely and corner-case conditions
- Operations: hands-on management of the day-to-day running of the site across four datacenters and two continents, including capacity planning and vendor negotiations
- Partnerships: on-site setup and support for broadcast partners including SAP Open, The World Series of Football, Formula Drift, and World Series of Poker
- Website: helped steer web development to ensure the website implementation would scale as needed
- Reenveloping: developed an efficient tool to convert streams between ASF, HLS (MPEG2TS), and FLV transport formats to allow mobile viewing of every channel without additional hardware expenditure
- Mobile App: designed and prototyped a cross-platform framework that allows accelerated mobile UI app development
- Archiving: developed a custom software and hardware stack to support scalable, multi-platform on-demand viewing of live streams after the conclusion of an event
- RTMP Ingress: a custom server that speaks standard RTMP so that users can broadcast directly from Flash on their computers or from a variety of off-the-shelf broadcasting solutions

*Technologies: C, C++, Perl, Python, Javascript, HTML, CSS, HTTP, ASF, FLV, MPEG2TS, H264, AAC, MP3, IPv4, TCP, Linux, Windows, Mac OS X, NSIS, MFC*

---

**Kealia Inc (acquired by Sun Microsystems 4/2004)** Palo Alto, CA
Developer (part-time) *June 2003 to June 2006*

- Wrote protocol analyzer based on tcpdump for custom RPC protocol
- Customized C++ solution on set top box to support demos
- Developed SNMP support across various internal components and tools

*Technologies: C, C++, SNMP, Linux, IPv4, TCP*

---

**Microsoft Corporation, Visual Studio Analyzer** Redmond, WA
Summer Intern (Developer) *June 2001 to August 2001*

- Designed native managed C++ components for interfacing with customer code

*Technologies: C, C++, Managed C++, Windows*

---

**Microsoft Corporation, Application Center 2000** Redmond, WA
Summer Intern (Developer) *June 2000 to August 2000*

- Implemented command-line tool for administration of highly available clusters

*Technologies: C, C++, VBScript, XML, DCOM, WMI, MFC, Windows*

---

**Oracle Corporation, PL/SQL Runtime Group** Redwood Shores, CA
Summer Intern *June 1999 to August 1999*

- Designed next-generation expression handler for ILGEN phase of PL/SQL compiler

*Technologies: C, C++, SQL, Linux*

---

**Hewlett Packard (now Agilent), Manufacturing Test Division** Loveland, CO
SEED (Summer Intern) *June 1998 to August 1998*

- Embedded systems application development in VxWorks

*Technologies: C, C++, VxWorks, HP/UX*

---

**Virginia Tech Computing Center, Computer Purchasing Department** Blacksburg, VA

Programmer/Analyst *June 1994 to June 2000*

- Sysadmin and software development on Solaris/NeXT, designed databases and applications (using NeXT EOF) to replace paper forms

*Technologies: C, Objective C, Perl, SQL, Postscript, Solaris, NeXTstep*

## Teaching

**Instructor** Stanford University

CS349 - Advanced Object-Oriented Programming *Winter 2007*

**Teaching Assistant** Stanford University

CS244b - Distributed Systems *Spring 2005*

**Teaching Assistant** Stanford University

CS249 - Object-Oriented Programming from a Modeling and Simulation Perspective *Winter 2003*

## Graduate Research

**Robust and defensible system to address the problem of spam**

Today's most effective spam prevention techniques all attempt to use heuristics and machine learning to identify incoming spam on behalf of a user or group. Unfortunately, that inevitably leads to the property that some percentage of legitimate messages will be incorrectly flagged as spam, breaking the delivery guarantees that most users expect from systems like email. It's straightforward to reduce the spam identification problem to the halting problem, and, I suspect, possible to reduce an approximate spam identification problem (for instance, the feasibility of correctly identifying x% of messages without error for some positive value x) to the halting problem (or perhaps, a similar approximation-based version of the halting problem). However, if one enacts a set of simple economic disincentives around the transmission of unwanted messages (in spirit not too different from existing AS peering rules), it changes the rules to a game we can win; it becomes possible to allow end-users, who have the unique ability to characterize email with perfect accuracy, to penalize in a meaningful way those who send unwanted email, while protecting legitimate use cases (such as individual correspondence and even mailing lists).

## Undergraduate Research

Fall 1999: **Seminar in Computer Systems (Graduate)**

- Prototyped and implemented a secure messaging layer over the existing nntp/usenet infrastructure

Junior Independent Work: **Checkpointing Tools for Multiple Operating Systems**

- Researched saving/restoring the state of Linux and Windows on i586 hardware

Junior Independent Work: **Doom on Scout**

- Ported source code for Doom, a popular game, to Scout, a network-centric operating system

Senior Independent Work: **Novel Interfaces to Scalable Display Wall Technologies**

- Developed system for automated calibration of inexpensive video cameras for use in hand tracking

## Awards and Honors

**Stanford:** Graduate Service Recognition Award, Stanford Graduate Fellowship

**Princeton:** Microsoft Technical Award, Andersen Consulting Prize in Computer Science, Tau Beta Pi Engineering Honor Society, Phi Beta Kappa Honor Society, Sigma Xi Society

**High School:** Robert C. Byrd Honor Scholar (Virginia), National Merit Scholar, Tandy National Technology Scholar, Xerox National Minority Scholar, National Hispanic Scholar, JETS TEAMS Competition (1st national (tie), 2nd national)

## Activities

**Coordinator and Instructor**

Stanford Self Defense Seminars *2002 to 2009*

**Black Belt and Instructor**

Martial Arts: Karate (Zen Bu Du, Tang-Soo-Do, Universal), Hsing-I Kung Fu *1987 to 2010*

**Member**

Princeton University Varsity Fencing Team *1996 to 2000*