www.alvinkerber.net
github.com/akerber47/

Alvin Kerber

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Employment

2013 – 2017 **Graduate Student Researcher, Mathematics** — University of California, Berkeley

- Researched multiple open problems in low-dimensional topology, including pseudo-Anosov conjugacy, harmonic maps to trees, and quasi-Fuchsian surface subgroups.
- Solved the quasi-Fuchsian surface subgroup conjecture for books of I-bundles. Currently preparing paper for submission.

2015 – 2016 **Member of Technical Staff** — Delphix

- Triaged and root caused all incoming bugs in Oracle Provisioning, a major component used daily by more than half of all customers, including 50+ Fortune 500 companies.
- Fixed 5+ deal-breaking escalated issues, helping retain $200,000+/yr customers.
- Designed and implemented features and stability improvements for the Oracle platform.

2015 Software Engineering Intern (converted Fall 2015)

2014 **Software Engineering Intern** — Google

- Built supervised machine learning models to flag and prioritize suspicious G+ accounts for manual review, streamlining the account review process.
- Over 95% classification accuracy and 75% sensitivity on test data.
- Computed first rigorous estimate of how many malicious accounts are active on G+.

2008 – 2015 **Teaching Assistant** — University of California, Berkeley & Brown University

- Calculus, Multivariable Calculus, Linear Algebra, Numerical Analysis, Discrete Math.
- Accelerated Introduction to CS, Operating Systems, Operating Systems Lab.

Education

2017 **PhD Mathematics** — University of California, Berkeley

- Thesis: *Quasi-Fuchsian surface subgroups of infinite covolume Kleinian groups.*
- GPA: 3.92.

2011 **BS Mathematics** — Brown University

- *Phi Beta Kappa, magna cum laude, department honors.*
- GPA: 3.86. Math GPA: 4.00. CS GPA: 4.00.

Projects

2014 **Haskell Compiler**

Haskell-to-LLVM compiler, using hand-written canonical LR(1) parser generator. Lexing and parsing complete. Planned type inference, desugaring, and LLVM code generation phases, still incomplete. OCaml.

2010 – 2011 **Operating System**

OS port from Xen platform to full hardware emulator to improve Brown OS course. New bootloader, scheduler, memory management, linker/loader, interrupt handlers, and drivers. Improved student deploy time by 10x and prevented platform crashes. C and x86 asm.

Skills

Python, C, Java, shell, Haskell, JavaScript, R, OCaml, Scheme, C++, SQL.
Linux (Ubuntu, Debian, Arch), Version control (git, hg, svn, p4).