

Reid McKenzie

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EDUCATION *Bachelor of Science, CS* The University of Texas at Austin **May 2016**
Majored in Computer Science as part of the Turing Scholars honors program

WORK HISTORY **Site Reliability Engineer** **May 2016**
Twitter Inc., Core Infrastructure Group

I'm extremely excited to be starting my career at Twitter this May and as a result am not looking for full time opportunities at this time.

Software Engineering Intern **May - August 2015**
Factual Inc., Geopulse Audience Team

- Extended a Hadoop data analysis system to evaluate new customer data
- Developed, debugged and ran two full new customer data evaluations
- Implemented a Make system to address build issues encountered in evals
- Documented and validated a prototype Apache Solr location search system
- Implemented a strictly tagged mode for Clojure, improving performance by 5-20%

Teaching Assistant **August - December 2014**
University of Texas at Austin, Dr. Ahmed Gheith

- Developed an assembler/translator suite for the class ISA
- Designed a 32 bit wide RISC instruction set
- Assisted students in developing Verilog FPGA implementations
- Developed benchmarks to compare student implementations

Independent Contractor **May - August 2014**
Google Inc., for Clojure Google Summer of Code

- Designed and implemented an ahead of time compiler for Clojure
- Researched and implemented lambda lifting
- Implemented static use set, reach set and tree shaking analysis
- Produced a 15% speedup on "typical" programs & 24% on benchmarks

Software Development Intern **June - August, December 2013**
Calxeda Inc. SOCMAN embedded OS development team

- Developed and implemented a new system wide logging mechanism
- Implemented a timing sensitive PHI lane driver workaround
- Reworked PHI lane bringup to be board ID driven rather than build specific
- Refactored an internal OpenIPMI fork to resolve & upstream changes

Independent Contractor **October 2013**
Xtructure Inc.

- Researched graph identification and hashing techniques
- Implemented a parallel DAG hashing library

Undergraduate Research Assistant **June 2012 - June 2013**
University of Texas at Austin, Dr. DeWayne E. Perry

- Researched & implemented a simple dependency dataflow analysis for Java
- Researched semantic change analysis in terms of data flow dependency
- Published a dataflow based model for branch semantics and stability

Undergraduate Research Assistant **September 2011 - June 2012**
University of Texas at Austin, ICMB Biology labs

- Provided desktop support & administration for 500 laboratory computers
- Provided server support & administration for a small HPC cluster
- Upgraded a legacy ordering system from Perl to PHP

- PUBLICATIONS** “**Lightweight Tool Coordination**”, ICSE 2013, TOPI workshop
- Compared historical models of version control systems (VCSs)
 - Presented a model of software development in terms of path expressions
 - Showed that each VCS model could be written as a path expr or CFG
 - Argued for the use of path exprs to enforce project stability in the VCS
 - Presented a use case of applying testing requirements to the git-fow model

OTHER-PROJECTS

- Ox**, <http://ox-lang.org>
- An experimental Lisp derived from my various complaints about Clojure
 - Features a strictly immutable interpretation & environment model
 - Statically typed Lisp for static compilation & optimization
 - Module rather than form based reloading and recompilation semantics
- Grimoire**, <http://conj.io>
- Contains over 1,000 community sourced examples
 - Averages 1,500 hits a day
 - Originally a late night hack from GSoC to build up to date Clojure web docs
 - Since grown into a real web application
 - Features four community editor clients
- Toothpick**, <http://github.com/arrdem/toothpick>
- An experiment in designing a retargetable assembler ala LLVM
 - Implements a BatBridge assembler entirely from a specification
 - Used as the code emitter for BatBridge’s test suite
- Batbridge**, <http://github.com/arrdem/batbridge>
- A suite of processor simulators grown from my computer architecture work
 - Now a blog post series on computer architecture with sample simulators
 - Covers single cycle, pipelined, cached, predicted and out of order machines

SKILLS

Language	Written	Read	About
Clojure	200k LoC	400k LoC	Compilers, assemblers, VMs & web sites
C	45k LoC	100k LoC	Device drivers, linker/loader and OS work
Python	50k LoC	85k LoC	Magic: The Gathering engine & more
Bash	12k LoC	42k LoC	Build systems, git hooks & scripts
Java	4k LoC	80k LoC	Clojure implementation, Clojure/java interop
Make	4k LoC	40k LoC	Build system reverse engineering & debugging
PHP	3k LoC	6k LoC	Various web projects
C++	2k LoC	10k LoC	LLVM, various mathematics projects

EXTRA-CURRICULARS

- Texas Lambda Alpha Nu** **March 2014 - Present**
- **Founding President**, 2014-2015 academic year
 - Imagined & established LAN as a co-ed social fraternity for CS majors
 - Grew LAN to 48 members strong
 - **Secretary**, 2015-2016 academic year
- UT SC Student Cluster Competition Team** **May 2012 - 2014**
- **Team Member**, 2012-2013, 2013-2014 school years
 - Evaluated GPU and other accelerator technologies
 - Designed a 26 amp cluster on the basis of power & performance evaluations
 - Researched, build, profiled, optimized and ran numerous scientific apps
 - Competed against and beat teams from MIT and NUDT, for two years running
 - **Mentor**, 2014-2015 school year
- Longhorn Lockpicking** **January 2012 - May 2015**
- **President** of the largest student TOOOL member in the US
 - Teach tubular, wafer and pin lock picking & lock evaluation
 - Demonstrate insecurities in locally popular bike and door locks