

# Jack Morris Rosenthal

## Curriculum Vitae

### Physical Address:

1813 19th St.  
Unit 45  
Golden, CO 80401

### Digital Address:

[jrosenth@mines.edu](mailto:jrosenth@mines.edu)  
<http://inside.mines.edu/~jrosenth>  
<https://github.com/jackrosenthal>

Cell: (970) 367-7115

## Education

- **Colorado School of Mines**  
Bachelor of Science: Computer Science, Fall 2014 — Fall 2017  
GPA: 3.56  
**Notable Courses:**
  - Elements of Computing Systems
  - Artificial Intelligence
  - Computer Simulation
- **Colorado School of Mines**  
Master of Science: Computer Science, Spring 2018 - Fall 2018  
**Notable Courses:**
  - Game Theory and Networks

## Technical Skills

- **Programming Languages:** Python, C, C++, Bash, Haskell, Scheme, PHP, JavaScript, Ruby, ...
- **Educational Programming Languages:** Scratch, Snap!, StarLogo, Function Machines
- **Web Frameworks:** TurboGears 2, Bottle, Laravel, WSGI, CGI
- **Database Technologies:** SQLAlchemy, PostgreSQL, MySQL, SQLite
- **Programming Tools:** Git, Vim, GNU Make, Sphinx
- **Documentation Languages:** Markdown, reStructuredText, LaTeX, HTML
- **UI/Graphics Libraries:** GTK+ 3, Tk/Tcl, SFML, Twitter Bootstrap, CSS, ncurses, GNU Readline, GNU History
- **System Administration:** Apache, lighttpd, Postfix, Dovecot, GNU Mailman, Asterisk, Debian/Ubuntu, Linux, FreeBSD, Windows Active Directory, Shibboleth SP

## Positions, Honors, and Awards

### Student Organizations

- [Mines ACM Chapter](#): President: 2016—2017, 2017—2018
- [Mines Linux Users Group](#): President: 2016—2017, 2017—2018
- [Mines ACM-W Chapter](#): Secretary: 2017—2018
- Mozilla Open Source Student Leader ([Mozilla Open Source Student Network](#)): 2017—2018

## Honors and Awards

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- LGS Innovations [C-MAPP](#) Fellow, January 2016
- Metcalf [C-MAPP](#) Fellow, January 2017
- [CS@Mines](#) Faculty Choice Award: For Making [CS@Mines](#) a Better Place, December 2017

## Relevant Experience

- **Steamboat Springs Family Medicine**  
Information Technology, 2009 — present
  - Administration of NT Active Directory, Microsoft Office 365, [Asterisk](#) VoIP System, Practice Partner EHR software
  - Designed internet faxing web application (PHP, Python)
  - Designed concierge [yoga signup web application](#) (Python [Bottle](#)) with Practice Partner integrations
- **Creative Bearings**  
Web Development Intern, Fall 2012 — Spring 2013
  - Designed e-commerce website using PHP
- **Steamboat Networks**  
Founder & CEO, Spring 2013 — present
  - Provider for VoIP systems and service
  - Wrote least cost routing software, VoIP billing software, automated billing system on [Asterisk](#)
- **Camp Inc.**  
Counselor, Summer 2015
  - Counselor for campers in 6th — 9th grade
  - Designed and taught 3D printing course using Google SketchUp
- **Colorado School of Mines**  
Department Assistant, Spring 2016 — present
  - Linux Servers System Administration, Dr. Tracy Camp (Spring 2016 — present)
  - Designed [puzzles](#) and [web application](#) (Python [TurboGears](#)) for [CS@Mines Puzzle Challenge](#) (Summer 2017 — present)
- **Camp Inc. Business Academy**  
Business Specialist, Summer 2016, Spring 2017
  - Designed [introductory programming course](#) using Python and Raspberry Pis
  - Taught coding track to 6th — 12th grade students (Summer 2016)
  - Adapted course using Scratch and Python and taught 4th — 6th grade students (Spring 2017)
- **Colorado School of Mines**  
Teaching Assistant, Fall 2016 — present
  - CSCI-101: Intro to Computer Science: Curriculum development (Summer 2017)
  - CSCI-274: Intro to Linux: Grading assignments, office hours, online help forum (Fall 2016, Spring 2017, Fall 2017)
  - CSCI-400: Principles of Programming Languages: Teaching (Spring 2018)
  - CSCI-423: Computer Simulation: Grading assignments (Fall 2017)
- **Colorado School of Mines**  
Research Assistant, Spring 2017 — present

- [C-START](#), Dr. Cyndi Rader: Designed and piloted 3 new [CS Unplugged](#) activities for use in [UNC Teacher Education Computational Thinking Course](#) (Spring 2017)
- [C-START](#), Dr. Tracy Camp: Designed and led [Python K-12 Professional Development Workshop](#)
- [NEMOS](#), Dr. Dejun Yang: Preventing hot car deaths using old smartphone sensors (Fall 2017, Spring 2018)
- **Xilinx**  
ChipScope Software Intern, Summer 2018
  - Ported [Arch Linux ARM](#) to zcu111 (aarch64-based board)
  - Ported [MicroPython](#) to [MicroBlaze](#) architecture and built abstractions for [PYNQ](#)

## Projects & Open Source Contributions

A more complete list of projects can be found under Hacks on my [personal homepage](#).

Dates next to projects indicate the date a project was started; most of them are always undergoing improvements.

### Web Programming

- **JackFax** (2013): A collaborative internet faxing application written in PHP featuring shared contact directories, automatic cover page generation, and remote scanning via scanners attached to Raspberry Pis.
- **Mozzarella** (2016): A collaborative web system for student computing clubs. Mozzarella powers the [Mines ACM Chapter](#) and [Mines Linux Users Group](#) websites. [Open Source on GitHub](#)
- **CS CONNECT** (2017): Under a team formed by Dr. Cyndi Rader, I helped port the [CS CONNECT](#) web application to the [Laravel 5](#) web framework.
- **ELF Puzzles (Engaging in Learning among Friends)** (2017): A web application for hosting puzzle challenges (such as the [CS@Mines Puzzle Challenge](#)) and archiving historical challenges. [Open Source on GitHub](#)

### Hackathon Projects

- **Parqyng Lots** (2017): Parqyng helps drivers find a parking spot by monitoring counts of cars in parking lots using inexpensive PIR motion sensors, and reporting which lot they should park at on a web application. This project was a part of the [Fall 2017 Xilinx Hackathon](#) and won [first place](#). [Open Source on GitHub](#), [Watch a Video Demo](#)
- **FanMap** (2018): FanMap connects fans of the FC Bayern together by letting them upload selfies to a live world map through an Android app. This project was a part of the [Spring 2018 FC Bayern HackDays](#). [Open Source on GitHub](#)
- **BlockMRS** (2018): BlockMRS is a decentralized medical record storage system using blockchains and IPFS. This project was a part of [MinneHack 2018](#). [Open Source on GitHub](#)

### Simulations

- **Master Mind Strategy & Simulation** (2016): I devise a strategy for playing the Master Mind codebreaker game by playing guesses such so that the set of remaining possible codes is expectationally minimized. I then test my strategy in simulation by playing many rounds. [Play a game against my AI](#)
- **WAR: WAR with Auction Rounds** (2017): WAR is a variant of the card game "War", but players now get to choose their card. This simulation investigates strategies for choosing cards. [Open Source on GitHub](#), [Watch a Video Demo](#), [Presentation](#), [Report](#)
- **Swarm Intelligence DES** (2018): This discrete event simulation investigates distributed algorithms for task division and selection in swarm robotics. [Open Source on GitHub](#)

### Programming Languages (Design & Implementation)

- **TRI** (2015): TRI is an interpreted imperative programming language I designed for a final project in a course.
- **Suicide** (2016): Suicide is a esoteric programming language giving the programmer the ability to (recursively) start a new thread of the application as the only means of iteration. [Open Source on GitHub](#)

- **Elephant Stack** (2017): A concatenative (Forth-like) programming language with dynamic scoping. [Open Source on GitHub](#)
- **SlytherLisp** (2018): SlytherLisp is not only a programming language, but a course project for my CSCI-400 course. Students learn the fundamentals of parsing and interpreting a lexically-scoped programming language with tail-call optimization thru writing an interpreter for a Scheme-like programming language in Python. [Starter Code on GitHub](#), [Assignment Description](#), instructor resources (including reference implementation) available upon request.