# Nathan Lilienthal

# nathan@nixpulvis.com o https://nixpulvis.com o +1-202-701-4368

Summary: I'm a flexible programmer with a focus on efficiency, user experiance, and writing solid, maintainable code. I have 6+ years of experiance working in a variety of environments, from small scale companies, to fortune 500 companies. I'm happy to work either in an office, remote, or a hybrid schedule.

Languages: Rust, Java, Ruby, C/C++, LUA, Racket, Shell. Java/Typescript, Python, and more... Systems: UNIX, Linux, Git + Hub/Lab, Rails, Heroku, Postgres (PostGIS), SQLite, AVR/ARM, WoW (ask me about it).

# Experience

• alacritty, a Rust Terminal Emulator Contributor

- Lead various efforts to improve the core application's user experience
- Discovered a bug in ncurses which impacted not just Alacritty, but many other terminal emulators as well
- Provide support on GitHub issues to many users of this somewhat popular project
- Collaborate with the other project members by providing code review or time in IRC discussing features and bugs
- galos An Elite: Dangerous Database and Mapping Tool https://github.com/nixpulvis/galos Solo Developer
  - Built a ZeroMQ subscriber which syncs game events with a custom PostGIS database
  - Built a 3D star map using the Bevy game engine which updates in real-time
  - Developed various search and routing tools for making specific queries to the database
- Action Inc.

Software Developer

- Profiled and optimized core platform routines, as well as contributed to broader efforts to design new architecture for efficiently running our large analytic jobs
- Developed a standalone Java tool to assist with templated spreadsheet population for science team deliverables
- Worked on-call for production issues ranging from identifying user-error, workarounds, and long term solutions.

### • Northeastern University

Research Programmer, Intelligence Advanced Research Projects Activity, HECTOR

- Collaboratively developed a hybrid-mode secure programming language design for multi-party computation (MPC)
- Represented my team at both remote and in-person technical exchange meetings with other researchers
- Built a prototype implementation of our language, which is forked from the Rust programming language
- Began a formalism for our language(s), which will include sound typing rules, and reductions

### Forward Financing Inc.

Sr. Software Engineer

- Developed a client wrapper library for an Algolia search implementation
- Quickly performed various application performance improvements, making use of Scout APM and other tools
- Planned architecture refactoring, including object model improvements and a new data permissions system
- Led efforts to create an orchestration CLI for managing a complex Heroku + Salesforce microservice system
- Mentored co-op university students by providing deep code reviews and pair programming

# • HOMER Energy

Software Developer, Summer Intern

- Built API integrations for the HOMER C# application, including REST and CSV file APIs which involved a general refactoring of the code which imports data, complete with added tests
- Developed an internal tool to view the Google Protocol Buffer used to pass values between all parts of the application allowing developers to quickly see inputs and outputs
- Created a web-based frontend for HOMER in Rails, which served at the starting point for another version and provided a proof of concept for how to integrate the HOMER API with a webserver

2017 - Current

2019 - Current

Boston, MA

Aug.  $2019 \sim May \ 2021$ 

May 2018 - Aug. 2019

Remote / Boston, MA Nov. 2021 - Sept. 2022

https://github.com/alacritty/alacritty

Boston, MA

Boulder, CO

Summer 2012, Jul. 2017 - Nov. 2017

#### • Apple Inc.

Software Engineer – Full-time Coop & Full-time

- Built a Ruby library (radic) and CLI (radish) for interacting with Apple's bug management system (aka Radar)
- Participated in a cross-functional web design work group to help create common components for the hardware teams - Contributed to an internal tool for managing hardware validation, inspired in part by Travis CI
- Contributed to an internal tool for analysing large amounts of pre-production device test data

### Americas Test Kitchen

Web Developer - Full-time Coop

- Pushed code to the frontend and backend for all four Americas Test Kitchen websites, including bug fixes and technical infrastructure upgrades
- Built modularized components to abstract functionalities found common throughout the company's codebase

### Bluesocket - Adtran

Software Developer – Full-time Coop

- Developed an automated build system, which reduced turnaround time by allowing anyone to easily run a build
- Addressed user reported issues in Ruby/Rails and LUA, including hardening validations and updating database migrations for old versions of the software
- Designed a class/model structure for users and accesspoints, which allowed the backend to represent clients of individual accesspoints

# **Education & Projects**

Northeastern University

College of Computer and Information Science Bachelor of Science in Computer Science

- Relevant Courses: Programming Languages, Special Topics in Programming Languages, Compilers, GPU Programming & Architecture, Systems and Networks, Computer Organization, Software Development (aka HELL), Theory of Computation, Algorithms and Data Structures, Fundamentals of Computer Science 1 & 2, Object Oriented Design, Artificial Intelligence, Logic and Computation, Combinatorics.
- Clubs & Extracurriculars: Association for Computing Machinery, NU Hacks, Hack Beanpot.

Teaching Assistant, Fundamentals of Computer Science 1

- Conducted short lectures before each lab and then lead the lab's students and tutors in the weekly assignments
- Discovered new ways to present concepts that facilitated student understanding
- Assisted students at established office hours and online
- Participated and lead course administrative tasks, including grading, meta-grading, testing, rubric development, and weekly teaching staff meetings

Independent Study

A Heterogeneous System Simulator

- Investigated caching protocols, including MOSI and MOESI, along with our own data dependency analysis
- Developed needed base classes for use with the LLVM to Southern Islands backend
- Fixed a register release bug in the OpenCL to LLVM pipeline

### • Other Projects

- oursh, a multi-language shell which aims to be POSIX compatible, written in Rust
- lalrpop-lambda, parser and reductions for the lambda calculus with a minimal webapp
- parser-combinator, a Racket implementation of a recursive descent parser, used by students for a JSON lab
- nrf24101, basic working AVR firmware for the Nordic Semiconductor's nRF24L01+ radio transceiver
- maze\_gl, a small maze generation and first person OpenGL game

Fall of 2012, 2013, 2014, and 2015

http://www.multi2sim.org

https://github.com/nixpulvis

# **Burlington**, MA Jan. 2013 – June 2013

Boston, MA

Jan. 2014 - June 2014

Boston, MA 2011 - 2016

Spring 2014

Jan. 2015 - Aug. 2015, Jul. 2016 - Jul. 2017