

# Ziyi Lu

## Software Engineer

*(Full-stack, front-end, back-end, any end)*

## & Architecture Engineer

*\* Please click on links on this page for code or context*

Berkeley, CA 94720

T: +1 510-495-7161

@: [lzy-1006@berkeley.edu](mailto:lzy-1006@berkeley.edu)

**GitHub** *(small projects):*

[github.com/lzy-1006/](https://github.com/lzy-1006/)

**BitBucket** *(big projects):*

[bitbucket.org/lzy-1006/](https://bitbucket.org/lzy-1006/)

**Education** 2017–8 – 2021–5: **Computer Science BA & Astrophysics BA**, UC Berkeley

GPA: **3.768** / out of 4.0

**CS-related Coursework:** Software Engineering, AI, Computer Architecture, Algorithms, Computer Security, Machine Structures, Data Structures, Informational Systems, ...

### Skills

**Fluent:** git & Agile team development, Python & NumPy, Matplotlib, Conda, C

**Experienced:** Java, SQL, SaaS web apps (Ruby on Rails framework), Object-Oriented Programming (OOP), Test-Driven Development (RSpec & Cucumber), Continuous Integration (Travis), cloud apps (Heroku), RISC-V assembly coding & architecture

**Learnt in days & used on month(s)-long projects:**

Golang, SciKit-Learn (Machine Learning), x86 & AVX, HAML & HTML, OpenMP

**Learnt (quickly) in the future:** the rest

### Recent Projects

Snap!Con, legacy website improvement in an **Agile** team of 5, non-profit work

**Ruby on Rails** framework. TDD-CI workflow with Rspec & Cucumber. For college credit.

Secure file sharing micro-service on a hostile storage, class project

**Designed & implemented** a **Golang** end-to-end encrypted file sharing micro-service in a team of 2, interfacing with given cleartext storage & cryptography APIs.

Web apps, class projects

Implemented front-ends for various **Ruby on Rails** web apps following the Model-View-Controller (MVC) paradigm, e.g., a Hangman game and a data-driven film database.

\* As of Feb 2021, the Hangman game is broken, because now the external random word generator it uses always returns a blank String ""

Optimised maths module, class project

Implemented a **C** maths module & optimised it to achieve ~7x performance, using various techniques including **x86-AVX** vector instructions & **OpenMP** multi-processing.

Data-path implementation of an RISC-V CPU, class project

Implemented & created tests for a standard 5-stage pipelined RISC-V design in Logisim.

**Research** 2019–5 – 2019–8: Cell-based Monte-carlo Galactic H-alpha/beta Line Radiative Transfer Simulation in an Octree Data Structure

Supervised by Dr Xiangcheng Ma, building on his legacy code to include new physics. Cell-based numerical simulator code in **C**, data processing & visualisation in **Python**.

**Work experience** 2020–8 – 2020–12: **Undergrad Student Instructor** for Astro 120 Lab