

# James Thompson

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🖱 james-e-thompson.github.io

## Experience

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2023/10 – 2023/12

### Co-Creator, Software Engineer

*Laridae* (<https://laridae-migrations.github.io/>) [↗](#)

Laridae is an open-source tool offering reversible, zero-downtime schema migrations for PostgreSQL

- Utilized PostgreSQL views, triggers, and connection control functions to allow multiple application versions expecting different schemas to simultaneously use the same database.
- Worked strategically with PostgreSQL's concurrency control to avoid application downtime during migrations.
- Provided integration of schema migration functionality into CI/CD pipelines on GitHub Actions for AWS Fargate Deployments.
- Load tested application by performing migrations on databases of up to 10 million rows with simulated traffic.
- Collaborated with a remote team of 3 engineers across the US.
- Authored comprehensive technical case study, available at <https://laridae-migrations.github.io/#case-study>. [↗](#)

2022/12 – 2023/10

### Software Engineer

*Self-employed*

Developed open-source software with technologies such as React, Express, Node.js, Ruby, PostgreSQL, Docker, HTML, CSS, and more, e.g.

- Packet Pond: a real-time webhook debugging tool with custom endpoints (DO Droplet, Nginx, MongoDB, Node.js, Express, React)
- Chatterbox: a web forum (Ruby, Sinatra, ERB, SQL, PostgreSQL)

## Projects

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### Ramanujan's Theorem, CA numbers, and the Riemann Hypothesis

- Wrote C++ and Python code for a computational number theory research project with a professional mathematician.
- Performed computations on colossally abundant numbers of size up to  $10^{(10^8)}$ .
- Learned and utilized a C++ library for arbitrary precision interval arithmetic.
- Modified an existing algorithm for computing colossally abundant numbers to improve its efficiency.
- Co-authored a forthcoming paper describing our code and results.

## Skills

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### Back-end

Node.js, Express, Ruby, Go, Python, C++, PostgreSQL, MongoDB, REST APIs

### Front-end

JavaScript, TypeScript, HTML, CSS, React/Redux, jQuery

### Other

Git/GitHub, Docker, Nginx, Amazon Web Services, Object Oriented Programming, Linux, Bash

## Education

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2019/08 – 2023/05


### Bachelor of Science, Mathematics and Bachelor of Arts, Linguistics

*University of North Carolina at Chapel Hill*

- Graduated with highest honors and a 3.978 GPA.
- Completed multiple graduate level courses in mathematics.

2022/12 – 2023/01

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