

# Jonas Groening

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## EDUCATION

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### University of Michigan, Ann Arbor

August 2022 - May 2026

*B.S.E, Computer Science*

**GPA:** 4.00/4.00 | **Activities:** V1, UM Autonomous Robotic Vehicle, Michigan Hackers

**Coursework:** Data Structures & Algorithms, Distributed Systems, Web Systems, Computer Architecture, Analysis of Algorithms, Linear Algebra, Discrete Math

## SKILLS

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**Languages:** Python, Go, C++, TypeScript, JavaScript, SQL

**Technologies:** Linux, Git, Docker, Terraform, Kubernetes, FFmpeg, Django, Flask, NextJS, GraphQL

**Interests:** Soccer, Personal Finance, Hiking, Cats, Lifting

## EXPERIENCE

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### Courier Health

September 2024 – November 2024

*Software Engineer Intern - Data Platform*

*New York City, NY*

- Implemented batching for the data ingestion pipeline by chaining AWS Lambda calls in topological order, reducing error/timeout rate to  $< 0.1\%$ , reducing PostgreSQL IO spikes, and increasing maximum throughput by 15x.
- Engineered a pipeline metrics system using TypeScript, tracking completion time, success rate, data integrity, etc. in PostgreSQL and wrote 100% coverage Jest tests to ensure reliability.
- Deployed a GraphQL API as an AWS Lambda for metrics retrieval and visualized using React, providing critical pipeline observability and diagnostics, bringing failure investigation time from 10+ minutes down to  $< 60$  seconds.

### Vectra AI

May 2024 – August 2024

*Software Engineer Intern - Distributed Compute*

*Austin, TX*

- Piloted scalable event-driven architecture for high workload tasks with Python and Celery, cutting AWS costs by 25%, halving CPU and memory allocation, and eliminating the need for 13 Kubernetes cronjob deployments.
- Minimized concurrent Celery broker and backend connections by optimizing pool sizes, lowering memory footprint by 34% for Redis, 10% for MariaDB, and driving down cloud compute costs.
- Leveraged Terraform to orchestrate S3 Access Point integrations and visualized time-series bucket usage data through Grafana, providing process-level cost observability and identifying areas for expense reduction.

### CriTech Research

May 2023 – August 2023

*Software Engineer Intern - Analytics Engine*

*Saline, MI*

- Shipped redesigned endpoints for a medical patient portal using C# and .NET Core, removing unnecessary MySQL queries and accommodating a 10% growth in compliance data requests.
- Optimized API reliability by adding 100% coverage tests (unit, integration, blackbox) to a CI pipeline, saving  $\sim 2$  hours of manual testing weekly and providing high service availability.

## PROJECTS

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### Beehive | C++, FFmpeg, Multithreading | [Source Code](#)

- Engineered a cross-platform screen recording and streaming tool using C++, leveraging FFmpeg to encode and push video to an RTSP server in real-time (60+ frames per second) or write to disk in multiple formats.

### quarry.video | NextJS, Python, Django, Go, Terraform, MongoDB | [Visit](#)

- Architected a full-stack app with NextJS, MongoDB, and Prisma, providing a robust in-browser interface for short-form content generation, video editing, and data visualization.
- Leveraged Python to build a reliable FFmpeg wrapper for the video processing pipeline, built with Django.
- Authored and deployed a centralized logging service using Go, allowing the team to find and track anomalies.

### Distributed Filesystem | Go, Networking, Concurrency, Read-write locks | [GitHub](#)

- Built a distributed concurrent network filesystem, utilizing read-write locks for maximum efficiency, RPC calls to enable network communication with clients, and UDP sockets for automatic discovery.