Jonas Groening

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Education

University of Michigan, Ann Arbor — Graduating May 2026
B.S.E, Computer Science — *Ann Arbor, MI*
GPA: 4.00/4.00 | **Activities**: V1, UM Autonomous Robotic Vehicle
Coursework: Data Structures & Algorithms, Data Driven Systems, Theory of Computation, Discrete Math, Linear Algebra

Experience

Courier Health — September 2024
Incoming Software Engineer Intern — *New York City, NY*

Vectra AI — May 2024 – August 2024
Software Engineer Intern — *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 AWS Elasticache (Redis), 10% for AWS RDS (MariaDB), and driving down cloud compute costs.
- Leveraged Terraform to orchestrate AWS 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 — *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.
- Collaborated with Senior Engineers to migrate backend infrastructure to Azure App Services, Blob Storage, and MySQL Database using Terraform, cutting hosting costs significantly and improving app uptime to 99.999%.

UM Autonomous Robotic Vehicle — September 2022 – May 2023
Software Engineer - Sensors — *Ann Arbor, MI*

- Deployed temporal, jitter, and transformative filters for an IMU sensor in C++ and Python to clean inputs for a SLAM (simultaneous location and mapping) algorithm, reducing noisy data by 40%.
- Implemented a robust Python logging system using Pub/Sub architecture to monitor robot metrics in real-time and alert engineers of potential errors, resulting in a diagnosis of malfunctioning sensors.
- Led architectural design reviews and communicated decisions across teams to ensure system reliability.

Projects

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.

Beehive | *C++, FFmpeg, Multithreading* | GitHub

- Engineered a cross-platform screen recording and streaming tool using C++, leveraging FFmpeg to encode and push video to an RTP 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.

Skills

Languages: Python, C++, Go, JavaScript, TypeScript, Rust, SQL, C#
Technologies: Git, Linux, Docker, Django, Flask, NextJS, MySQL, MongoDB, Terraform, Postman, Makefile
Interests: Soccer, Hiking, Cats, Investing, Video Games