Jonas Groening

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Education

University of Michigan Graduating May 2026
B.S.E, Computer Science *Ann Arbor, MI*

GPA: 4.00/4.00 | **Activities**: V1, UM Autonomous Robotic Vehicle, Michigan Hackers
Coursework: Data Structures & Algorithms, Data Driven Systems, Theory of Computation, Discrete Math, Linear Algebra
Fellowships: Susquehanna International Group, LLP (SIG) Discovery Day - Technology

Technical Skills

Languages: Python, C++, Go, Typescript, Rust
Technologies: Git, Linux, Docker, Django, Flask, NextJS, MySQL, MongoDB, Terraform, Postman, Makefile

Experience

Vectra AI May 2024 – Present
Software Engineer Intern *Austin, TX*

- Leverage **Terraform** to orchestrate AWS S3 Access Point integrations and visualize time-series bucket usage data through **Grafana**, providing process-level cost observability and identifying areas for expense reduction.
- Pilot scalable event-driven architecture for the notification system with **Python** and **Celery**, improving fault tolerance and eliminating intermediate batch jobs, database tables, and latency.

CriTech Research May 2023 – August 2023
Software Engineer Intern *Saline, MI*

- Shipped redesigned endpoints for a medical patient portal using **Python** and **Flask**, 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 ∼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 99.9+%.

UM Autonomous Robotic Vehicle September 2023 – Present
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 with other teams to ensure system reliability.

Projects

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** and **Django** to build a reliable FFmpeg wrapper for the video processing pipeline.
- Authored and deployed a centralized logging service using **Go**, allowing the team to find and track anomalies.
- Automated deployment through a CI/CD pipeline built with **Terraform**, **Docker**, and GitHub Actions, reducing manual testing and allowing features to reach production quicker.

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.

Embedchain | *Python, ChromaDB, PyTest* | GitHub

- Shipped **Python** features to create and reset multiple AI "brains" using **ChromaDB** collections.
- Integrated extensive unit and end-to-end tests with **PyTest** for each feature. Iteratively improved code through maintainer feedback.