Jonas Groening

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Education

University of Michigan Graduating May 2026
B.S.E, Computer Science *Ann Arbor, MI*
GPA: 4.00 | **Activities**: UM Autonomous Robotic Vehicle, V1 @ Michigan, Michigan Hackers
Coursework: Data Structures & Algorithms, Advanced Algorithms, Database Management Systems, Computer Architecture, Foundations of Computer Science

Technical Skills

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

Experience

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

UM Autonomous Robotic Vehicle August 2023 – May 2024
Software Engineer *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.

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

- Shipped 3 redesigned endpoints for a medical patient portal using **C#** and **.NET**, reducing unnecessary **MySQL** queries and accommodating a 12% growth in interactions.
- Engineered a **Python Flask** API to receive and process ECG scans, generating PDF reports and compliance data for seamless viewing by medical professionals and patients.
- 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 availability.
- Collaborated with Principal Engineers to migrate backend infrastructure to **Azure** App Services, Blob Storage, and MySQL Database using **Terraform**, cutting service costs by $50k/year.

Projects

quarry.video | Visit

- Architected a full-stack tool with **Next.js**, providing a robust in-browser interface for short-form content generation, video editing, and data visualization.
- Pioneered a custom ORM adapter for **MongoDB** that improved session data retrieval times by over 5 seconds.
- Leveraged **Python**, **Django**, and **RabbitMQ** to build a task queue system for the video processing pipeline.
- Authored and deployed a centralized API logging service using **Go** and **Typescript**, allowing the team to find anomalies more frequently.
- Automated deployment through a CI/CD pipeline built with **Terraform**, **Docker**, and GitHub Actions, reducing manual testing and allowing features to reach production quicker.

Embedchain | *Open Source Contributor* | GitHub

- Shipped **Python** features to create multiple AI "brains" using **ChromaDB** collections and ergonomically reset brains. Integrated extensive unit and end-to-end tests with **PyTest** for each feature.
- Extended app functionality using **TypeScript** by adding runtime flags for custom model and database options.

ZipNotes | Visit

- Engineered a locally stored notes app in **Rust** through the **Yew** framework, using **Nginx** as a static web server.
- Wrote a comprehensive **Dockerfile** to containerize the application, allowing for easy deployment. Files are built with a Rust image, then copied into a slimmer Nginx image for minimal image size.