Jonas Groening

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Education

University of Michigan, Ann Arbor August 2022 - May 2026

B.S.E, Computer Science

GPA: 3.99/4.00 | **Activities**: V1, UM Autonomous Robotic Vehicle

Coursework: Data Structures & Algorithms, Data Driven Systems, Analysis of Algorithms, Discrete Math, Linear Algebra

Skills

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

Technologies: Linux, Redis, MariaDB, PostgreSQL, MongoDB, Django, Flask, NextJS, GraphQL

Tools: Git, Docker, Terraform, Kubernetes, FFmpeg

Experience

Courier Health September 2024 – Present

Software Engineer Intern - Data Ingestion *New York City, NY*

- Implement batching and parallelization for the data ingestion pipeline, reducing error/timeout rate to $< 0.1\%$.
- Engineer a metrics system using TypeScript, tracking completion time, success rate, data integrity, etc. of the pipeline in PostgreSQL and write 100% coverage Jest tests to ensure reliability.
- Deploy a GraphQL API as an AWS Lambda for metrics retrieval and visualize 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 - Detections Platform *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 Backend *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.

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

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.