

# Akash Mohan

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## EDUCATION

### University of Wisconsin-Madison

B.S. in Computer Science, B.S. in Data Science | GPA: 3.61

Madison, WI

Expected May 2026

- **Relevant Coursework:** Advanced Data Structures & Object Oriented Programming, Algorithms, Operating Systems, Machine Learning, Data Modeling & Visualization, Database Systems

## EXPERIENCE

### Software Engineer Intern

Quasar

October 2025 – Present

San Diego, CA

- Built a real-time EEG streaming pipeline using LSL and multiprocessing, reliably ingesting & synchronizing 250 Hz hardware signals with zero sample loss and **sub-10ms processing latency**.
- Developed a real-time blink-pattern detector using a 3-second rolling window, derivative-based peak detection, and waveform-symmetry analysis to accurately identify intentional blink bursts under noisy EEG signals.
- Collaborated with neuroscientists in a fast-paced Agile team to design, test, and refine responsive EEG interaction loops.

### Software Engineer Intern

LawBandit

September 2025 – Present

Madison, WI

- Delivered LLM-powered PDF navigation and interactive flowchart visualization using TypeScript and React Flow, implementing **batch-processing** pipelines that cut document parsing time by **45%**.
- Architected an automated syllabus-ingestion pipeline using AWS Lambda, Textract, and S3, asynchronously processing multi-page PDFs with **sub-second per-page latency**.
- Selected from **2,500+ submissions** in a competitive coding challenge to build legal education tools for **3,000+ students**.

### Software & Data Engineer Intern

Caterpillar

May 2024 – December 2024

Peoria, IL

- Engineered a full-stack rental app prototype (Flask, Next.js) with AWS SES email workflows and geolocation mapping; load-tested APIs to handle **1,500+** concurrent users with **sub-400ms latency**.
- Enhanced Tableau dashboards for **800+** daily users by integrating Python (TabPy) scripts, automating refresh pipelines and reducing manual interventions by **30%**.
- Refactored Alteryx workflows and Snowflake migration scripts, cutting data transfer times by **12%** and improving pipeline throughput.

### Data Engineering Intern

Skills for Chicago

May 2023 – August 2023

Chicago, IL

- Automated updates for **10,000+** client records via Selenium, Pandas, and PostgreSQL; implemented a no-code scheduling solution (Zapier) to cut manual work by **80%**.
- Built a geocoding + commute-distance microservice (PyXLL, Nominatim) for internal datasets, achieving **96%** location-matching accuracy and powering retention rate analytics.
- Conducted research on unemployment and labor market trends across 5 major cities in Illinois; Analyzed **50+** reports and datasets to drive business decisions regarding regional disparities.

## PROJECTS

### codebaser | Tree-sitter, Chroma, AWS S3, OpenAI, TypeScript, PostgreSQL, Docker | [codebaser.app](#)

- Built a developer assistant for rapid codebase onboarding via AST-based chunking, GPT-4.1 summarization, semantic code search, and an S3-backed upload system; processed **15K+ lines** across user and open-source repos.
- Optimized a parallelized Tree-sitter pipeline to extract and chunk function-level code, achieving a **5x** speedup across Python, Java, JavaScript, TypeScript, and Go.

### GeoSynth | TypeScript, LangChain, Celery, PostgreSQL, FastAPI, Redis, Mapbox | [geosynth.app](#)

- Launched a global crisis-analysis platform with LLM summarization, semantic clustering, and spatial search across **12,000+** reports from **150+** countries, visualized on an interactive Mapbox heatmap globe.
- Designed an asynchronous ETL pipeline (Celery, Redis) to process new reports **every 3 hours**, extract structured metadata, and spatially index events in PostGIS for real-time mapping.

### OSMatch | Spring Boot, FastAPI, Redis, MySQL, GraphQL, Scikit-learn, Next.js, Tailwind CSS | [osmatch.app](#)

- Built a personalized open-source issue recommender that adapts to user preferences using TF-IDF vectors and real-time swipe-based feedback across **18 programming languages**.
- Leveraged Redis to track swipes, de-duplicate **100,000+** GitHub issues, and trigger periodic updates via a cron-based GraphQL ingestion pipeline with **sub-1s fetch latency**.

## TECHNICAL SKILLS

**Languages:** Python, Java, TypeScript, JavaScript, C, SQL, Kotlin, Bash, R, HTML/CSS

**Web/App Development:** Docker, Redis, React.js, Next.js, Spring Boot, FastAPI, Node.js, Express.js, React Native, Flask

**Machine Learning & AI:** Scikit-Learn, PyTorch, LangChain, Pandas, NumPy, OpenAI, Chroma, Tree-sitter

**Tools & Platforms:** Git, AWS (S3, Lambda, SES), PostgreSQL, MySQL, MongoDB, SQLite, CI/CD, GraphQL, Celery, Linux, GCP, JWT, Supabase, Zustand, Firebase, Cron Jobs, FFmpeg, Locust