

Akash Gogate

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Education

University of Wisconsin-Madison

Graduating May 2028

Bachelor of Science in Computer Science & Biology — Dean's List Fall 2024, Spring 2025, Fall 2025 — 3.8 GPA

Technical Skills

Languages: Java, Python, Rust, TypeScript, C++, R, SQL, Linux, Bash

Systems & Tools: PyTorch, Scikit-learn, Kafka, Docker, Kubernetes, MongoDB, DuckDB, FastAPI, REST APIs, Neo4j

Experience

Leidos

May 2026 – August 2026

Software Engineer Intern

- Architected **DuckDB+Redis** LLM natural-language query layer at <1s over 10 airbases & **1,000+** aircraft tails.
- Built **Neo4j** knowledge graph & **MCP** plugin: **300–500** nodes, **1,000–2,500** edges for **30-engineer** onboarding.
- Developed solo **ATAK** plugin, offline **whisper.cpp** speech recognition at **100%** marker accuracy & ~5% word error.
- Extended **MongoDB**-backed REST query API with 5 backward-compatible filters: ID, callsign, type, time & bounds.
- Engineered **GitLab CI/CD** jobs validating data contracts across **MongoDB**, **AWS S3**, **CDN**, **Istio** & **Kafka**.

Software Engineer Intern

May 2025 – Aug 2025

- Engineered **Kafka+MongoDB** pipeline over 9 sources at thousands of events/sec with dead-letter queue recovery.
- Eliminated **200+** conflicts per cycle across **1,000+** satellites via multi-objective dynamic programming in Rust.
- Wrote ~100 unit & integration tests across 5 components per run via **Docker**, **Kubernetes** & **GitHub Actions**.

The Kendzierski Lab at UW-Madison

Sep 2025 – Present

Machine Learning Research Intern

- Reduced single-cell genomics runtime **80→27 min** via **PyTorch** DataLoader optimization across 4 architectures.
- Cut manual literature review ~60% for a 10-person lab via NLP validity classification across ~500 curated papers.
- Analyzed convergence via **Weights & Biases** across 4 architectures, profiling GPU cost per reproducible run.
- Deployed agentic model selection framework tuning architecture & hyperparameter configs for new datasets.

Inspirit AI Research Internship

Sep 2022 – Mar 2023

Machine Learning Research Intern

- Achieved **95%** skin cancer accuracy via **Decision Tree** on **70K** dermoscopic images using **scikit-learn**.
- Trained **Random Forest** on miRNA sequences achieving **95%** accuracy ($p < 0.05$) via stratified k-fold CV in R.

Projects

Self-Improving LLM Agent | [Github Link](#)

Jan 2026 – May 2026

- Built memory agent recalling past failures, lifting accuracy **75%→90%** over Reasoning & Acting on **5,000+** tasks.
- Implemented unified LLM serving layer across **Claude**, **Grok**, **Llama** & **Qwen** with **GitHub Actions** CI.
- Developed LLM-as-judge harness scoring 7 quality dimensions with failure-rate convergence across **5,000+** tasks.

Lotus Health | [Github Link](#)

March 2026

- Designed diagnosis-code risk engine on a **1,080-node** comorbidity graph over **45M** CMS/MEPS claims records.
- Delivered hybrid **Groq Llama** / Python diagnosis-code scoring, isolating the LLM to symptom mapping.
- Integrated **Deepgram** voice pipeline for spoken diagnosis-code scoring over **45M** federal CMS/MEPS claims records.

LLM-Based SAT Practice Test Generator | [Github Link](#)

Jun 2024

- Deployed full-stack SAT prep app in **TypeScript** & **FastAPI** with **GPT-4o** adaptive question generation & scoring.
- Defined REST API in **FastAPI** serving 75 cached SAT questions across 3 sections by user performance history.

Ecological Conservation Game | [Github Link](#)

Jan 2024

- Engineered C++ simulation in **Raylib** sustaining **60+ FPS** across **10,000+** agents via $O(N)$ spatial hashing.
- Created multi-generational **4-species** evolution across **10,000+** agents via stochastic fitness mutation.
- Developed multi-generational evolution across 4 species yielding 2 hybrids from inherited speed & size traits.

Leadership

Tech Exploration Lab: Spatial Intelligence Ideathon

July 2026

- Won **2nd place** designing **AR** airport wayfinding to locate wheelchair passengers between gates within **1 meter**.
- Led **2-person** team pitching two products off one platform: an airline staff tool & a family companion app.

Princeton Racket Club

May 2024 – Aug 2024

Tennis Coach & Tournament Director

- Directed 8 regional tournaments at **380+** match entries with 100% on-time rate as dual director & head coach.
- Coached **8–10** athletes per class in 3 cohorts, advancing 3 juniors **150+** ranking pts & 5 adults **0.5 rating levels**.

Tennis Racket Stringing Services

Jan 2019 – Present

Founder & Owner

- Founded racket stringing business scaling to **45+** clients via team referrals, servicing **12–20** rackets/month.
- Maintained **3-4 day** standard & **2-day** premium turnaround across **12–20** rackets/month for competitive athletes.