Akash Gogate

Princeton, NJ ● 609-751-2597 ● akash.gogate@gmail.com ● agogate@wisc.edu ● linkedin.com/in/akash-gogate-71bb81297 ● github.com/AkashGogate

EDUCATION

University of Wisconsin-Madison *Graduating May 2028*

Bachelor of Science in Computer Science and Biology | Dean's List Fall 2024, Spring 2025, Fall 2025 | 3.9 GPA

Coursework: Artificial Intelligence, Deep Learning, Cryptography, Advanced Algorithms, Data Structures, Linear Algebra, AP Statistics, AP Biology, Computer Science Capstone, AP Computer Science A

TECHNOLOGIES

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

AI & ML: PyTorch, TensorFlow, Scikit-learn, Hugging Face, LLM APIs, RAG, GPT-4o, CUDA, NumPy, Pandas, OpenCV, Weights & Biases, Experiment Tracking

Systems & Data: Kafka, Kubernetes, Docker, MongoDB, PostgreSQL, DuckDB, Redis, FastAPI, REST APIs, CI/CD, GitHub Actions, Distributed Systems

Domain: ICD-10, HL7/FHIR, HIPAA, scRNA-seq, Bioinformatics, Financial Data Pipelines, Statistical Modeling, Population Health, Computational Biology

EXPERIENCE

Leidos *May 2025 - Present*

Software Engineer Intern

- Reduced **hundreds of satellite scheduling conflicts** per cycle via memoization + dynamic programming; optimized scheduling throughput under real-time operational constraints
- Engineered Neo4j knowledge graph + MCP plugin serving **30 engineers**; automated architecture Q&A, onboarding docs, and knowledge-graph search
- Engineered fault-tolerant Kafka+MongoDB pipeline; **zero data loss** via at-least-once delivery + dead-letter queue recovery
- Engineered DuckDB + Redis + LLM query interface translating natural language to SQL; **<1s** response for high-throughput fleet readiness analytics
- Delivered **~95% unit + integration test coverage** across **5** components via pytest, Docker, Kubernetes, GitHub Actions CI/ CD

The Kendziorski Lab at UW-Madison *Sep 2025 - Present*

Machine Learning Research Intern

- Reduced scRNA-seq ML pipeline GPU runtime **80→27 min** via DataLoader batching + memory layout optimization with W&B tracking
- Engineered TransferAgent automating clinical NLP literature synthesis; **cut review time 60%** for **10**-person genomics research team
- Validated benchmarks for Nature Bioinformatics co-authorship; **reproducibility confirmed** across **3** model architectures

Inspirit AI Research Internship *Sep 2022 - Mar 2023*

Machine Learning Research Intern

- Built medical imaging pipeline achieving **95% skin cancer classification accuracy**; first-author peer-reviewed publication
- Trained Random Forest on miRNA sequences achieving **95% accuracy ($p < 0.05$)**; stratified k-fold cross-validation in R
- Analyzed top-ranked miRNA cancer biomarker signatures across **10,000+ Scripps samples**; enrichment pathway analysis and feature importance in R

TECHNICAL PROJECTS

Self-Improving LLM Agent (https://github.com/AkashGogate/SelfImprovingLLMAgent) *Jan 2026 - May 2026*

- Architected failure-driven LLM self-improvement loop **outperforming ReAct by 15pp** across **5,000+** tasks; novel repeated_failure_rate metric, LLM-as-judge harness
- Delivered provider-agnostic LLM serving across **4 API providers**; GitHub Actions CI/ CD automated benchmarking pipeline

Lotus Health (https://github.com/AkashGogate/lotus-health) *March 2026*

- Built probabilistic risk engine on **1,080-node ICD-10 graph** across **45M** population health records; **ACID-compliant, hallucination-free** outputs
- Integrated Deepgram voice API + Groq Llama RAG pipeline; **<1s** voice-to-ICD-**10** risk scoring

LLM-Based SAT Practice Test Generator (https://github.com/AkashGogate/SATPracticeTestGenerator) *Jun 2024*

- Built full-stack SAT prep app (TypeScript + React.js + FastAPI); integrated **GPT-4o adaptive generation** with session state and configurable scoring
- Delivered adaptive question selection across **4 SAT sections**; real-time scoring + difficulty targeting for personalized adaptive learning

USTA Tournament Explorer (https://github.com/AkashGogate/myUSTA) *Jun 2022*

- Built Android app in Java consuming USTA GraphQL API; surfaces draw brackets, match scheduling, and event filtering end-to-end
- Implemented real-time draw bracket visualization + reactive bracket filtering via Android SDK as sole developer

Ecological Conservation Game (https://github.com/AkashGogate/EcologicalConservationBots) *Jan 2024*

- Engineered **multi-threaded C++ simulation** with **10,000+** agents at **60+** FPS; O(N) spatial hashing + emergent behaviors
- Implemented stochastic mutation + multi-generational trait inheritance; evolutionary population dynamics across **5** species

PUBLICATIONS

"Early Skin Cancer Detection Improvement," Inspirit AI Research Program, 2023

LEADERSHIP

Princeton Racket Club *May 2024 - Aug 2024*

Tennis Coach and Tournament Director

- Directed tournament logistics, scheduling, and player registration; coached athletes across skill levels; managed all client communications and conflict resolution

Tennis Racket Stringing Services *Jan 2019 - Present*

- Founded and scaled to **45+** clients over **7 years**; manage all operations, inventory, and client consultations

TEL: Spatial Intelligence Ideathon *July 2026*

- Earned **2nd place** at TEL: Spatial Intelligence Ideathon competing among **50+** teams; designed sub-meter indoor localization + AR airport accessibility platform for wheelchair navigation