Hrishikesh Uchake

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EDUCATION

Iowa State University (College of Liberal Arts and Sciences) **Ames, IA**
M.Sc in Artificial Intelligence *Expected Graduation: May 2027*
Cumulative GPA: 3.82 / 4.00
Coursework: Principles of AI, Distributed Systems, Cloud Security, Machine Learning, Risk Management in Data Driven Discovery.

Iowa State University (College of Liberal Arts and Sciences) **Ames, IA**
B.Sc in Computer Science. Minor in Applied Artificial Intelligence. President's and Dean's List *Graduated: May 2026*

PROFESSIONAL EXPERIENCE

SwAPP Lab **Ames, IA**
Assistant Researcher *May 2026 – Present*
• Collaborating with researchers from Rice University and TU Darmstadt to develop a research toolkit that uses LLMs to infer asymptotic and extra-p complexity for Multi-GPU C/C++ programs in MPI/CUDA.
- The kit compares raw code, inlined traces, and LLVM representations; validates expressions through a multi-model pass, scores predictions against ground truth, and executes on SLURM resulting in over 25+% improvement over base model benchmarks.

AsMoment - POCIANET, LLC. **Des Moines, IA**
Software Engineer *Jan 2026 – May 2026*
• Architected an on-device RAG in FastAPI for a federated social media platform; built multi-step reasoning via a LangGraph pipeline over an edge-optimized Neo4j graph for accurate retrieval, with Redis caching achieving sub - 300ms latency and 100% offline operability.
- Led weekly client syncs to review sprint progress, ROI, align on technical architecture requirements, and refine the RAG pipeline and user-facing agent capabilities iteratively. Rolled out new features to 1,500+ users weekly.

IRLab **Ames, IA**
Research Intern *Aug 2025 – Dec 2025*
- Researched rendering bottlenecks in stylus-drawable AR/VR canvases and implemented Unity/C# optimizations to improve responsiveness in graphics-heavy interactive environments.

PROJECTS

narrAIt
• Developed and pitched an AI-driven end-to-end macOS assistive technology full-stack app delivering real-time, cursor-tracked screen explanation and visual navigation guidance for disabled users, winning 3x Jetson Orin Nano Super at SwanHacks Hackathon.

Cloud-Native5G O-RAN Testbed
• Deployed an OCUDU 5G O-RAN gNB with K3s, on a bare-metal Ubuntu VM for real-time performance; validated latency/throughput, and streamed live UE QI telemetry to Grafana.

Cloud Config Scanner
• Developed a Cloud Security Posture Management tool in Python to audit AWS environments against established security compliance benchmarks, utilizing boto3 to evaluate security postures across 8+ core services, including S3, IAM, and EC2.

DEVELOPMENT & LEADERSHIP

Industry Outreach Chair – *Algorithmic Trading Club at Iowa State University* *Aug 2025 – May 2026*
• Lead industry outreach initiatives to build relationships with quantitative trading firms, financial institutions, fintech companies, and industry professionals.

Undergraduate Teaching Assistant – *Department of Computer Science* *Jan 2025 – May 2025*
• Taught inheritance, polymorphism, OOP design, and data structures; supported debugging and helped instructors develop grading rubrics for assignments and exams

Supplemental Instructor – *Academic Success Center* *Aug 2023 – Dec 2024*
• Facilitated collaborative study sessions and exam reviews for up to 300 students for Differential and Integral Calculus.

ADDITIONAL INFORMATION

Languages: Go, Java, Python, SQL, C/C++, Swift, Bash
Frameworks: Node.js, Spring Boot, boto3, LangChain, FastAPI, JUnit, OCUDU, GitHub Actions, PyTorch
AI/ML & Cloud Tools: AWS, Azure, GCP, Linux/Unix, K8s, gRPC, Apache Spark, Ollama, Slurm/HPC, Terraform/IaC, Neo4j, Redis, MySQL, MongoDB, RabbitMQ, Grafana
Engineering Practices: Agile/Scrum, CI/CD, DevOps/MLOps, REST APIs, WebSockets, unit/integration testing, design patterns, performance benchmarking, cloud security, Open Source Contributions @ Tesla/fleet-telemetry, Apache/Stormcrawler.
Awards: 2x High School ISO Math Olympiad Gold Medalist out of 300 competitors. Intercity High School Champion and State-Level Qualifier in Table Tennis and Badminton.