Ganesh Danke

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U.S Citizen

EDUCATION

Northeastern University, Boston MA
Khoury College of Computer Sciences
Bachelor of Science in Computer Science Honors, AI Concentration GPA: 4.0/4.0 Expected Graduation: May 2026

- **Achievements**: Dean's List, SmallSat International Competition Winner, PEAK Research Grant Recipient
- **Relevant Coursework:** Natural Language Processing, Machine Learning, Artificial Intelligence, Network Analysis, Database Design, Software Engineering, Object Oriented Programming, Algorithms, Computer Systems, Info System Design

Chelmsford High School, Chelmsford, MA Graduation: May 2022

- **Achievements:** Eagle Scout, National Honor Societies Board Member, HackNEHS Hackathon Finalist, AP Capstone Diploma

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SKILLS

Languages: Java, Python, C, C++, x86 Assembly, Racket, SQL, HTML, CSS, Javascript, Powershell, Bash
Platforms: Tensorflow, PyTorch, Scikit-Learn, Jupyter Notebook, AWS, Azure, Apache Spark, Docker, React, FastAPI, Flask, Redis
Tools: REST APIs, GitLab CI/CD, Github Actions, Gradle, JUnit, Pytest, Jest, Jira, Confluence

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EXPERIENCE

MORSE Corp - AI and Backend Engineering Co-op January 2024-August 2024

- Developed and deployed scalable data pipelines for LLM and Computer Vision models for image processing applications on AWS using **PySpark** and **Pandas.**
- Contributed to an automated LLM evaluation system with **PyTorch** and **LangChain**, reducing runtime to 4 hours from 80 hours.
- Created a **Python**-based backend and three Docker microservices for a real-time mapping web app, using **Flask**.
- Implemented **GitLab CI/CD** pipelines for performance benchmarking and automated release processes.
- Refactored algorithms and **Redis** operations, achieving a 40% performance boost at 100,000 operations per sec.

MITRE - Cloud Software Engineering Internship June-August 2020 & 2021

- Collaborated with a five-person Agile team to streamline data pipelines for MITRE's Caldera cybersecurity platform, integrating across **4** distributed systems on **AWS** and **Azure**.
- Developed 5 automated data pipelines using **Python**, **Bash**, and **PowerShell**, improving system reliability and deployment speed.
- Co-authored an official MITRE blog post on data exfiltration, detailing a major version release and personal contributions
  Link to Publication: https://medium.com/@mitrecaldera/aa7dfe3fc9bd

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PROJECTS

LLM-Powered Discord Messenger Bot: GitHub - Personal Project January 2024

- Developed a Discord bot leveraging Llama3 LLM via **PyTorch** and **HuggingFace** to enable live, simultaneous conversations.
- Customized model parameters and tokenization processes, optimizing hyperparameters to enhance LLM performance and response accuracy.
- Designed distributed architecture using **Docker** and **Redis**, implementing scalability, error recovery, and sub-10s response time.

Autonomous Fault Response System: Publication August 2024

- Built a **deep learning** framework for autonomous fault detection and mitigation for satellites.
- Created a modular training library in Python for robust pipeline development, achieving a median model accuracy of 96.46%.
- Optimized deployment on flight-proven satellite hardware (RP2040, STM, AM3358) using C/C++, delivering a 730% performance improvement over traditional methods.
- Published findings and presented at the **Small Satellite Conference**, winning the student competition.

Music Recommendation Website: GitHub December 2024

- Designed an application integrating machine learning, natural language processing, and reinforcement learning to recommend personalized songs based on user listening preferences.
- Built robust analysis pipelines leveraging the Spotify API and a dataset of 960,000 songs, employing **Sentiment Analysis**, **TF-IDF**, and **Cosine Similarity** for accurate recommendations.
- Developed and trained a **Deep Q-Network (DQN)** model in **TensorFlow** to process live user feedback, achieving 96% prediction accuracy.

LEADERSHIP - Satellite Development Project - Software Team Lead September 2023-Current

RESEARCH - Northeastern Mon(IoT)r Research Group - Web Automation Researcher January 2023-May 2023

- Designed novel research methodology on Google data profiling, using **Selenium** and **Python** to automate over 5,000 queries.