

Ajay A. Ohm Nathan

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EDUCATION

University of Pittsburgh | David C. Frederick Honors College,

Expected Graduation: April 2026

B.S. Computer Science | Honors Degree Candidate

- GPA: **3.98** (CS GPA: **4.0**) | Dean's List: **2024, 2023**
- Coursework: Data Structures and Algorithms, Data Analysis, Systems Software, Discrete Math, Machine Learning

EXPERIENCE

University of Pittsburgh, Undergraduate Teaching Assistant

Aug 2024 – present | Pittsburgh, PA

- Facilitate recitations for **over 90 students** in Discrete Mathematics, enhancing understanding and engagement in complex mathematical proofs and concepts
- Hold **over 20 office hours weekly**, providing personalized support that helps students clarify challenging topics and improve their performance and confidence
- Increase student comprehension through targeted recitation sessions and one-on-one mentoring, contributing to **18% higher homework completion rates**

University of Pittsburgh ADMT Lab, Research Study Assistant

Aug 2023 – Apr 2024 | Pittsburgh, PA

- Collaborated with PhD and Master's students to explore **Database Query Processing** and ChatGPT's efficiency and accuracy through **complex math tasks** in Large Language Models
- Assisted in collecting and analyzing data from **over 20 existing research papers** on LLMs, contributing to the enhancement of GPT-3's accuracy by **90%** through innovative scratch padding techniques
- Implemented and tested attention optimization and reinforcement learning to enhance GPT-3's query processing performance and accuracy by **over 50%** via prompt engineering

PROJECTS

Breast Cancer Diagnosis Classifier, Python, Scikit-Learn, pandas, Matplotlib

Aug 2024 – Dec 2024

- Developed a Breast Cancer Diagnosis Classifier using Python, leveraging libraries like **scikit-learn**, **pandas**, and **matplotlib** to build and evaluate three machine learning models (**Naive Bayes**, **K-Nearest Neighbors**, and **Logistic Regression**)
- Transformed **hundreds** of data points with right-skewed distributions using **log transformations** and standardized features, ensuring data normalization and significantly enhancing model performance
- Analyzed model performance using metrics like accuracy and **AUC score**, achieved accuracy of **94.74%** (Naive Bayes), **92.11%** (KNN), **92.98%** (Logistic Regression)

Freudify Dream Analyzer, MongoDB, Express.js, React, Node.js, Gemini Nano

Nov 2024 – Dec 2024

- Developed a full-stack **MERN** (MongoDB, Express.js, React, Node.js) web app integrated with **AI-driven APIs** (Gemini Nano) to analyze and interpret **500+** user-submitted dreams, providing insights to approximately **200** active users
- Engineered secure authentication using **JWT** and **MongoDB**, enabling seamless user registration, login, and access to protected routes, enhancing user security by **90%**
- Collaborated with a partner to design **RESTful APIs** and implement a responsive UI using **React** and Tailwind CSS, optimizing API response times by **30%** and delivering a smooth, engaging user experience

Network Visualizer, Python, Vis.js, HTML5

Mar 2024 – Jun 2024

- Awarded **3rd Place Winner** at SteelHacks 2024 based on execution, innovation, technical complexity, and impact
- Engineered a free-to-use Chrome extension to graphically represent the university course registration website, integrating **web scraping with Python** for efficient data collection
- Applied Vis.js** to visualize course prerequisites, streamlining the course planning process and enabling students to reduce their course registration time by **50%** through enhanced clarity
- Injected custom HTML code** into course website to enable dynamic graph rendering in Chrome, enhancing experience for **300+** users

SKILLS

Languages: Java, Python, SQL, JavaScript, HTML5, CSS, Assembly, C, C++

Tools: React, Scikit-Learn, Vis.js, Node.js, MongoDB, Express.js, NumPy, pandas, Matplotlib, VSCode, Linux, Tailwind CSS