Alexander Halpern

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EDUCATION

University of Virginia, School of Engineering and Applied Sciences, Charlottesville, VA *May 2026*
B.S. Computer Science and Systems Engineering **GPA: 4.00 / 4.00**

- Raven Society (1 student Raven for every 200 full-time students)
- Rodman Scholar (Top 5% of Engineering School)

Relevant Coursework: Data Structures and Algorithms, Computer Systems & Organization 1, Linear Algebra, Probability, Fall 2024: NLP

ACHIEVEMENTS & ACTIVITIES

1ST Place – UVA Hackathon, Charlottesville, VA *March 2024*

- Won UVA's HooHacks Art and Gaming category for, KeyGlow, a visual and virtual piano tutor.

Stanford University TreeHacks Hackathon, Stanford, CA *March 2024*

- ~7.5% acceptance rate. Created conversational AI to help elderly who live alone.

2nd Place – Meta Undergraduate Data Analytics Case Competition, Charlottesville, VA *November 2023*

- Top 5 Finalist out of 100+ Participating Teams.
- Utilized K-Means clustering and Principal Component Analysis (PCA) to derive significant insights from data.

UVA Jazz Ensemble and Jazz Combo, Charlottesville, VA *August 2022 – Present*

- Pianist. Highest Skill Level Combo.

EXPERIENCE

Versatile Credit, Mechanicsburg, PA
Software Engineer Intern *June 2024 – August 2024*

- Conceptualized and engineered DataPal, an AI tool using Python, LangChain, and RAG to automate insights from a 200-table SQL database. Deployed 4 AI agents to extract, visualize data, reducing generation time by 99.7% (2 hours to 20 seconds).
- Presented DataPal to my manager, which led to an invitation to present to the C-Suite and 30-person tech team, earning recognition from leadership and investors as a potential key contributor to the company's AI strategy.

UVA Biocomplexity Institute, Charlottesville, VA
Machine Learning Researcher *June 2024 – Present*

- Implementing heterogeneous data pipelines within a data engineering framework to train Machine Learning models using both GPUs and CPUs, enabling us to leverage the power of UVA's Rivanna HPC for conducting complex fluid dynamics simulations.
- Interacting with parallel computing frameworks such as NCCL, PyTorch Distributed, Apache Spark, Dask, and MPI.

IBM, Armonk, NY
Accelerate Program Member *June 2024 – July 2024*

- Learned foundational skills including professionalism, relationship building, and networking**.**
- Worked with React.JS to create a to-do list application that is thoroughly tested with Jest.

Google Developer Groups, Charlottesville, VA
Lead / President at UVA *August 2023 – Present*

- Restarted the club at UVA, formed a core team of 7 students, and **recruited over 600 members.**
- Organize events for 100+ attendees, including workshops on Google technologies and speaker sessions with Google engineers.

Panthera, New York, NY
Machine Learning Intern *June 2023 – August 2023*

- Developed cutting-edge TinyML object detection model that operates in real-time, effectively identifying potential wildlife poachers within the field of view of the Panthera PoacherCam V7. Leveraged a dataset of over 7,000 images of wild cats taken on 25 cameras stationed in unique conservation sites around the world, including Vietnam, Nepal, and Gabon.

PROJECTS

Scoper, Weston, CT | beta.scoper.us *August 2023 - Present*

- Developed advanced, machine learning assisted patent search tool made in ViteJS. Allows users to search a PostgreSQL database hosted on AWS's RDS of 150 Million+ patents using natural language, retrieve highly relevant results through the use of vector embeddings, and "chat" with a specific patent and learn more about it using Retrieval-Augmented Generation (RAG).

Safeline, Weston, CT | www.yoursafeline.com *June 2022 - Present*

- Featured on CBS, NBC, and FOX television in Virginia
- Built mobile app that three-dimensionally superimposes a school campus blueprint on Mapbox satellite image and allows students to report school safety incidents in real-time to faculty, who are alerted via a dashboard made with React.JS and Firebase.

SKILLS

Programming Languages: Python, Java, Java Script, C, C++, HTML5, CSS, SQL, MySQL, MATLAB
Technologies: PyTorch, AWS, Firebase, Google Cloud Platform, Heroku, React Native, NodeJS, Express, ReactJS, Flask, Docker, TensorFlow, PostgreSQL, Mongo, Pandas, WebSocket, Git, REST APIs, Sklean