

Victor Verma

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EDUCATION

Boston University

Boston, Massachusetts

B.A. in Mathematics and Computer Science, Minor in Data Science

May 2025

- **Honors:** 3.87 GPA, 6x Dean's List, Undergraduate Research Opportunities Program Student Research Award.
- **Relevant Courses:** Machine Learning and AI, Natural Language Processing, Algorithms, Database Systems, Distributed Systems, Software Engineering, Probability, Stochastic Algorithms and Processes, Computer Systems.

SKILLS

Languages and Frameworks: Python, SQL, JavaScript/TypeScript, Java, React, Node.js, Flask, Supabase, MongoDB.

Tools and Libraries: AWS, Scikit-Learn, TensorFlow, LLMs, DSPy, LlamaIndex, pandas, NumPy, Matplotlib, Docker, Git.

EXPERIENCE

Questrom School of Business, Boston University

Boston, Massachusetts

Research Assistant

Jan 2023 - Present

Project 1: Analysis of Medical Malpractice Trends with NLP

- Designing a pipeline using **DSPy** and **large language models** to analyze **50,000+** cases of medical malpractice.

Project 2: Large-Scale Mining and Classification of State Legislator Demographics

- Integrated the **Google Search API**, the **OpenAI API**, **pandas**, and **BeautifulSoup** to build an automated data processing pipeline to extract legislator biodata from **600,000+** web pages and PDFs.
- Engineered **neural network**, **random forest**, **XGBoost**, and **k-nearest neighbors** models achieving a **72% accuracy** rate and **0.80 f1** score in biodata classification.
- Optimized **multithreading** and rate limiting to increase efficiency by **16x**.
- Created a **novel dataset** documenting the education and work history of **150,000** U.S. State Legislator candidates from 1967 to 2017, discovering only 40% of candidates have biodata available online.

Savvas Learning Company

Boston, Massachusetts

Software Development Engineering Intern

Jun 2024 – Aug 2024

- Architected a chatbot solution utilizing **Python**, **Amazon Bedrock**, and the **LlamaIndex API**, enabling **400+** employees to efficiently query enterprise documentation and GitHub codebase.
- Incorporated the **Confluence** and **GitHub APIs** to automate the upload of **500+** Confluence documents and GitHub README files to **S3 buckets**, constructing a comprehensive knowledge base for the **RAG pipeline**.
- Launched a chatbot service using **AWS Lambda**, featuring a **Gradio** frontend and **FastAPI backend**, and configuring role-based access for employees through **Google OAuth**.

PROJECTS

Letterboxd Movie Recommendations

- Developed a **content-based filtering system** leveraging **random forests** and **50,000+ data points** to create an AI-powered movie recommendation website serving **1150+ users** in **50+ countries**, with **React**, **TypeScript**, **Tailwind CSS**, **Flask**, and **Supabase**.
- Implemented **10+** unique user profile statistics **updated in real-time** based on user activity and a downloadable **data visualization** of individual movie rating habits, and automated movie data updates with **2 GitHub Actions**.

StatSense AI

- Constructed **LSTM** and **Simple RNN** models with **TensorFlow** to forecast NFL statistics for QBs, RBs, WRs, and TE's using weekly statistics in time series, achieving a **75% success rate** against player props set by sportsbooks.

KTP Database

- Spearheaded a **6-member team** in building a full-stack web-app with **React**, **Node.js**, **Supabase**, and **MongoDB** with **Google OAuth** using **Firebase**, hosting academic and professional resources for **97** fraternity members, and integrating **Dockerized shell scripts** to streamline data updates.