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/Activities:** 3.89 GPA, 6x Dean's List, Kappa Theta Pi, Men's Rugby.
- **Relevant Courses:** Machine Learning and AI, Natural Language Processing, Algorithms, Database Systems, Distributed Systems, Cloud Computing with Azure, Probability, Probability in Computing, Linear Algebra, Multivariate Calculus, Differential Equations, Stochastic Algorithms, Stochastic Processes, Software Engineering.

EXPERIENCE

Savvas Learning Company **Boston, Massachusetts**

Associate Software Developer *Jun 2025 – Present*

- Incoming associate software developer.

Questrom School of Business, Boston University **Boston, Massachusetts**

Research Assistant | Analysis of Medical Malpractice Trends with NLP *Aug 2024 – May 2025*

- Designed **chain-of-thought agents** using **DSPy** to evaluate **70,000+** cases of medical malpractice.
- Enhanced program accuracy using DSPy optimizers, a custom evaluation metric, and 100+ curated examples.

Savvas Learning Company **Boston, Massachusetts**

Software Development Engineering Intern *Jun 2024 – Aug 2024*

- Built a **ReAct agent** utilizing **Python**, **Amazon Bedrock**, and the **LlamaIndex API**, enabling **400+** employees to efficiently query enterprise documentation and the 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 ReAct pipeline.
- Launched the ReAct agent as a chatbot service using **AWS Lambda**, featuring a **Gradio** frontend and **FastAPI** backend, and configured role-based access for employees through **Google OAuth**.

Questrom School of Business, Boston University **Boston, Massachusetts**

Research Assistant | Large-Scale Mining and Classification of State Legislator Demographics *Jan 2023 – May 2024*

- 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.
- 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.

POSTER PRESENTATIONS

- "*BU Sustainability: Water-Filling Stations*" – Boston University Spark! Demo Day, May 2024.
- "*Using Large Language Models for Massive Political Science Data Scraping*" – Boston University Annual Undergraduate Research Symposium, October 2023.

HONORS AND AWARDS

- BU Undergraduate Research Opportunities Program Faculty Matching Grant – Spring 2024.
- BU Undergraduate Research Opportunities Program Student Research Award – Fall 2023, Summer 2023.

PROJECTS

Letterboxd Movie Recommendations

- Developed a website that uses **content-based filtering** with **random forests** and **60,000+ data points** to recommend movies based on a person's Letterboxd profile, serving **2,700+ users** across **50+ countries**.
- Built with **React**, **TypeScript**, **Tailwind CSS**, **Flask**, and **Supabase**, featuring **10+** real-time user stats, exportable visualizations, and automated data updates using **3 GitHub Actions**.

Kappa Theta Pi Lambda Chapter Website

- Engineered the chatbot on the fraternity website following the **RAG agent** architecture, leveraging **Hugging Face** for inference, **Pinecone** for context retrieval, and **Google Cloud Functions** for scalable deployment.
- Led a **6-member team** to build the fraternity database with **React**, **Node.js**, **Supabase**, and **MongoDB** with **Google OAuth** using **Firebase**, hosting academic and professional resources for **111** fraternity members.

Ekman Emotion Classifier

- Built a **feed-forward neural network** using **PyTorch** to classify text into six emotion categories, applied the model to label the emotions expressed in **65,000+** reviews of **65** top-rated Letterboxd films, and uncovered trends between movie characteristics and audience sentiment.

Analyzing Electricity Consumption Trends across New England

- Collaborated in a cross-functional team to develop an end-to-end Azure data pipeline (**ADF**, **Synapse**, **Blob Storage**) for processing **420,000+ hours** of batch and streaming electricity usage data across New England, integrating U.S. Energy Information Administration and Census APIs using a **medallion architecture**.
- Trained a **random forest** model to predict hourly electricity demand based on temporal and demographic features, automated forecasts with scheduled ADF pipelines, and designed **Power BI** dashboards to visualize historical trends and model performance.

SKILLS

Languages/Tools: Python, SQL, JavaScript/TypeScript, Java, Git, Docker.
Machine Learning: Scikit-learn, PyTorch, TensorFlow, LlamaIndex, Hugging Face, DSPy, OpenAI, LLMs, pandas, NumPy.
Cloud/Web: AWS/Azure/GCP, Node.js, Flask, FastAPI, React, Gradio, PostgreSQL, Pinecone, MongoDB, Firebase.