

AYUSH SHARMA

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EDUCATION *[Last semester is part time, so I am eligible to work part time from Sep-Dec 2024 & I am eligible to work full time in summer July-Sep 2024]*

Boston University (M.S. in Artificial Intelligence) | GPA: 3.67 | September 2023 – December 2024 | Boston, MA, USA

- **Relevant Courses:** Graduate Level Directed Study (AI), Artificial Intelligence, Machine Learning, Deep Learning, Computer Vision, Data Science Tools and Applications, Metrics and Evaluation in Natural Language Processing.

Shri Mata Vaishno Devi University (Bachelor of Technology in Computer Science) | GPA: 8.43 | August 2019 – May 2023 | India

PUBLICATIONS

Self-Improving Instructions and Programs for Visual Concept Learning using LLMs at a Human Level

Mao Mao, Ayush Sharma, Yuke Zhang, Madeleine Udell, Iddo Drori, In progress

Solving Harvard's Mathematics PhD Quals and MIT's EECS Curriculum using LLMs at a Human Level

Iddo Drori, Danielle Drori, Cindy Zhang, Ryan Nie, Chunhao Bi, Ayush Sharma, Uday Garg, Shreyas Sudarsan, Seunghwan Hyun, Bargav Jagatha, Akshat Gurbaxani, Abhaya Shukla, Nicholas Belsten, Ori Kerret, Avi Shporer, Madeleine Udell, In progress

WORK EXPERIENCE

Schneider Electric

Bangalore, India

Machine Learning and Data Science Intern | [Certificate](#)

January 2023 – July 2023

- Implemented automation for cleaning and validating over **750,000** data points across more than **15** columns, achieving migration to multiple cloud platforms in under **10 seconds** through NumPy and Pandas in Python.
- Leveraged Bi-LSTM model, word embeddings (GloVe, BERT) to classify incoming customer complaint and request tickets.

JP Morgan

Remote

Software Engineer Virtual Experience Intern | [Certificate](#)

July 2022 – August 2022

- Analyzed stock data feeds with Python, NumPy, & Matplotlib, and created a data visualization web page in React.js.
- Enhanced stock price prediction accuracy from **0.785** to **0.838** by applying RNN and LSTM models on analyzed data.

The Sparks Foundation

Remote

Web Developer Intern | [Certificate](#)

August 2021 – September 2021

- Created a dynamic, responsive frontend for a banking website in JavaScript, utilizing React.JS, HTML/CSS, and Flexbox.

ACADEMIC EXPERIENCE AND PROJECTS

Graduate Student Researcher at Boston University | Advisor: [Prof. Iddo Drori](#)

November 2023 – Present

Conducting research for research papers on advancing LLMs towards human-level IQ in Visual Reasoning and Mathematical tasks.

YouTube Assistant (End to End Deployed AI Application)

July 2024

LangChain, Google Gemini 1.5 Flash LLM, MLOps, Sentence Transformer, FAISS, Gradio, Hugging Face | [Website](#) | [Github Code](#)

- An assistant that answers all queries about a YT video, saving users from watching the entire video just for a specific thing.
- Implemented LangChain and Gemini 1.5 model in the backend and used Meta's FAISS for document similarity search.
- Created the frontend (to input user query and video link, output result) using Gradio and deployed the site on Hugging Face.

Photo-realistic Video Generation using Diffusion Models (Research Project)

October 2023 – December 2023

Text to Image Diffusion Models, DDIM and DPM Samplers, Image Generation | [Research work paper link](#) | [Github Link](#)

- Enhanced the state-of-the-art zero-shot text-guided video-to-video framework 'Rerender A Video' through dedicated research, focusing on Key Frame Sampling and Frame Selection.

Team Lead for Debt Collection project for B.U. client WGBH

January 2024 – May 2024

Data Science and Analysis, SQL, Python, Pandas, Matplotlib | [Detailed Results](#) | [Github Link](#)

- Examined **5,000+** debt collection cases (from Massachusetts Court System Database) over 10 years for the client "WGBH", identifying a **20%** rise in debt case filings and a **25%** increase in virtual proceedings during pandemic (2020-2021), and other important insights like **40%** capias warrants, **30%** wage garnishments, top 10 debt collectors and companies, etc.

Image Generation using Generative Adversarial Networks – Exploring Various Types of GANs

April 2024

Generative AI, Generative Adversarial Networks, BigGANs | [Report pdf link](#) | [Github Link](#)

- Developed various models like basic GAN and BigGAN to generate dog images using the Stanford Dog Dataset. Used **Self Attention** and other architectural changes in these models to overcome issues like Mode Collapse, Artifacts problem, etc.

SKILLS

• Python • LangChain • OpenAI and Google Gemini API • MLOps • Generative AI • NumPy • Pandas • SQL • Matplotlib • Tensorflow • Keras • Scikit Learn • PyTorch • Java • C++ • Fine Tuning • Prompt Engineering and Techniques

CERTIFICATIONS and OTHER ACHIEVEMENTS

• LangChain ([Certificate Link](#)) • Stanford/Coursera Deep Learning Specialization ([Certificate Link](#)) • Finalist: Smart India Hackathon 2022 • Mentor- SMVDU AI Circle • Mentor- SMVDU Code Club • Silver medal, Swimming Regionals