Varsha Rajesh

Data Science Engineering Undergraduate Student

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Education

University of Michigan, Ann Arbor, College of Engineering **Expected Graduation: May 2027**
Bachelor of Science in Engineering GPA 3.89/4.00
Data Science Major, Mathematics Minor

- **Honors:** Tau Beta Pi Gamma Chapter Member, Engineering Scholarship of Honor, Two Semester Dean's List Recipient
- **Relevant Coursework:** Data Structures and Algorithms, Computational Methods in Statistics and Data Science, Applied Regression Analysis, Computational Linguistics, Introduction to Statistical Computing, Discrete Mathematics

Research and Project Involvement

Assessing Bioinformatics Capabilities of OpenAI GPT Research Assistant **August 2024 – April 2025**
University of Michigan Medical School, Department of Learning Health Sciences Ann Arbor, MI

- Benchmarked GPT-3.5, GPT-4.0, and LLaMA 3-70B on 100+ **bioinformatics analytics** problems, comparing AI results to tens of thousands of human participants in order to see current capabilities of various large language models.
- Conducted statistical analyses using **Python** (pandas, NumPy, seaborn) and **R** (ggplot2) across **LLMs.**
- Presented results via a poster in a symposium, highlighting AI strengths and limitations in bioinformatics tasks.
- Findings are currently **under review for publication in multiple scientific journals**, demonstrating value to field.

Surgical Data De-Identification Research Assistant **July 2025 – Present**
Michigan Medicine, Department of Cardiac Surgery Ann Arbor, MI

- Annotated and de-identified surgical videos using **CVAT** to blur personal information, ensuring HIPAA compliance.
- Prepared high-quality datasets for AI models to analyze cardiac surgery procedures in ongoing clinical trials.
- Collaborated with researchers to improve annotation efficiency, enabling faster and safer **AI training** for clinicals.

Alzheimer's MRI Machine Learning Classifier **Sept 2025 - Present**
Michigan Data Science Team Ann Arbor, MI

- Designed and trained **deep learning architectures** (CNN, VGG, ResNet) in **PyTorch** to classify brain MRI scans.
- Detected stages of Alzheimer's disease by leveraging feature extraction, fine-tuning, and model ensembling to enhance neural network performance and interpretability for medical imaging.

Election Voting Analysis Data Analytics Project Team **January 2025 – May 2025**
Michigan Data Science Team Ann Arbor, MI

- Analyzed county-level 2020 election data with socioeconomic indicators to model voter turnout.
- Applied logistic regression and random forest models in **Python** (scikit-learn, pandas, geopandas, matplotlib).
- Produced and presented a website detailing visuals and findings at the Data Science Spring Symposium.

Interactive IMDb Trends Dashboard and Exploratory Analysis **March 2025 – April 2025**
Introduction to Statistical Computing, DATASCI306 Ann Arbor, MI

- Explored IMDb dataset for patterns in genres, actor prominence, and rating distributions using **R** (dplyr, ggplot2)
- Created an interactive Shiny app with filters and mini-game to demonstrate exploratory data analysis results.

Co-Curricular Involvement

Finance and Budgeting Lead **June 2025 – Present**
Michigan Data Science Team Ann Arbor, MI

- Managed team finances, tracking expenses, and maintaining accurate budget records.
- Developed dashboards to **monitor KPIs** and guide strategic allocation of resources.

Board Member and Community Involvement Subcommittee Member **August 2024 – Present**
Michigan Engineering Student Advisory Board Ann Arbor, MI

- Collaborated with faculty and student leaders to enhance student resources and programs.
- Provided strategic input on policy and program development increasing engagement across engineering groups.

Skills

- **Programming & Data Tools:** Python, R, C++, SQL, Shiny, Microsoft Tools, Jupyter Notebooks, Git, CVAT
- **Data Analysis & Visualization:** pandas, NumPy, ggplot2, seaborn, matplotlib, dplyr, geopandas, PyTorch
- **Methods:** Machine Learning (regression, classification, random forests), Statistical Analysis, Exploratory Data Analysis