Biratal Raj Wagle

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EDUCATION

Dartmouth College, Hanover, NH — June 2025
MS Health Data Science — GPA 4.00
Related Coursework*: Biostatistics I & II, Algorithms in Biomedical Data Science, Principles of Machine Learning.*

Ashoka University, Sonipat, India — June 2023
BS Physics & Computer Science — GPA 3.68
Related Coursework: *Algorithms, Data Structures, Mathematical Physics I II & III, Statistical Mechanics*

EXPERIENCE

Data Scientist — December 2024 - Present
Geisel School of Medicine — Hanover, NH
Developed an automated data extraction pipeline in Python for computer posturography. Created machine learning algorithms to instantly diagnose vestibular migraines' causes.

- **Data Analytics:** Conducted data analytics on sensitive clinical data, adhering to all related policies. Utilized pytorch, pandas, and other statistical packages to create an algorithm in a self-supervised machine learning task to successfully predict outcomes.

GenAI Graduate Student Intern — December 2024 - Present
Dartmouth College — Hanover, NH
Developed comprehensive starter guides (JupyterBooks) for the Dartmouth AI research community for Dartmouth's implementation of *LangChain*: a framework used to build AI tools. Authoring an introductory guide on vector semantics, detailing advanced NLP related methods such as TF-IDF and PPMI. Employed dimensionality reduction techniques to visualize embeddings of queries and documents to represent their similarity.

- **Machine Learning:** Compiled an overview of RAG models, outlining their functionalities and implementation strategies. Supplied users with a template for training custom RAG models. (Python)

Graduate Research Assistant — August 2024 - Present
Dartmouth College — Hanover, NH
Engaged in a research lab focused on wearable devices, emphasizing data exploration and machine learning methodologies. Focused on other areas of digital health. Published a paper in ACM

- **Exploratory Data Analysis**: Conducted visual and basic inferential statistics on an existing dataset, and to discover that increased sleep variability is associated with worse blood glucose management. (Python) An associated qualitative study was accepted for presentation at an international conference.
- **Deep Learning:** Implemented two models (Stacked LSTM and WaveNet) that increased the generalizability of blood glucose prediction for Type 1 Diabetes patients, compared to traditional methods. **Under peer review.**

Research Associate — September 2022 – May 2024
MitraLab — Sonipat, HR
Engaged in quantitative biomedical research focusing on mitochondrial studies for oncology applications.

- **Tool development**: Led the development of MitoSinComp, a custom pipeline for analyzing structure-function relationships in mitochondria, enabling automated data processing and advanced foci detection using machine learning. (Python, C).
- **Data Analytics**: Conducted comprehensive analysis of mitochondrial data employing ImageJ, Python, and ParaView, creating visualizations and output files that facilitated deeper insights into the association between cancer and the structure of mitochondria and its implication for energy production. **Under peer review.**

TECHNICAL SKILLS AND INTERESTS

Python, SQL, MATLAB, R, Tableau, SAS, Kotlin, Pandas, NumPy, OpenCV, Vim, LangChain, Machine Learning, Natural Language Processing (NLP), Statistical Analysis, Statistical Modelling, Linux/Unix, Data Analysis, Microsoft Office, Power BI