Vibha Chandrasekar

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Education

University of California, Davis Davis, CA

Bachelor of Science in Computer Science, Minor in Computational Biology *June 2025*

- Relevant Courses: Object Oriented Programming, Data Structures and Algorithms, Probability and Statistics, Introduction to Artificial Intelligence, Introduction to Bioinformatics, Human Computer Interaction

Experience

Data Science Intern June 2024 – Aug 2024

National Institutes of Health *Bethesda, MD*

- Developed a Convolutional Neural Network using **PyTorch** and **FastAI** for recognition of spinal disease, achieving a model accuracy of **95%**
- Automated model training and fine-tuning processes with Bash scripts, increasing workflow efficiency by **50%**
- Managed and visualized data with custom scripts in **Python** and **R**, streamlining data pre-processing and providing insightful graphical representations of results
- Presented findings at weekly team meetings, effectively communicating complex results to both technical and non-technical audiences

Undergraduate Research Assistant June 2023 – Present

University of California, Davis *Davis, CA*

- Designed and developed a simulation for modelling transposable element dynamics in the maize genome using **C++**, providing meaningful data for genomic studies
- Leveraged a high-performance supercomputing cluster to accelerate complex simulations, reducing processing time by **70%** and enabling the analysis of large scale datasets
- Presented findings at a poster session, showcasing the results and methodologies of the simulation to a large professional audience

Activities

Neurotechnology Club Nov 2023 – June 2024

Developer

- Programmed an automated video player using **Python** and **openBCI** that monitors user focus levels based on brain wave data, achieving **85%** accuracy in detecting attention shifts
- Implemented **Selenium** for automated video control, ensuring real-time pausing and resuming of videos based on focus metrics
- Collaborated with team members to design, implement, and refine the system using **Agile methodologies**

Personal Projects

ML-Powered Book Recommender | *Python, Flask, React, JavaScript, Scikit-Learn*

- Designed a full-stack web application with **React** as the frontend and **Flask** providing a **REST API**
- Utilized **Scikit-Learn** and **Pandas** to build a collaborative filtering model using k-Nearest Neighbors to generate book recommendations, achieving a Precision of **80%**

WNBA Game Predictor | *Python, Scikit-Learn, Pandas, Numpy*

- Developed a predictive model for WNBA game outcomes using **Python** and logistic regression, achieving **75%** accuracy with the help of Scikit-Learn, Pandas, and Numpy
- Preprocessed the dataset by handling missing values, encoding categorical variables, and normalizing data

DNA Sequence Alignment Calculator | *PostgreSQL, Python, Flask, React, Javascript*

- Constructed a highly accurate DNA sequence alignment calculator using Python and the Needleman-Wunsch algorithm in order to explore interest in bioinformatics
- Implemented a full-stack application with a Flask backend, a React frontend, and **PostgreSQL** for storing alignment results, supporting **CRUD** operations

Technical Skills

Languages: Python, C, C++, Kotlin, Java, JavaScript, HTML/CSS, SQL, Bash, R, MATLAB
Frameworks and Libraries: React, Flask, Node.js, PyTorch, Selenium, Scikit-Learn, Pandas, Matplotlib, NumPy
Other: Git, MongoDB, Agile Development, Render, Slurm, UNIX, IntelliJ, JSON, Excel