Sanjana Suresh

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EDUCATION

Georgia Institute of Technology August 2024 - Present

Master of Science in Bioinformatics *Atlanta, GA*

Coursework: Programming for Bioinformatics, Machine Learning, Genomics & Applied Bioinformatics, Biostatistics. *GPA: 4.0*

University of Mumbai August 2018 - May 2022

Bachelor of Engineering in Electronics and Telecommunication *India*

Coursework: Database Management System, Neural Networks.

TECHNICAL SKILLS

Programming & Scripting: Python, R, SQL, Bash, C/C++, Unix/Linux

Tools & Frameworks: Git, Conda, Docker, Nextflow, Snakemake, scikit-learn, NumPy, Dask, Matplotlib, Microsoft Office

Research & Analysis: Computational Biology, NGS Data Analysis, Statistics, Machine Learning, Data Science, Cloud Computing, Optimization

EXPERIENCE

Jain Lab, Georgia Institute of Technology Aug 2024 - Present

Student Researcher | PI: Saumya Jain | Lab: Jain Lab *Atlanta, GA*

- Applied AI-driven analysis to brain development using single-cell multi-omics, leveraging ML models and optimization algorithms to classify cell populations and trajectories with 70% accuracy.
- Applied mathematical modeling and regression analysis to uncover 150+ gene-enhancer associations, including 20 novel interactions, and study trends across developmental stages.
- Identified bottlenecks in single-cell multi-omics pipelines caused by large-scale data and manual processing across donors.
- Developed efficient data structures and automated workflows using Python and Shell scripting, reducing runtime by 40% and improving reproducibility.

ICMR – National Institute for Research in Reproductive and Child Health Sept 2023 - June 2024

Data Science Intern | PI: Deepak Modi | Lab:MCBL *India*

- Designed and optimized sequencing analysis (CUT&RUN) pipeline to identify HOXA10 protein binding sites and related biological activity, improving processing efficiency by 30%.
- Automated RNA-Seq downstream analyses with custom Python scripts, cutting work by 25%, and built gene regulatory networks revealing 10+ embryo implantation pathways.

Cognizant Technology Solutions July 2022 - July 2023

Programmer Analyst *India*

- Promoted from intern to full-time analyst for strong organizational and presentation skills; led cross-functional efforts to analyze patient data and support resource allocation using SQL and Power BI.
- Designed and presented interactive dashboards that reduced manual reporting time by 20%, enhanced real-time data visualization, and improved coordination across healthcare teams.

RESEARCH PROJECTS AND PUBLICATIONS

HOXA10-TWIST2 Antagonism Drives Partial Epithelial-to-Mesenchymal transition for Embryo Implantation

Pneumonia Detection Using Convolutional Neural Networks

- Developed and trained a deep learning model to detect pneumonia from chest X-rays, achieving 94% accuracy and 0.92 F1-score using TensorFlow, PyTorch, and Keras.
- Improved model generalizability by implementing data preprocessing, normalization, and augmentation techniques, contributing to a 15% reduction in overfitting and improved validation performance.

P.R.O.T.O.N: Predicting Regulatory Outcomes with Transformers and Omics-based Networks

- Developed a multi-modal machine learning framework integrating RNA-Seq, DNA regulatory sequences, and protein embeddings to predict gene function in cancer research, leveraging different biological LLM.
- Implemented supervised & unsupervised models (Random Forest, K-Means, XGBoost) with feature engineering from LLMs and deep learning-based embeddings.

VOLUNTEERING EXPERIENCE

IEEE BOMBAY Section, Student Activities Committee. Jan 2021 - May 2022

- Led a cross-functional team of 20 to plan and execute technical workshops for 200+ participants, coordinating with speakers and sponsors to secure industry partnerships.
- Managed logistics and participant engagement for a Student Congress attended by over 500 students, demonstrating organizational, communication, and stakeholder management skills.