Pavitra Ganesan Dass

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EDUCATION

Northeastern University, Boston, MA, US ***Dec. 2025***
Master of Science in Bioinformatics; GPA (3.66/4.00)
University of Mumbai, Mumbai, India ***May. 2023***
Bachelor of Pharmacy; GPA (8.14/10)

TECHNICAL SKILLS

Programming & Pipelines: R (Seurat, DESeq2, ggplot2, dplyr), Python, Bash, Linux
NGS & Bioinformatics: Bulk RNA-seq, scRNA-seq, STAR, Salmon, DESeq2, GSEA/MSigDB, Seurat, Bioconductor, SAMtools, GATK, BWA, IGV
Machine Learning & Statistics: Logistic Regression, Random Forest, kNN, PCA, UMAP, ensemble learning, ROC-AUC, F1
Visualization & QC: ggplot2, pheatmap, EnhancedVolcano, pathway dot plots, heatmaps, FastQC, MultiQC
Domain Interests: Cancer immunology (melanoma, myeloma), neuroinflammation (Alzheimer's microglia), viral rebound (HIV/SIV)
Communication: Lab presentations, teamwork across disciplines, proposal submissions

PROFESSIONAL EXPERIENCE

Center for Virology and Vaccine Research | Beth Israel Deaconess Medical Center, Harvard Medical School | Boston, MA, US
Bioinformatics Research Intern ***July. 2025 – Present***

- Analyzing baseline **PBMC RNA-seq and plasma cytokine profiles** from 20 SIV-infected rhesus macaques to identify predictive biomarkers of viral rebound following ART interruption
- Implementing **multi-omics pipelines** (DESeq2, GSEA/MSigDB, limma, Cytoscape/STRING) to uncover immune–metabolic pathways linked to rebound susceptibility
- Developing **predictive models** (logistic regression, random forest with cross-validation in scikit-learn) to integrate transcriptomic and cytokine features into a baseline rebound "signature"
- Conducting **single-sample and pathway-level analyses** (SLEA, correlation with viral load trajectories) to connect baseline immune programs with rebound dynamics.
- Designing **visualizations and reproducible workflows** (PCA, UMAP, heatmaps, pathway dot plots) to distill complex analyses into actionable biological insights.
- Translating findings into **HIV cure research strategies**; authored and presented a **$5K ResearchHub microgrant**, externally peer-reviewed

Athena Drug Delivery Solutions Pvt Ltd | Ambernath, Maharashtra, India
Internship ***Jun. 2022 - July. 2022***

- Collaborated with teams to ensure **quality control** and **microbiological testing** compliance
- Applied **problem-solving** to improve processes and maintained **detailed records** with attention to detail
- **Communicated effectively** to report findings and worked both **independently** and **in teams** to streamline laboratory operations

PROJECTS

Single-cell RNA-seq: Tumor Immune Profiling | Northeastern University ***April. 2025***

- Replicated scRNA-seq workflow (Seurat in R); performed QC, normalization, clustering, and pathway analysis to identify immune cell signatures in lung cancer samples.

Heart Failure Detection Using Machine Learning | Northeastern University ***April. 2025***

- Built Decision Tree, Logistic Regression, and Random Forest models on clinical data; applied preprocessing, feature engineering, and evaluation (ROC-AUC, F1) to improve predictive accuracy

Bulk RNA-Seq: Gene Expression & Pathway Analysis | Northeastern University ***Feb. 2025***

- Processed RNA-seq data (Salmon, DESeq2) and identified regulatory gene changes; performed pathway enrichment (GSEA) to highlight disease-relevant immune networks

Genome Assembly and Variant Calling for SRR2584868 | Northeastern University ***Jan. 2025***

- Designed an NGS pipeline (Trimmomatic, FastQC, STAR, bcftools) for genome assembly, alignment, and variant calling; visualized genetic variation in IGV and documented workflow on GitHub

CERTIFICATIONS

- Data Science & Analytics: DataCamp (Tidyverse, tidymodels, dplyr, ggplot2, SQL) ***Nov. 2024***
- Bioinformatics & Life Sciences: Ethical Edufabrica ***Dec. 2022***
  (Cancer Biology, Molecular Biology, Pharmacovigilance, Vaccine Technology)
- AWS Academy: Machine Learning Foundations ***Feb. 2022***