

DOMINIQUE DANG

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Education

Massachusetts Institute of Technology

May 2027

B.Sc. Computer Science & Molecular Biology

Classwork: Biostatistics, Modern Computational Biology, Machine Learning in Molecular and Cellular Biology, Algorithms, Probability & Statistics, Linear Algebra

Research & Work Experience

Undergraduate Research *Prof. Nir Hacohen — Broad Institute of MIT & Harvard* **Aug. 2025 – present**

- Analyze single-cell RNA-seq data from cutaneous and mucosal melanoma to identify cellular and molecular mechanisms underlying differential immunotherapy responses
- Identify immune and tumor-intrinsic genes and pathways that suppress anti-tumor immunity by integrating transcriptomic profiles

Novartis Biomedical Research Institute *Oncology Data Science Intern*

May 2025 – Aug. 2025

- Developed a predictive ML model in Python/R that achieved 85% accuracy in forecasting tumorigenesis outcomes by integrating differential expression (DESeq2) and enrichment (GSEA) features, uncovering 200+ biomarkers significantly associated with tumor formation
- Applied gene signature scores to single-cell RNA-seq data from human breast cancer tumors to identify malignant subpopulations with high engraftment potential

Undergraduate Research *Prof. Eliezer Calo - MIT*

Jan. 2025 – Aug. 2025

- Analyzed nanopore sequencing data to resolve tRNA splicing patterns and detect RNA modifications
- Designed and optimized bioinformatics pipelines incorporating tools such as NanoPlot (read QC), BWA (read alignment), and DESeq2 (differential expression/statistical analysis)

Publications

J. Clarin, **Dang, Dominique**, L. Santos, and R. Amini. Mechanical characterization of porcine tricuspid valve anterior leaflets over time: Applications to ex vivo studies. *ASME Open Journal of Engineering*, 2:021032, 05 2023. ISSN 2770-3495. doi:[10.1115/1.4062477](https://doi.org/10.1115/1.4062477).

Leadership & Extracurriculars

HackMIT *Logistics Director*

Feb. 2024 – present

- Led a 15-member subteam to organize HackMIT, one of the largest U.S. collegiate hackathon, enhancing operational efficiency and streamlining the review process for 3,000+ applications

MIT Museum *STEM Educator*

March 2023 – present

- Facilitated the Maker Hub and Learning Lab, encouraging and educating over 50 daily visitors on STEM topics through interactive activities and hands-on demonstrations

Technical Skills

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|-----------------------|--|
| Programming | Python (pandas, scikit-learn, PyTorch), R (Seurat, ggplot2), MATLAB, Bash, Git |
| Bioinformatics | RNA-seq analysis, DESeq2, FASTQ/FASTA, SAMtools, IGV, Scanpy |
| Lab Techniques | PCR, gel electrophoresis, Gibson Assembly, flow cytometry |

Awards

1st place, Innovation in Research: Data Science Received at Novartis Summer of Science Internship. **2025**

Genetic Medicine Scholar

2025

Selected as 1 of 12 MIT sophomores for Eli Lilly's competitive research fellowship, contributing to disease pathology mapping, therapeutic target identification, and early-stage drug development strategy design (pre-clinical study planning, therapeutic design, and regulatory submissions).

Top Beginner Hack Received at HackMIT, one of the largest collegiate hackathons in the US.

2023