

# Sammy Mustafa

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## EDUCATION

**Harvard Medical School** | Longwood, MA  
Incoming Master of **Biomedical Informatics**

December 2024

**Northwestern University** | Evanston, IL

June 2023

Honors Program in Medical Education (**HPME**): 7-year BA/MD program  
Bachelor of Arts in **Biological Sciences**, Concentration in **Computational & Systems Biology** | Minors: **Data Science & Linguistics**  
**GPA**: 3.92/4.00 | Dean's List (8/9 Quarters)

**Relevant Courses**: Bioinformatics, RNA Sequencing, Functional Genomics, Biostatistics, Data Science I-III (R), Data Visualization, Computer Programming (Python), Statistics for Language Sciences, Text Processing, Organic Chemistry, Biochemistry

## SKILLS

**Languages**: R | Python | Unix | MATLAB | HTML | SQL | JavaScript

**Techniques**: AI | Machine Learning | BLAST | Genomics | RNA-Seq | DGE | ChimeraX | Data Visualization | EPA | Microsoft Office

**Spoken Languages**: Spanish (Intermediate) | Arabic (Beginner)

## RESEARCH EXPERIENCE

**Mercurial-AI** | Chicago, IL

Business Consultant and Research Analyst, AI Tech Start-Up

March 2023 – Present

- Develop, implement, and present strategic and operational changes to garner funding from venture capital outreach programs
- Overlook the development of the deep ensemble neural network technology leveraged for underserved breast cancer patients

**Feinberg School of Medicine, Department of Medicine (Cardiology)** | Chicago, IL

Research Fellow, Vaughan Lab

March 2021 – Present

- Probe the RNA-binding protein SERBP1 to combat PAI-1 induced fibrosis, senescence, aging, and Alzheimer's *in vitro*
- Developed a novel, transgenerational epigenetic method of prion-mediated PAI-1 destabilization
- Manage, model, and visualize genomic, plasma, and genealogic data from Amish community with unique null mutation via R

**Polytechnic University of Catalonia, Department of Physics** | Barcelona, Spain

Research Assistant, Computational Biology and Complex Systems Lab

June 2022 – September 2022

- Designed mathematical and spatial resolution models of the cAMP-PDE signaling pathway in atrial myocytes via MATLAB
- Created differential formulas to model the autonomic effects and calcium levels of atrial fibrillation risk variant rs13143308T

**Yale University, School of Management** | Remote

Research Assistant, Behavioral Research Lab

March 2022 – July 2022

- Collaborated with an inter-institutional team of professors investigating the effectiveness of negotiation strategies
- Cleaned, explored, and analyzed housing negotiation data to identify the linguistic behaviors that produce optimal outcomes for buyers and sellers via Python; compared the source of reduced variance in verbal vs. non-verbal experiments

**Bergen County Academics, Cell Biology Research** | Hackensack, NJ

Research Fellow, Cell Biology Lab

September 2016 – June 2020

- Studied the PTEN pseudogene in regulating the PI3K/Akt pathway in glioblastomas via miRNA repression *in vitro*
- Conducted bacterial transformation, transfection, qRT-PCR, ELISA, flow cytometry, autophagy and migration assays, etc.

## PUBLICATIONS & PROJECTS

- ONGOING: Probing the potential of first-degree relatives' panomic data with machine learning techniques for more personalized and effective treatment recommendations for mental health disorders like depression (**Precision Psychiatry**)
- Predictive and Machine Learning Regression Models for US County Cancer Mortality Rates
- Personalized Anxiety-Relief Song Recommendations via Spotify API
- SERBP1: Exploiting RNA-Binding Protein-Mediated PAI-1 Inhibition*
- PTENP1: A Pivotal Pseudogene in Glioblastomas*

## HONORS & AWARDS

HPME (2021) and Weinberg (2022) Summer Research Grants  
2<sup>nd</sup> Place – Biochemistry, BCA Research Exposition

Regeneron Science Talent Search Scholar  
Thermo Fisher Scientific Antibody Scholarship (\$5,000)

## WORK EXPERIENCE

**Northwestern University Residential Services** | Evanston, IL

Resident Assistant

August 2021 – Present

- Oversee 44 residents, serve overnight duty shifts, work the front desk, and develop community builder events
- Represent the RAs on the RA Advisory Board, advocate for adjustments to the position and services