

# Shresht Bhowmick

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## EXPERIENCE

### MIT MEDIA LAB FLUID INTERFACES GROUP | RESEARCHER

January 2025 – Present | Boston, MA

- Training embedding models to create digital twins.
- Building personal AI stacks (data pipelines, on-device inference, hardware integration) to empower users with full control over their own models.
- ML research on fine-tuning and post-training optimization, with a focus on replicating and adapting individual styles of thought and writing.
- Investigating novel approaches in linguistics and information theory to refine embedding architectures.

### NORTHEASTERN NEUROMECHANICS LAB | RESEARCHER

October 2024 – Present | Boston, MA

- Built high-performance computing pipeline for >200GB dataset processing, 80x-ed the speed of the previous pipeline.
- Developing reinforcement learning (RL) algorithms for controlling complex exoskeleton and human movement.
- Participating in NeurIPS as an organizer and researcher in the MyoChallenge.

### SAPIENTIA RESEARCH | RESEARCHER

July 2024 – Present | Boston, MA

- Co-authored research applying homomorphic encryption (HE) to neural data, enhancing security with maintained usability, while proving 10 GB dataset encrypted dataset processing for under \$2.
- Currently developing a general-purpose biocomputers.

### SAMANTAR LABS | SOFTWARE ENGINEERING INTERN

June 2022 – Dec 2022 | Bangalore, India

- Reduced cloud infrastructure expenses by \$2,500/month through efficient SDK deployment and resource optimization.

### ROBOCUP | TEAM CAPTAIN

Dec 2022 – July 2023 | Paris, France

- Led team to 1st place finish at Nationals; represented India at the Bordeaux International Round.
- Engineered, programmed, and optimized four autonomous robots using Arduino and Raspberry Pi.

## PROJECTS/AWARDS

### FIBERFINDER | COMPUTER VISION FOR RECYCLING

December 2022 – Present

- ML model which detects non-textile parts on clothes for automated recycling. Used in Bangalore's recycling program + finalist at the Blue Ocean Entrepreneurship Competition.

### TF-IDF SENTIMENT ANALYSIS | ON AN URDU DATASET

July 2022 - Jan 2023

- Sentiment analysis paper which won the Forum for Information Retrieval Evaluation's Best Paper award. <https://ceur-ws.org>

### SHFLA | TURING-COMPLETE MUSIC-TO-FRACTAL LANGUAGE

October 2024

- Created SHFLA, a Turing-complete system mapping musical input to real-time fractal visuals, winning the MIT Media Lab hackathon. <https://github.com/Tetraslam/SHFLA>

## EDUCATION

### NORTHEASTERN UNIVERSITY

BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND LINGUISTICS WITH A MINOR IN MATH

Expected April 2028 | Boston, MA

Cum. GPA: 4.0 / 4.0

## SKILLS

### PROGRAMMING

5+ years:

Python • C • Nim

3+ years:

Go • Typescript

1+ years:

Rust • Fortran • Zig

### TECHNOLOGY

Git • Supabase • Linux

PostgreSQL • NextJS • Redis

Bash • Pytorch • HPC • DSA

Network protocols • Concurrency

Shadcn • Posthog • Typescript

FastAPI • NodeJS • NumPy

CUDA • Triton • Tinygrad

## COURSEWORK

### UNDERGRADUATE

Data Structures and Algorithms

Accelerated Discrete Math

Object-Oriented Design

Calculus III

Advanced Linear Algebra

Graduate-Level Algorithms

Matrix Methods and Machine Learning

Compilers

Real Analysis

Fundamentals of Artificial Intelligence

Networks and Distributed Systems

## SOCIETIES

AeroNU Satellite Avionics

Rev Startup School Cohort 2

MIT Augmentation Lab

Northeastern Quantum Photonics Lab

## LINKS

GitHub:// [Tetraslam](#)

LinkedIn:// [shreshtbhowmick](#)

About Me (fun):// [blog.tetraslam.world](#)