# Shresht Bhowmick

bhowmickshresht@gmail.com | 617.593.0126

## EXPERIENCE

### 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 biocomputing architecture to support versatile and secure neural data processing.

### SAMANTAR LABS | Software Engineering Intern

June 2022 – Dec 2022 | Bangalore, India

- Researched and implemented low-latency advertising frameworks for virtual corporate exhibitions, enhancing user experience by minimizing ad footprint.
- Reduced cloud infrastructure expenses by $2,500/month through efficient SDK deployment and resource optimization.

### ROBOCUP | Team Captain

Dec 2022 – July 2023 | Paris, France

- Directed 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 platforms.

## PROJECTS/AWARDS

### FIBERFINDER | Computer Vision for Recycling

December 2022 – Present

- Created an ML model which detects non-textile parts on clothes for automated recycling. Now 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

- Worked on sentiment analysis research which won the 2022 Forum for Information Retrieval Evaluation conference's Best Paper award. Paper available here: https://ceur-ws.org/Vol-3395/T4-7.pdf

### 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**