

TARUSHII GOEL

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EDUCATION

Massachusetts Institute of Technology

Computer Science and Engineering (6-3)

GPA: 5.0/5.0

Aug 2022 - Jun 2025

Compilers, Hardware, & Systems

Software Performance Engineering
Interpreter Design
Computer Architecture
Secure Hardware Design
Computer Systems Security

Applied Probability (Grad Level)

Inference and Information
Discrete Probability and Stochastic Processes
Fundamentals of Probability

Theoretical CS (Grad Level)

Advanced Algorithms
Theory of Computation
Other
Quantum Physics
Organic Chemistry

Teaching Experience: TA for Compilers (Spring 2024), LA (Learning Assistant) for Computer Architecture (Fall 2023) (also earned 2nd place out of 80+ students in an open-ended project related to HW/SW co-optimization and processor pipeline design while taking this class)

Awards: Battlecode 2024 4th Place (AI Strategy competition), 1st place iQuHACK 2023 Quantum Challenge, 3rd place TreeHacks 2023 InterSystems Integrated ML Challenge, Prysman Women in STEM Scholarship Winner

Thomas Jefferson High School for Science and Technology

Alexandria, VA

GPA: 4.58/4.0

Aug 2018 - Jun 2022

Awards: Silver Medalist European Girls Olympiad in Informatics, USA Computing Olympiad Camper, USA Physics Olympiad Exam Qualifier, Classiq Quantum Computing Youth Prize Winner, Girl Scout Gold Award

WORK EXPERIENCE

Codeium

Software Engineer Intern

Jun 2023 - Aug 2023

- **Machine Learning:** Wrote a distributed model training framework for their large language models in PyTorch.
- Improved inference speed 2x with kernels for accelerated matrix operations (e.g. row normalization, quantized matmul, dequantization), modifying NVIDIA's CUTLASS library.
- **Product Development:** Built a [plugin](#) for their code-completions product for Sublime Text with 4k+ downloads
- **Data Processing:** Designed a hashing algorithm for code attribution on generated code completions. Developed infrastructure to search 4TB of data with minimal latency. Developed Map-Reduce primitives for data processing.

Quera

Algorithms Intern

Jan 2023 - April 2023

- Tested novel approaches to quantum reservoir computing and developed tutorials to run the algorithms
- Demonstrated quantum advantage in problems in [VLSI chip design](#) and scheduling

RESEARCH EXPERIENCE

Joint Quantum Institute

Research Intern

Jun 2022 - Aug 2022

Supervisor: Dr. Alexey Gorshkov

- Used the Cramer-Rao bound to research the use of photonic sensors for estimating unknown parameters. Paper on [arXiv](#).

Dartmouth-Hitchcock Medical Center

Machine Learning Intern

Jun 2021 - Aug 2022

Supervisor: Dr. Joshua Levy

- Developed an tool for Mohs Skin Surgery that gives real-time guidance to pathologists in locating cancer
- Implemented Mask-RCNNs and graph neural networks for nuclei segmentation and classification in tissue images
- Produced several technical papers: [ArcticAI](#), [Assessing Colorectal Tumors](#), [AI in Pathology](#)

SKILLS

Programming Languages: C/C++, Python, Go, Javascript, Rust, Java, Julia, CUDA, VHDL, Mathematica

Technologies: Pytorch, Git, Docker, Linux, Apache Arrow/Spark, Qiskit, React.js, HTML/CSS, Android Studio, Arduino