

Jon Rosario

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Education

Massachusetts Institute of Technology (MIT)

M.Eng. in Computer Science, focusing on Formal Verification

Expected graduation date: May 2025

B.S. in Computer Science, B.S. in Mathematics | [Link to all courses](#)

Advised by Adam Chlipala

GPA: 4.8/5.0

Relevant Courses: Advanced Algorithms^G, Software Construction^T, Software Performance Engineering, Advanced Complexity Theory^G, Machine Learning^T, Linear Algebra & Optimization^T, Quantum Computation^G

^G = Graduate Level Course, ^T = Teaching/Lab Assistant or Grader

Experience

Massachusetts Institute of Technology (MIT)

Fall 2024

Graduate Teaching Assistant – Grading Coordinator

Theory of Computation, Michael Sipser

- Supervised 30 problem set graders, coordinated grading via Gradescope, and ensured timely completion and accuracy.
- Designed rubrics, managed regrading, and participated in grading meetings to meet one-week release deadlines.
- Supported students via Piazza, proctored exams, and assisted with final grade determination for over 200 students.

Amazon

Summer 2023

Software Development Engineer Intern

Java, Python, TypeScript, AWS, Git

- Developed the next version of the widely-used internal solution for fine-grained ML workflow orchestration.
- Implemented a dynamic custom scheduler, enabling task distribution among multiple worker groups with efficient management and scaling through a bin-packing algorithm. This innovation is projected to yield annual cost savings of approximately \$0.5 million or a 25% reduction in compute expenses.
- Surpassed project expectations by revamping internal infrastructure to expand the range of compatible worker-types.

NASA JPL

Summer 2022

Intern

Python, Machine Learning, Git, C/C++

- Designed Python programs to carry out end-to-end assessment of radiometric terrain-corrected SAR products, using state-of-the-art C/C++ software to process spaceborne/ airborne InSAR (Mentor: Gustavo H. X. Shiroma)
- Worked on the open-source library InSAR Scientific Computing Environment ISCE3 currently being built by NASA JPL engineers in C++ and corresponding Python wrapper COMPASS.
- Analysis was presented in conference at [IGARSS 2023](#). Published work is available at [1](#) and [2](#).

MIT Directed Reading Program

Winter 2023

Participant

- Collaborated with another undergraduate in learning about classical and quantum probabilistically checkable proofs, and met with a graduate mathematics student to present the material multiple times per week.

MIT Glaciers Group

Summer 2021

Undergraduate Researcher

Python, Google Cloud, JavaScript, Machine Learning, Git

- Researched and presented methods for analyzing glaciers in Antarctica and created software in Python/Javascript to efficiently pre-process radar files greater than 100GB for use in machine learning (Mentor: Brian Riel).
- Utilized Google Cloud tools, Python, and JavaScript for computer vision and pattern recognition. Successfully implemented two image speckle filtering methods: Frost filter and Gamma MAP filter, following Lopes et al. 1990.

Projects

- Implemented a CW-randomness extractor in C and Python based on Carter and Wegman's construction to partially derandomize the Polynomial Identity Testing (PIT) problem, showcasing theoretical interest in randomness extraction.
- Implemented a multithreaded AI for a Chess-like game in C featuring LazySMP, bitboards, and an opening book.
- Programmed a bot managing its own database of images and a custom hashing solution for quick image comparison.
- Developed and launched a [Django-based website](#), migrating and scraping data into a structured database.
- Created the first solution set available on programming exercises from Abstract Algebra: Theory and Applications.

Skills and Technologies

Languages: Python, TypeScript, JavaScript, C/C++, Java, Coq, Julia Lang, Bash, HTML, CSS

Technologies & Tools: Git, Linux, Docker, AWS, Google Cloud, PyTorch, CI/CD, IaC, Django