

Thomas F. McFarland

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github.com/tf-mac

Education

- 2022-Expected May 2025 **B.S. in Computer Science**, *Cornell University*, College of Engineering, *GPA – 3.91*.
Notable classes include Discrete Structures, Linear Algebra, Functional Programming, Analysis of Algorithms, Machine Learning, Reinforcement Learning, and Embedded Systems. Plans to take computational complexity, graduate machine learning, and higher level probability, linear algebra, and combinatorics classes. Intended minor in Physics.
- 2018-May 2022 **Highschool Diploma**, *Fordham Preparatory School*, *GPA – 3.99 Unweighted*.
Distinguished academic achievement. Awarded top in my class for Math and English. Awarded \$25,000 scholarship for STEM.

Work Experience

- March 2023–Present **Assistant Researcher**, *Cornell University*, Ithaca, NY..
Under Prof. Guidi, I merged two sparse matrix libraries, allowing distributed matrix multiplication over a semiring using GPUs. Gained strong experience in MPI, CUDA, and OpenMP
- June 2024–August 2024 **Student Intern**, *NASA*.
Interning with the Wallops Flight Facility, helping to organize proposal data in order to identify trends for future proposals. Use of both existing software (excel) and machine learning techniques intended.
- December 2023–Present **Teaching Assistant**, *CORNELL UNIVERSITY*, Ithaca, NY.
Helped teach the class Discrete Mathematics (CS 2800) by hosting discussion sections as well as office hours, and grading assignments. Will assist Systems Programming (CS 4414) in the fall
- February 2023–May 2023 **Developer**, *Cislunar Explorers*, Ithaca, NY..
Worked on the Cislunar Explorer team until its dissolution. Integrated the two pieces of software (a simulator and flight software) using both shared memory and encapsulation.

Projects

- December 2022 Developed the top final assignment for an optimization problem, outperforming the professor's solution as well as all other students
- May 2023 Developed a majority of the final project for my functional programming class, successfully implemented a typing capable database
- Ongoing Developed and is still optimizing a [distributed GPU-capable semiring matrix multiplication program](#) as part of research
- January 2024 Improved significantly on the [pep band web software](#), from improving exports to adding a leaderboard

Skills and Abilities

- Programming Language JAVA, L^AT_EX, PYTHON, OCAML, JULIA, C++, C, ASSEMBLY, CUDA
- Programs and Frameworks Office, Windows, Linux (esp. Gentoo), GIT, MPI, OpenMP, AWS, Tensorflow, Jupyter Notebook, Qiskit, PyTorch, Bash, Numpy, Scipy

Interests

- Trumpet
- Rock Climbing