

# Mehrab Hossain

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## EDUCATION

**Cornell University** | Major: Mechanical Engineering | GPA: 3.541

*Expected Graduation, May 2028*

- Relevant Coursework: Multivariable Calculus, Differential Equations, Statics and Mechanics of Solids, Thermodynamics
- Honors: Bridges Scholar
- Organizations: American Society of Mechanical Engineers, Office of Inclusive Excellence, Muslim Student Association

**Medgar Evers College Preparatory School** | GPA: 99.36

*June 2020 – June 2024*

- Secretary, Knights Of Wisdom Chess Team
- Relevant Coursework: AP Calculus BC (5), AP Statistics (5), AP Computer Science A (4)
- Honors & Awards: AP Capstone Diploma, AP Scholar with Distinction, Advanced Regents Diploma
- Programs: Chess in the Schools, First Tech Fund

**Medgar Evers College** | A.S. Biology - GPA: 3.836/4

*June 2022 – May 2024*

- Honors: Summa Cum Laude

## EXPERIENCE

**Undergraduate Researcher - HuBMAP Program**

*May 2025 - June 2025*

*University of Florida* | Gainesville, Florida

- Analyzed histological and spatial-omics datasets using FUSION to identify cellular patterns in human organ systems.
  - Looked at samples of ovaries and observed the composition of different genes.
- Reconstructed an interactive dashboard using Python that displays different tabs utilizing FUSION tools

**Medgar Evers College STEAM Summer Institute Counselor**

*July 2024 – Aug 2024*

*Summer Youth Employment Program* | Brooklyn, New York

- Taught robotics, computer science, and 3D design to 30+ middle/high school students; improved engagement by creating hands-on labs.
- Coordinated field trips for 120 students, ensuring safety and educational value.

**Tournament Director**

*January 2023 – 2025*

*Imagine Chess* | New York, New York

- Directed 20+ youth chess tournaments with 100+ participants. Oversaw logistics, enforced tournament rules, and communicated with parents and staff to ensure a professional environment.

## PROJECTS

**Reddit CMV Thread Analyzer - CS1110 (Python)**

*March - April 2025*

- Developed a Python script to analyze Reddit threads from the "ChangeMyView" subreddit, parsing JSON data to identify delta awards and measure user persuasion patterns.
- Found that henge words, such as "would", "could", "believe", are more frequent in non-persuasive comments. In contrast, persuasive comments show a slightly higher use of tentative but confident markers like "maybe" and "usually", possibly reflecting a balance between confidence and openness.
- Traversed nested comment trees recursively to track delta eligibility, validating award conditions from the thread's JSON data

## VOLUNTEERING

**FIDE World Rapid & Blitz Championships Volunteer**

*December 2024*

- Regulated visitor and media entrance of the venue while maintaining a professional environment.

**National Honor Society Tutor**

*October 2022 – June 2024*

*Medgar Evers College Preparatory School* | Brooklyn, New York

- Conducted weekly 1:1 and group tutoring sessions with middle/high school students from MECPS.
- Increased students' proficiency with regents and AP level courses, including: calculus, physics, and biology.

## SKILLS

**Programming Languages:** Python, Java

**Communication, Research**

**Fusion360, SolidWorks, ANSYS**