Mai Al Shaaban

mai.103.maialshaaban@gmail.com | [LinkedIn](#) | [GitHub](#) | [ePortfolio](#)

EDUCATION

Brandeis University   Jan. 2024 – May 2026
B.S. in Applied Mathematics and Computer Science   *Waltham, MA*
*Transferred from Southern Illinois University–Edwardsville (SIUE), Aug. 2022 – Dec. 2023

Relevant Coursework: Numerical Methods, Scientific Computing, Data Structures, Machine Learning, Deep Learning, Computer Systems, Real Analysis, Advanced Calculus and Fourier Analysis, (Partial/Ordinary) Differential Equations.

ACADEMIC EXPERIENCE AND RESEARCH

Research Student, Undergraduate Mathematics Research at Yale (SUMRY)   Summer 2025
Yale University, Department of Mathematics   *New Haven, CT*
- Selected as one of 19 students (10 non-Yale) to participate in this highly competitive research program.
- Appointed **Evaluation Chair** to represent students and provide feedback on program as a whole at the end.
- Leading daily research discussions for the 4-person Machine Learning in Computational Fluid Dynamics group.
- Developing a complete pipeline from scratch to preprocess and analyze complex CFD simulation data, extracting Liutex features for modeling.
- Applying methods (POD, NNMF) to reduce dimensionality and uncover patterns in high-dimensional data.
- Designing deep learning models (RNNs and temporal CNNs) to predict time series of fluid flow features from simulation metadata; Integrating learned models with Navier–Stokes solvers to speed up simulations while preserving physical consistency and accuracy.
- Attending weekly colloquiums on advanced mathematics topics (Topology, Geometry, Knot Theory).
- Preparing final paper and poster for submission to conferences such as *Jane Street Math Day*

Data Science Intern   May 2024 – Dec. 2024
Juvena Therapeutics   *Remote*
- Documented data preparation processes to enable optimal analysis and visualization, performing data collection, preprocessing, cleaning, and integration across 10+ in-house and public databases for 3 major company research projects on disease studies.
- Generated actionable insights for biologists and pharmacists by applying statistical modeling, clustering, and exploratory data analysis with optimized visualization tools, contributing to research on 3 diseases.
- Improved team alignment and project visibility by providing weekly updates to the supervisor, presenting bi-monthly to the data science team, and delivering a final summary presentation to the company.

Undergraduate Teaching Assistant (Incoming)   July 2025 – Aug 2025
Brandeis Michtom School of Computer Science   *Remote*
- Lead weekly virtual recitations for students enrolled in Advanced Programming Techniques in Java
- Grade programming assignments, contributing 40% - 50% of the students' course grades.
- Meet regularly with the course instructor to align on expectations and share feedback from a TA's perspective.

Undergraduate Teaching Assistant   Aug. 2023 – Dec 2023
SIUE Department of Mathematics and Statistics   *Edwardsville, IL*
- Led 2 weekly sessions for Calculus I students, testing their understanding of materials in groups.
- Graded worksheets, contributing 10% - 15% to students' course grades on a weekly basis, helping assess their understanding and progress.
- Collaborated with faculty and the enrichment sessions coordinator to align sessions with the curriculum.

Research Assistant   Feb 2024 – April 2024
Brandeis University Guided Reading Research Program (GRP)   *Waltham, MA*
- Collaborated with a fellow undergraduate student and a PhD scholar to study Clifford Algebra concepts.
- Participated in weekly meetings to discuss abstract algebra topics and track research progress.
- Developed skills in communicating mathematical concepts through discussions and a final presentation to members of the Math department.

Undergraduate Research Assistant   Jan. 2023 – Dec. 2023
Southern Illinois University Edwardsville (SIUE) School of Business   *Edwardsville, IL*
Undergraduate Research and Creative Activities (URCA) Program
- **Evaluating Pension Plan Performance in Missouri and Illinois:**
  * Conducted research on pension plans with a professor in the Economic and Finance department.
  * Collected and analyzed data, identifying the 5 best/worst plans based on 20-year investment returns.
- **Research on Personifying Alexa and AI Code Effectiveness:**
  * Worked with a professor in the Computer Management and Information Systems department.
  * Researched Alexa personification's impact on reviews; Scripted data from local and global seller websites (BestBuy, Amazon, ASDA, Tesco, FlipKart).
  * Contributed to a project on AI code effectiveness on GitHub with another department professor.

Data Scientist Jan. 2025 – May 2025

Brandeis University Branda App Development Team *Waltham, MA*

- Worked with a fellow to integrate transportation data from WhatEvent and MBTA into the Branda app, using machine learning to enhance real-time transit recommendations.
- Presented findings to the team and supported development by translating data insights into improved app features.

Resident Assistant March 2023 – Dec. 2023

SIUE Housing *Edwardsville, IL*

- Fostered a safe environment, conducted mediation sessions, and enforced policies while supporting 37 residents in the first semester (2 buildings) and 64 residents in the second semester (3 buildings)
- Collaborated with RAs, pro-staff, and faculty for events, and attended a weekly class on leadership and interpersonal skills.

LEADERSHIP AND MENTORSHIP EXPERIENCE

Deputy Treasurer & Incoming Co-Head Treasurer (2025–2026) Jan. 2024 – Present

Brandeis University Students Union (SU) *Waltham, MA*

- Selected to serve as Co-Head Treasurer for the 2025–2026 academic year.
- Processed over 240 club payments across three semesters and coordinated with the university budget office.
- Monitor budget progress and provide financial reports through regular meetings with the budget analyst.
- Represent the treasury at Student Union retreats and meetings.
- Conduct training sessions for club treasurers on financial procedures.
- Lead semester-end budget reconciliation for all clubs.

Vice President (Now) & Event Coordinator (Previously) Jan. 2025 – Present

Girls Who Code (GWC) Brandeis Chapter *Waltham, MA*

- Elected to serve as Vice President for the 2025–2026 academic year.
- Preparing for the 1st conference at Brandeis organized by a students' club on Sep. 13th, 2025.
- Organized GWC Galentine's Day event (featured in the Student Engagement February 2025 Newsletter).
- Planned, coordinated, and executed events, collaborating with internal clubs while ensuring requirements are met, managed timelines, and handled last-minute changes.

Undergraduate Departmental Representative (Incoming) 2025–2026 Academic Year

Brandeis University, Department of Mathematics *Waltham, MA*

- Selected to represent undergraduate students in departmental discussions on curriculum, events and activities.

Mentor Feb 2025 – April 2025

Brandeis University Department of Mathematics *Waltham, MA*

- Mentored 5 students weekly in 50-minute sessions, advising on math majors, courses, and career opportunities.
- Helped students pick degree paths and find summer jobs, internships, and other university programs.
- Used my experience to guide students in their academics and career plans as a Math Department mentor.
- Led talks on math degree options helping students match their goals with available courses and resources.

Team Lead (Now) & Mentor (Previously) May 2023 – Present

Syrian Youth Empowerment (SYE) *Remote*

- Mentored 3 students through the one-year program, providing 1:1 guidance on college admissions, and typically mentor 2 new students annually each cycle.
- Organize weekly/bi-weekly meetings to track progress, ensure deadlines were met, and assist with application submissions. Along with monitoring important dates and setting reminders.
- Promoted to Team Lead to supervise a group of mentors and mentees and support their overall progress.

TECHNICAL SKILLS AND LANGUAGES

Programming Languages: Java, Python, C/C++, JavaScript, R, MATLAB, LaTeX
Libraries: pandas, NumPy, SciPy, Matplotlib, scikit-learn, TensorFlow, Keras, PyTorch, Seaborn
Developer Tools: Google Cloud Platform, VS Code, Visual Studio, PyCharm, Eclipse, Paraview
Other Technical Tools: Workday, Latte, Moodle, Google Suite (Slides, Docs, Sheets, Calendar), Canva, Calendly
Spoken Languages: Arabic (Native), French (Upper-Intermediate)

HONORS AND AWARDS

- Math Mentor Award (Spring 2025).
- Bertha A. Sigilman Endowed Scholarship (2024 - 2025 academic year).
- Student Leader Prize - Awarded for supporting SU treasury and club finances (Spring & Fall 2024, Spring 2025).
- Dean's List Scholar(Fall 2022, Spring & Fall 2023, Spring 2024, Spring 2025).
- AMY Fund Scholar - Recognized for academic excellence and community involvement (2023).
- Recognized <u>twice</u> with a prize for involvement in SIUE Undergraduate Research program (URCA) (2023).
- Selected as one of only 5 SIUE student representatives at the National Honors College Honors NHCH Conference in Chicago (2023).
- Member and President of The National Society of Collegiate Scholars (NSCS) SIUE Chapter (2023).
- Honored with a certificate for presenting a paper in the Central States Communication Association (CSCA) Undergraduate Honors Research Conference (2022).