

Mai Al Shaaban

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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)

June 2025 - Present

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, identifying vortex structures and extracting features for modeling.
- Applying methods (POD, NMF) to reduce dimensionality and uncover patterns in high-dimensional data.
- Designing deep learning transformers-based models 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.
- Led two Community Seminars throughout the program: *Women in Mathematics & Forbidden Mathematics*
- Attending weekly colloquiums on advanced mathematics topics (Topology, Geometry, Knot Theory).
- Presenting findings in multiple conferences: *Jane Street NYC Math Day, Yale and Williams College Math Programs Combined Conference and Young Mathematicians Conference.*

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

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
<i>Brandeis University Branda App Development Team</i>	<i>Waltham, MA</i>
<ul style="list-style-type: none"> 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
<i>SIUE Housing</i>	<i>Edwardsville, IL</i>
<ul style="list-style-type: none"> 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

Co-Head Treasurer (Now) & Deputy Treasurer (Previously)	Jan. 2024 – Present
<i>Brandeis University Students Union (SU)</i>	<i>Waltham, MA</i>
<ul style="list-style-type: none"> Selected to serve as Co-Head Treasurer for the 2025–2026 academic year, co-overseeing financial operations for approximately 200 student clubs, co-managing SU finances, and co-leading the SU treasurers team of 12. 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
<i>Girls Who Code (GWC) Brandeis Chapter</i>	<i>Waltham, MA</i>
<ul style="list-style-type: none"> 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
<i>Brandeis University, Department of Mathematics</i>	<i>Waltham, MA</i>
<ul style="list-style-type: none"> Selected to represent undergraduate students in departmental discussions on curriculum, events and activities. 	
Mentor	Feb 2025 – April 2025
<i>Brandeis University Department of Mathematics</i>	<i>Waltham, MA</i>
<ul style="list-style-type: none"> 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
<i>Syrian Youth Empowerment (SYE)</i>	<i>Remote</i>
<ul style="list-style-type: none"> 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 twice 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).