

# Salman Aji

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## EDUCATION

### Brown University

B.Sc. in Computer Science, B.Sc. in Applied Mathematics GPA: 4.0/4.0

Relevant Courses: Software Engineering, Data Structures, Machine Learning, Computer Systems, Computer Vision, AI, Deep Learning

The National Center for the Distinguished (STEM Magnet High School) GPA: 100/100

Latakia, Syria | June 2022

## EXPERIENCE

### VectraFlow Project, Incoming Research Assistant

Providence, RI | May 2025 – Present

- Selected for Brown's prestigious **Undergraduate Teaching and Research Award (UTRA)** to join the **VectraFlow** project—an AI-augmented database system that integrates large language models and machine learning to enhance query processing across **50,000+ longitudinal patient records** collected over **50 years**, representing the largest clinical dataset in Rhode Island.
- Will collaborate with clinicians and data managers at **Rhode Island Hospital** to gather system requirements and structure agile development sprints; the system is projected to reduce cohort selection and data retrieval time by over **90%**
- Joining the **LLM Agents Team** within VectraFlow to design and implement AI agents for **cohort definition, query correction, and data transformation** using LLM-based database operators.

### Computer Science Department at Brown, Head Teaching Assistant

Providence, RI | February 2025 – Present

- Appointed as the Head Teaching Assistant for Brown's new mandatory AI course. Responsible for leading and hiring a team of TAs from a competitive pool of **200** applicants, designing course materials, and developing autograders.
- Facilitated **200+** students' learning by leading weekly 2-hour help & lab sections; debugging; answering questions.

### Computer Science Department at Brown, Research Assistant

Providence, RI | November 2024 – May 2025

- Collaborating with Professor Amy Greenwald on Efficient Inverse Multiagent Learning, using Inverse Reinforcement Learning to model Spanish electricity markets as stochastic Fisher markets.
- Achieved **2.02x** lower mean squared error (MSE) compared to the ARIMA method, significantly boosting forecasting accuracy.

### HousingWorks RI, Data Analyst and Research Intern

Providence, RI | February 2024 – August 2024

- Automated data scraping, entry, analysis, and visualization using Python and R for large U.S. Census datasets to identify trends in housing affordability across Rhode Island municipalities, reducing time spent on repetitive tasks by **70%**.
- Conducted research on zoning policies to assist in the creation of the Housing Fact Book 2024, a key publication used to influence public policy and inform stakeholders and investors in Rhode Island.

## PROJECTS

### Bruno's Compass (Ongoing project) | Java, TypeScript, React, HTML, CSS, JUnit

Ongoing

- Developing an engaging website for **1000+** international students at Brown to ease their transition to life in the US.
- Integrated an AI chatbot trained on Brown-specific info to provide instant, reliable answers to student questions.

### Multi-Agent Framework for Go Gameplay | Python

September – December 2024

- Developed a suite of AI agents for the game of Go, including Monte Carlo Tree Search (MCTS), Q-learning, and deep learning models for value and policy learning, achieving an ELO rating of **1700**.
- Won a class-wide Go agent tournament, outperforming **65+** participants by using a hybrid approach with an agent combining MCTS, Q-learning, and Alpha-Beta pruning.

### Fullstack Vocabulary Tracker Web App| TypeScript, Firebase, Next.js, Playwright, Clerk

January – February 2024

- Built Vocablo, an AI-powered language learning web app using React, TypeScript, and Java, enabling Spanish learners at Brown to track vocabulary progress and identify gaps by automatically categorizing words into thematic clusters.
- Developed flashcards and integrated AI-powered testing to reinforce learned vocabulary and track user progress.

### Compact Operating System | C, C++, Git

February – March 2024

- Created a small operating system that allowed the creation of multiple processes and system calls including fork and sys\_page\_alloc, using page tables and memory allocation & freeing in C to enable kernel-managed virtual memory.

## EXTRACURRICULARS

### Syria Script, Volunteer TA

Virtual | August 2024 – Present

- Developed curriculum for northern Syria's first Boot Camp for refugee students, impacting **100+** participants.
- Conducted weekly virtual TA sessions for **20+** students in introductory programming concepts.

### Bonner Community Fellowship, Bonner Fellow

Providence, RI | September 2023 – Present

- Selected as one of **20** students for a prestigious 4-year fellowship to advance social justice through community engagement.
- Worked with Brown IgniteCS to expand CS education for underrepresented high school students in Providence.

### Full Stack at Brown, Lead Software Engineer

Providence, RI | October 2023 – Present

- Onboarded and mentored new members, guiding them through project workflows, best practices, and technical stacks.
- Built and deployed customized applications and websites for **10+** Brown and RISD clubs, enhancing user experiences.

## SKILLS AND INTERESTS

**Technical Skills:** Python, Java, C/C++, JavaScript, HTML/CSS, R, Racket, SQL, React, TypeScript, Playwright, Firebase, Next.js

**Languages:** English (Fluent), Arabic (Native), French (Intermediate) **Interests:** Linguistics, Social Justice, Music, Kayaking, AI Policy

**Awards:** National Valedictorian of Syria (top GPA in graduating class of **40,000**), Honorable Mention in the International Physics Olympiad, Honorable Mention in the International Mathematical Modeling Challenge