Husna Manalai

hm8295@bard.edu | (703)832-7743 | husnamanalai.com | linkedin.com/husnamanalai | github.com/husnamanalai

Education

Bard College, BA in Computer Science — Sept 2022 – May 2026

- **GPA:** 3.5
- **Relevant Coursework:** Object-Oriented Programming, Data Structures, Algorithms, Discrete Math, Intro to AI, Databases, Software Development, Machine Learning, Linear Algebra, Calculus II, Design of Programming.

Technical Skills and Languages

- **Technical:** Java, Python, SQL, HTML, CSS, JavaScript, Prolog, Haskell, AWS Services, Google Apps.
- **Languages:** English, Persian, Pashto, Turkish.

Experience

Research Intern, Bard Summer Research Institute – Red Hook, NY — June 2025 – August 2025

- Continued research on the math behind the card game Quads.
- Conjectured and proved the 6-Theorem of Quads, stating that a certain combination of cards will always form a quad.
- Created the Daily Quads Puzzle webpage, using JavaScript, giving a new Quads puzzle each day.

Math and Computer Science Tutor, Bard College – Red Hook, NY — Sept 2023 – May 2025

- Tutored Bard students one-on-one in introductory and intermediate math and computer science courses, such as Pre-Calc, Calculus I, Calculus II, Object Oriented Programming, Data Structures, Discrete Math, and Intro to AI.
- Tutored middle school and high school students through the Bard Math Circle in Algebra I, Algebra II, and Pre-Calc.

Data and Technology Intern, Third Act – Brooklyn, NY — Sept 2024 – Dec 2024

- Developed a data cleaning algorithm using Python and SQL to de-duplicate large datasets within the EveryAction CRM, reducing duplicate records, increasing data accuracy and improving outreach efficiency.
- Maintained the Working Groups lists, improving team collaboration and communication efficiency.
- Coded Google Apps script for formatting weekly ActBlue contributions, streamlining the donation tracking process.

Research Intern, Bard Summer Research Institute – Red Hook, NY — May 2024 – Sept 2024

- Researched the math behind the card game Quads, using finite geometry and combinatorics.
- Developed Python code to more efficiently calculate the probability of a quad in a k-card layout.
- Collaborated in creating a multiplayer Quads game in Unity, enabling online play for 2 players.
- Designed a new math game called Kitten Kaboodle combining finite projective geometry with the game of SET.

ASC-Lab Research Assistant, Bard Summer Research Institute – Red Hook, NY — May 2023 – Sept 2023

- Conducted data analysis for the project titled *Unification Algorithm For The First Order Theory of Quandles*.
- Developed Prolog and Python scripts to generate quandle expressions, aiding in the testing of candidate algorithms.

Projects

Predictive Analytics for Bike Rental Demand

- Coded and compared two machine learning models: a Fully Connected Neural Network (FCNet) for regression and a Recurrent Neural Network (RNN) for time-series prediction.
- Used evaluation metrics (MSE, R^2) to assess the effectiveness of the model and interpret temporal and seasonal trends.
- Utilized tools such as Python, TensorFlow, and NumPy for data preprocessing, model development, and training.

Smart Recipe Recommendation Engine

- Designed and implemented an intelligent recipe recommendation platform that uses cosine similarity to personalize culinary suggestions.
- Built an algorithm using Python, pandas, and scikit-learn to analyze and compare ingredient profiles, dietary restrictions, and cuisine types.