

# SHREYA JHA

Bellingham, MA, 02019

☎ 508-320-7739 ✉ [sjha75@gatech.edu](mailto:sjha75@gatech.edu)

## Education

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### Georgia Institute of Technology

*Bachelor of Science in Mathematics and Computer Science*

GPA: 3.97/4.0

**Aug 2021 – May 2025**

*Atlanta, GA*

## Research Experience

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### Dr. Florian Schaefer's Lab at Georgia Tech

**Jan 2023 – Present**

*Undergraduate Research Assistant*

*Atlanta, GA*

- Developed and tested various cumulant truncation methods to approximate higher-order moments from a limited number of moments, and implemented Sum of Squares projection techniques using semidefinite programming
- Conducted Monte Carlo simulations to compare truncation methods against ground truth data for dynamic systems applications, enhancing accuracy in approximations
- Performed data analysis and experimental tests on function approximation, Duffing oscillator moment closure, population models, and chemistry moment closure to evaluate the performance of truncation methods
- Presented findings at the Georgia Tech Spring Symposium and received acceptance for a poster presentation at the SIAM Mathematical Foundations of Data Science Conference

### UCLA Institute for Pure and Applied Mathematics

**Jun 2024 – Aug 2024**

*Research Intern*

*Los Angeles, CA*

- Implemented the VF algorithm in Python and tested it across clean and noisy synthetic data, as well as real-world data
- Developed two neural network architectures to enhance VF performance in noisy conditions, including a rational neural network that showed higher accuracy with fewer parameters
- Combined strengths of both models by initializing the rational network with VF output, leading to improved performance in noisy conditions
- Submitted a poster presentation at the Joint Mathematics Meetings (JMM)

### The Medford Lab at Georgia Tech

**Jan 2022 – Dec 2022**

*Machine Learning Research Assistant*

*Atlanta, GA*

- Utilized Python's atomic simulation environment and quantum-mechanical simulations based on density functional theory to compute energies of various atomic and molecular reactions
- Trained neural network model on 3,000 data samples, curated from a 200,000 dataset, using PyTorch to predict potential energy of atoms based on their positions
- Evaluated numerous hyperparameter tuning algorithms, such as Covariance Matrix Adaptation Evolution Strategy, Tree-structured Parzen Estimator, and Random Sampling, analyzing them for their impact on model accuracy

## Work Experience

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### John Hancock Life Insurance Company

**May 2023 – Aug 2023**

*Data Science Intern*

*Boston, MA*

- Collaborated with senior machine learning engineers and data scientists to collect, preprocess, and clean datasets used for exploratory data analysis and classification models
- Performed an in-depth exploratory data analysis that included data visualizations using Matplotlib and Seaborn to discover patterns in agent retention, allowing for data-driven recommendations for the sales team
- Created and modified a Random Forest classification model predicting agent retention using Python Libraries including Pandas, NumPy, and Scikit-learn resulting in 10 percent increased accuracy

## Academic Experience

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### Heart Disease Risk Prediction

**Dec 2023**

- Conducted comprehensive EDA on large dataset using python libraries to find patterns in heart disease risk factors
- Preprocessed dataset using Principal Component Analysis and Recursive Feature Elimination
- Trained Random Forest, Naive Bayes, and Logistic Regression models on dataset to predict heart disease risk, resulting in model accuracy of over 90 percent

## Leadership / Extracurricular

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### Junior STEM

**Spring 2022 – Present**

*Advisor, President*

*Georgia Tech*

- Planned and executed a larger annual STEM exhibition, with over fifteen Georgia Tech organizations holding displays, and over one hundred K-8 students and family members attending
- Coordinated volunteers for science experiments with local elementary school students through regular communication

### Association for Women in Mathematics

**Fall 2024 – Present**

*Outreach Chair*

*Georgia Tech*

- Assisted in organizing biweekly meetings for networking, mentorship, and support for women in math

## Awards and Honors

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Presidential Undergraduate Research Award at Georgia Tech

*Spring 2024*

Dean's List at Georgia Tech

*Fall 2021- Spring 2024*