

# Nihar Shah

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## EDUCATION

**Texas A&M University - Undergraduate Research Scholar** *Graduation: May 2025*  
**B.S. in Computer Science Honors + Applied Mathematics** **GPA: 4.0**  
**Skills:** Python (OpenCV, Pandas, NumPy), C++, gRPC, MapReduce, ZooKeeper, GFS (Google File System), PyTorch  
**Awards:** Dean's List, Dean's Excellence Award Honorable Mention, NTSE Scholar, TCS IT Wiz National Winner  
**Relevant Courses:** Financial Math, Machine Learning, Distributed Systems, Probability, Software Development

## EXPERIENCE

**DIVE (Data Integration Visualization and Exploration) Lab** *August 2024 - Present*  
Undergraduate Researcher *College Station, TX*

- Enhanced the QHNet model's Hamiltonian matrix predictions by experimenting with various radial basis functions, leading to a 5% increase in model accuracy and efficiency in material property simulations.
- Currently trying to utilize OMat24 for material property prediction to support novel materials research, facilitating faster identification of viable compounds for engineering applications.

**Jane Street Capital** *May 2024 - August 2024*  
Trading Desk Operations Engineering Intern *New York, NY*

- Formulated and implemented a consensus algorithm that improved system performance by 50 times, significantly enhancing data retrieval and analysis processes.
- Developed an automation tool that accelerated email processing, handling tasks from extraction to error reporting.
- Enhanced the Python library for calculating Greeks on the Options Desk, improving the efficiency of options pricing.

**SRL (Sketch Recognition Lab)** *August 2023 - May 2024*  
Undergraduate Research Scholar *College Station, TX*

- Integrated genetics and machine learning to enhance early detection of Alzheimer's disease (AD).
- Identified the most important Single Nucleotide Polymorphisms (SNPs) from a pool of over 700k SNPs.
- Employed Explainable AI techniques like LIME and SHAP to elucidate the rationale behind identified features.

**Renesas Electronics** *May 2023 - August 2023*  
Software Engineering Intern *Austin, TX*

- Worked with an Agile team on a mission-critical project, meeting tight deadlines with precision and excellence.
- Developed and implemented a robust automation solution which detected 91 errors in configurations.
- Collaborated in the development of software which helped make validation of chips 4 times faster.

**JFF (Jobs For Future)** *May 2022 - August 2022*  
Data Science Intern *Boston, MA*

- Employed advanced NLP algorithms to effectively cluster and integrate data, resulting in the development of a robust data integration tool for a large-scale database comprising over 75,000 entries.
- Spearheaded the design and development of a user-friendly Sharepoint web application to enhance data accessibility.
- Conducted analysis of data sources, ensuring credibility, by employing comprehensive SQL querying techniques.

## PROJECTS

**Pop Tac Toe AI Bots: TAMU Datathon 2024 First Prize** *November 2024*

- Built AI bots to compete in Pop Tac Toe, a two-player 8x8 grid game.
- Made bots using heuristics, minimax with alpha-beta pruning, and reinforcement learning to find the best move.
- Created a bot combining heuristics and minimax to avoid losses.

**Embedding Crackers: TAMU Datathon 2022 Honorable Mention** *October 2022*

- Designed an algorithm using K-means clustering to analyze and cluster the embeddings of news articles.
- Implemented the algorithm to find the most relevant topic label by comparing the cosine similarity of two articles.
- Used the algorithm to predict 5 mystery articles topic labels and content.

**Not Another Driver: TAMUHack 2022 Hackathon Winner** *January 2022*

- Created an app to encourage safe driving practices using NodeJS.
- Used computer vision to detect overspeeding, sudden braking, and following distance of a car using the phone camera.
- The app provides a score based on your driving practices and motivates people to drive better.

## LEADERSHIP

**Aggie Competitive Programming Club** *August 2023 - Present*  
Logistics Officer

- Successfully manage logistics for meetings and contests while securing over \$7000 in funding for club events.

## PUBLICATIONS

Shah, Nihar (2024). *Enhancing Brain Cognitive Deterioration Analysis Using Machine Learning*. Undergraduate Research Scholars Program. On embargo hold until 2026.