

# Advay Vyas

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🌐 <https://advayvyas.github.io/>

## Employment History

- 2025 – ···· **Undergraduate Research Assistant**, University of Texas at Austin.  
Conducting flu forecasting research under Dr. Kim in the Meyers Lab. Utilized regression to understand trends in COVID and flu hospitalization, implemented Bayesian Additive Regression Trees for comparing local and state level forecasts, and employed metrics such as Dynamic Time Warping and Fréchet distance to analyze differences in curves of local and state emergency department visits for flu cases.
- Summer 2025 **Undergraduate Research Assistant**, Emory University.  
Worked on the Hybrid Regularization for Random Feature Models project under Dr. Drum in the Emory Computational Methods for Data Science REU. Implemented a hybrid regularization scheme with random feature models in MATLAB for image classification on medical data. Worked on brainstorming, coding, writing, and presenting research.
- Summer 2024 **Summer Finance Associate**, Spartan Fitness Holdings.  
Worked with the financial team at Spartan Fitness Holdings to clean, process, and report on location acquisition data and accounting records for eighty Club Pilates franchises.
- 2023 – 2024 **Undergraduate Research Assistant**, University of North Texas.  
Conducted traffic research with Dr. Liu in the UNT Mathematics Department. Generated realistic networks and approximated gradient minima using Lagrange multipliers. Reduced traffic irregularity by 31.3% using custom traffic models and algorithms.
- 2022 – 2024 **Undergraduate Research Assistant**, University of North Texas.  
Conducted neuroscience research under Dr. McMahan in the UNT Learning Technologies Department. Developed the game with Unity and worked on recursive scenarios and EEG testing. Goal to help educators to understand individual children and tailor classroom experiences.

## Education

- 2024 – 2027 **B.S., Statistics and Data Science & Mathematics** at the University of Texas at Austin.  
GPA: 4.0/4.0. Honors Thesis: *Pandemic Dynamics*.  
Relevant coursework: Statistical Thinking, Software Design, Databases, Linear Algebra, Discrete Mathematics, Real Analysis I-II, Probability, Stochastic Processes, Mathematical Statistics, Differential Equations.

## Research Publications

### Journal Articles




- 1 T. McMahan, C. V. Tangton, **A. Vyas**, C. Huang, and A. Yewoor, “Bridging the gap between perceived and actual personalities in real and virtual worlds through EEG analysis,” *Annual Review of Cybertherapy And Telemedicine* 2024, pp. 206–212, 2024, ISSN: 1554-8716.

### Conference Proceedings

- 1 **A. Vyas**, E. Rebello, and J. Liu, “A Lagrangian approach to loss function optimization on traffic network regularity,” in *2023 IEEE MIT Undergraduate Research Technology Conference (URTC)*, 2023, pp. 1–5. [DOI: 10.1109/URTC60662.2023.10534993](https://doi.org/10.1109/URTC60662.2023.10534993).

## Skills

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- Languages  Excellent reading, writing, and speaking competencies in English.
- Coding  R, Python (NumPy, NetworkX, pandas, scikit-learn), MATLAB, Java, C++, C#, HTML, CSS, Unity, Git, L<sup>A</sup>T<sub>E</sub>X.
- Misc.  Data analysis, academic research, scientific writing, public speaking.









## Miscellaneous Experience

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### Awards and Achievements

- 2026  **Advanced Summer Research Fellowship**, University of Texas at Austin.
-  **Best Use of Statistical Analysis**, 9th Annual ASA DataFest at SMU.
- 2025  **Score of 3**, 85th William Lowell Putnam Mathematical Competition.
-  **Honors Summer Scholarship**, University of Texas at Austin.
- 2024  **National Merit Finalist Scholarship**, National Merit Scholarship Foundation.
-  **Polymathic Scholar**, University of Texas at Austin.
- 2023  **Eagle Scout**, Boy Scouts of America.
-  **Undergraduate Research Fellow Scholarship**, University of North Texas.

### Presentations and Talks

- 2026  **Quantitative Metrics for Decomposing Timing and Magnitude Differences in Influenza Forecasts**, University of Texas at Austin Technology & Science Undergraduate Research Forum.
-  **Inner Product Free Hybrid Regularization for Random Feature Models**, American Mathematical Society Joint Mathematics Meetings.
- 2025  **Hybrid Regularization for Random Feature Models**, Emory REU Poster Session.
-  **Nowhere Differentiable, Everywhere Useful**, Directed Reading Program Spring Symposium.
- 2024  **Topology and Data in Biology**, Directed Reading Program Fall Symposium.
-  **Infinity and Decisions**, Texas Academy of Mathematics and Science Rosecutting Ceremony.
-  **A Dynamic Video Game to Assess Personality Complexes with EEGs**, University of North Texas Scholars Day.
- 2023  **A Lagrangian Approach to Loss Function Optimization on Traffic Network Regularity**, MIT IEEE Undergraduate Research Technology Conference.