Anand Advani

(650) 392-9511 · anand_advani@brown.edu · linkedin.com/in/anand-advani-a237a4263/

Education

Brown University, Providence, RI - Applied Math–Computer Science Sc.B. *Anticipated Graduation May 2026*

- Relevant Coursework: Deep Learning, Algorithm Design and Analysis, Computer Systems, Statistical Learning Theory, Computational Probability and Statistics, Partial Differential Equations, Abstract Algebra, Monte Carlo Simulation in Finance

Thomas Jefferson High School for Science and Technology, Alexandria, VA *August 2018 - June 2022*

- GPA: 4.53/4.0, SAT: 1590
- Dual enrollment with George Mason University - Multivariable Calculus, Linear Algebra, Probability Theory, Differential Equations, Complex Analysis
- Harvard University credit course Reading Euclid's *Elements* in Greek - R programming, non-Euclidean geometry

Languages

Natural - English (native), Classical Latin (fluent), Spanish (reading), Japanese, Russian, Ancient Greek (beginner)

Programming/Markup - Python (most), LaTeX, MATLAB, R, Java, HTML/CSS, Golang, C/C++, Julia, Arduino IDE, Racket (least)

Work Experience

Brown University Data Science Institute, Undergraduate Teaching Assistant *September 2023 - Present*

- Graded hundreds of papers and helped students understand material for APMA 1690 Computational Probability and Statistics - a class in Markov Chain Monte Carlo methods, importance sampling, Gibbs sampling, etc.

Docunexus, Technical Intern *June 2023 - August 2023*

- Worked on automating NLP workflows to create more cohesive LLM-based applications, using langchain.

VocaliD, Speech Processing Intern *June 2021 - August 2021*

- As an intern at the artificial voice startup VocaliD, helped improve speech synthesis model by making it more "conversational" using Python for language modeling and web scraping. Researched phonetic processes that occur in rapid speech.

Bauhealth, NLP Intern *June 2021 - August 2021*

- Research project with national COVID-19 data set. Devised a named-entity recognition model for ICU notes (a system that finds and classifies the contexts of general search terms from a database of physicians' notes) using spaCy.

Research and Hackathon Projects

Novel Decoding Methods for an Intracortical Brain-Computer Interface *June 2024 - Present*

- As part of the BrainGate project at Brown, working on decoding continuous (time series) neural data for control of a computer cursor by a patient with tetraplegia (paralysis) via an intracortical brain-computer interface
- Using Kalman filters and dynamical (RNN-based) VAEs

Embeddings for Group-Node Attention Network Feature Selection *June 2023 - Present*

- At George Mason University, currently researching graph neural networks and attention mechanisms for community evolution prediction in dynamic social networks, using the pytorch machine learning framework

ChatGPT Did Not Write This Title: Detecting LLM Outputs *April 2023 - May 2023*

- Project detecting whether academic text was authored by a human or by an LLM
- Fine-tuned HuggingFace transformers (DistilBert) in TensorFlow and quantitatively interpreted model findings with SHAP

Modeling the Future Challenge *November 2021 - May 2022*

- Applied math project modeling California wildfire conditions and mitigation strategies using an ARIMA model and Getis-Ord G_i^*-statistic
- Used ArcGIS with pandas for data processing

"Terry, Go To Jupiter": Speech Recognition Control of Planetaria *September 2021 - May 2022*

- Research project developing speech recognition system for SkySkan planetaria using Kaldi
- Demoed at the 2022 Middle Atlantic Planetarium Society Conference in Maine

Leadership and Volunteering

Society for Industrial and Applied Mathematics, Brown University Chapter, Treasurer *September 2023 - May 2024*

- Organized communication, finance, and events for Brown's chapter of the national applied mathematics organization, such as an interdepartmental Trivia Night

The Critical Review, Writer *September 2023 - December 2023*

- Wrote course evaluations for Brown's popular internal course and professor review publication

Global Research and Consulting, Insights Writer *September 2023 - Present*

- Researching education technology in depth and writing an article to be presented in GRC's Insights publication

Connecting Communities to Technology, Director of Python *April 2020 - August 2021*

- Organized team of four teachers and designed curricula from scratch for three levels of Python programming classes
- As part of the 501(c)(3) nonprofit, taught all three courses for free to students from 5 countries online during COVID