

ANANYA AGARWAL

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EDUCATION

Boston University (BU), Boston, MA

May 2025

BA in Economics and Mathematics, minors in Data Science and Business

Courses: Programming in DS, Data Mechanics, Probability, Linear Models, Differential Equations, Graph Theory

PUBLICATIONS

- Cyber Threats to Nuclear Safety: Game Theory Strategies for Enhanced Deterrence, Kumar, S., Yim, M., **Agarwal, A.**, Garg, A., and Bhatnagar, D., (abstract accepted) ECCWS 2025

EXPERIENCE

Julius Ed (Clean Energy Startup), US

Machine Learning Intern

January 2025 – Present

- Customized and fine-tuned NLP models, including BERT for named entity recognition (NER) using PyTorch enhancing the model precision for IOB classification by 30% by creating functions of incorrect labelling patterns.
- Developed and fine-tuned LLM based AI agents for NER and to cross validate BERT classifications to further improve precision by 5%
- Processed and analyzed 40,000+ JSON documents to find weighted percent of overlapping credentials between two job title-based databases using Python, NumPy, and Pandas to drive revenue impact.

Communiti, US

Founder

October 2024 – Present

- Led a team of five SWEs to build an AI solution to on-campus club discovery and engagement for college students. 1 of 10 startups to be accepted to compete as a semifinalist at the New Venture Competition (5% acceptance rate)
- Built a web app using Supabase API integration for advanced search of on-campus clubs customized for students' interests through tagging and similarity search, decreasing search time by 53% for 100+ students.

Texas A&M University, US

Lead Research Assistant

November 2024 – January 2025

- Analyzed 20+ existing game theory strategies within cybersecurity to devise a novel signaling method that maximizes defender benefit by 25%.
- Stimulated a reinforcement learning model using epsilon-greedy Q-learning on 100,000+ simulations to predict optimal defender strategies in cyberattack scenarios to maximize benefit, based on game-theoretic approaches.

Global Development Policy Centre, BU

Research Assistant

March 2023 – Present

- Merged three datasets (with more than 3000+ data points) of family planning interventions across India and Malawi in Stata by creating 50+ standardized variable names and recoding existing do files.
- Developed regression models by applying econometrics to find common trends in merged data to improve prospective intervention development (in the domain of women's healthcare) by 30%.

PROJECTS

Statistical Modelling | BU

September 2024 – December 2024

- Built statistical models using R (linear regression, LASSO, stepwise) on [BMW Price Dataset](#) (4,843 records) to achieve 79.2% model accuracy and 80% variance explanation for pricing insights.

Grow AI Tool | MIT Clean Energy Hack

November 2024 - November 2024

- Prototyped a Django web app for GALY using Python, OpenAI API, and ML models (Random Forest, XGBoost) to optimize crop selection based on web-scraped research papers, improving research efficiency by 30%.

Social Network Analysis | BU

January 2024 – May 2024

- Developed a Rust analysis of a 4,039-node [Facebook network](#) dataset using Jaccard similarity to identify social clusters.

TECHNICAL SKILLS

- Programming Languages: Python (TensorFlow, PyTorch, Scikit-learn), MySQL, R, Stata, Rust, HTML/CSS
- Developer Tools: Git, Google Cloud Platform, Azure, VS Code, Cursor AI, Lovable AI, Gen AI Tools