Atrey Desai

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Education

University of Maryland, College Park — College Park, Maryland
B.S. in Computer Science, B.A. in Linguistics, Minor in Korean Studies — *Exp. Graduation: May 2026*

- **Coursework**: Data Structures, Algorithms*, Computer Systems, Data Science*, Natural Language Processing*, Discrete Math, Linear Algebra
- **Awards**: President's Scholar (Top 1%), CS Honors, Dean's List (Fall '23, Spring '24), Top 10 Freshman
- **Clubs**: Stylus Literary Magazine (Associate Editor), Photography Club, Linguistics Club, Technica Hackathon

Experience

Undergraduate Researcher — Feb. 2024 — Present
Arlington Computational Linguistics Lab (ACL) & National Science Foundation — *Arlington, TX*

- Created AniVoice, an open-source dataset of 20,000+ annotated multimodal animal vocalizations, expanding resources for lexical semantics research and AI applications in human-animal behavior studies.
- Improved vocalization transcription accuracy up to 96% for 10,000+ samples by fine-tuning word segmentation and feature extraction models, enhancing the quality and usability of the AniVoice dataset.

Undergraduate Researcher — May 2024 — Present
Computational Linguistics and Information Processing Lab (CLIP) — *College Park, MD*

- Working on increasing GPT-4's reasoning consistency in question generation and answering processes, improving the model's reliability for complex language tasks.

Undergraduate Researcher & Student Leadership Councilmember — Dec. 2023 — Aug. 2024
FIRE Sustainability Analytics Lab — *College Park, MD*

- Streamlined environmental impact assessment of U.S. emissions regulations by developing a Python-based data processing pipeline, enabling more efficient policy analysis.
- Drafted framework to inform evidence-based policymaking on climate restoration strategies

Undergraduate Researcher — Dec. 2020 — June 2023
Reinforcement Learning at Brown (RLAB) Group — *Providence, RI*

- Pioneered applications of reinforcement learning to 2D non-sequential tasks, simulating real-world scenarios
- Presented research findings at AAAI-22 IMLW and RLDM-22, demonstrating how human-readable interfaces enable fine-grained control during inference and improving AI-human interaction in robotics.

Recruitment Ambassador — Jan. 2024 — Present
UMD College of Computer, Mathematical, and Natural Sciences — *College Park, MD*

- Facilitated informed decision-making for 70+ prospective students and parents by hosting informative tables and conducting one-on-one meetings, improving the quality of incoming student cohorts.

Projects

Yelp-Help | *Python, PyTorch, Jupyter Notebook*

- Developed an NLP-based classifier achieving 98.7% accuracy in vectorizing Yelp reviews, enabling precise emotional response analysis and improving customer insight extraction.

Archimal | *Python, TensorFlow, Docker, Git*

- Created a high-speed CNN model achieving 95% accuracy in animal image classification, streamlining content organization and retrieval for zoological databases.

Trek | *R, HTML, CSS, Flask, React, Git*

- Conducted statistical analysis using web crawlers and public APIs, revealing a significant positive age-performance correlation in British first-division soccer, providing actionable insights for player recruitment strategies.

Additional Information

Publications: "Reinforcement Learning As End-User Trigger-Action Programming" (AAAI-22/RLDM-22)
Languages: Python, Java, R, MATLAB, JavaScript, HTML/CSS
Frameworks: PyTorch, TensorFlow, NLTK, React, pandas, tidyverse, ggplot2, NumPy, Matplotlib
Developer Tools: Git, Docker, Google Cloud Platform, Google Vertex AI, VS Code, Eclipse
Natural Languages: English (native), Gujarati (native), Spanish (intermediate), Korean (beginner)