

Atrey Desai

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RESEARCH INTERESTS

I am an undergraduate student in computer science and linguistics at the University of Maryland, College Park, advised by Professor Rachel Rudinger and Professor Jordan Boyd-Graber. My research interests center around developing **novel evaluation methods** that probe deeper linguistic and spatio-temporal understanding, using theoretical linguistics (especially syntax and semantics) to design more **robust** and **trustworthy** models, and enhancing the **explainability** of LLMs in question-answering tasks. I am grateful to be supported by the UMD Presidential and SPIRE research grants.

EDUCATION

University of Maryland, College Park

B.S. in Computer Science, Honors Program

College Park, Maryland

Exp. Graduation: May 2027

- **Selected Coursework:** Machine Learning, Natural Language Processing, Data Science, Algorithms, Computer Systems, Discrete Math, Linear Algebra
- **Graduate Coursework:** Natural Language Processing*, Commonsense Reasoning*

University of Maryland, College Park

B.A. in Linguistics, Minor in Korean Studies

College Park, Maryland

Exp. Graduation: May 2027

- **Selected Coursework:** Syntax, Phonetics, Psycholinguistics, Language Processing*

PUBLICATIONS

Atrey Desai, Nishant Balepur, Rachel Rudinger (2025). *Language Models Generate Multiple-Choice Questions with Artifacts*. Mid-Atlantic Student Colloquium on Speech, Language and Learning (MASC-SLL).

Chace Hayhurst, Hyojae Park, **Atrey Desai**, Suheidy De Los Santos, and Michael Littman (2022). *Reinforcement Learning As End-User Trigger-Action Programming*. Interactive Machine Learning Workshop at AAAI, Multi-disciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

Atrey Desai, et al. (Preprint). *A Preview of Computational Animal Linguistics*.

RESEARCH EXPERIENCE

University of Maryland, College Park

Undergrad Researcher | CLIP Lab (advised by Prof. Rachel Rudinger, Prof. Jordan Boyd-Graber)

May 2024 — Present

College Park, MD

- Systematically evaluated LLM-generated Multiple-Choice Questions (MCQs) for unintended artifacts to assess if questions are solvable without full context, demonstrating high choices-only accuracy (often >90%) via partial-input testing.
- Developing an adversarial benchmark to evaluate Vision-Language Models (VLMs) in detecting out-of-context (OOC) video-based misinformation on social media based on multimodal clues and user interactions.

The University of Texas at Arlington

Visiting Researcher | ACL2 Lab & National Science Foundation (advised by Prof. Kenny Zhou)

Feb. 2024 — Present

Arlington, TX

- Developed AniVoice-cat, a dataset of 26,000+ annotated cat vocalizations from 250+ hours of video, identifying 57 unique cat phones and expanding resources for lexical semantics and AI research in animal behavior.
- Improved vocalization transcription accuracy to 96% by implementing PANNs and HuBERT models, achieving 65% precision in cat vocalization detection and 93.89% top-5 accuracy in action recognition.

University of Maryland, College Park

Researcher | FIRE Sustainability Analytics Lab (advised by Prof. Thanicha Ruangmas)

Dec. 2023 — Aug. 2024

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.

Brown University

Dec. 2020 — June 2023

Researcher | Reinforcement Learning at Brown Group (advised by Prof. Michael Littman)

Providence, RI

- Developed a custom environment and implemented reinforcement learning algorithms to allow non-experts to programmatically solve tasks by defining reward functions and specifying agent behavior.
- 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.

WORK EXPERIENCE

Learn Prompting

May 2025 — Present

Member of Technical Staff

San Francisco, CA

- Running Hackaprompt, the world's largest red-teaming hackathon and researching on improving automated harmful content detection systems for more robust AI safety judges.

SELECTED GRANTS

SPIRE Research Grant (\$3,000)	2025
UMD President's Scholarship (\$50,000)	2023
NMSC National Merit Scholarship (\$4,000)	2023
Catherine Yang Scholarship (\$1,000)	2023

SELECTED HONORS

Omicron Delta Kappa Top 10 Freshman	2024
CMSC & ARHU Dean's List	2023—2025

STUDENTS MENTORED

OUR, Spring 2025 Cohort

Juan Cortés, Kemisola Benson, Vivian Akpala

Technica Mentoring

Savya Miriyala, Tanya Grover, Jessica Ononye, Nakshatra Hiray

PROFESSIONAL SERVICE

Subreviewer	July 2025
ACL Rolling Review	
Computer Science Department Councilmember	2025—Present
Elected to represent the interests of over 4,200 CS undergraduates.	
FIRE Student Leadership Council	2024—Present
Senior Councilmember; Represented 1000+ peers, ran events & workshops, and working on program reforms	
University Ambassador (CS Dept. & CMNS College)	2024—Present
Represented the university at admissions events and hosted official university guests.	
NSF REU Seminar Panelist	Nov. 2024
Presented findings from UT ACL2 Lab and hosted panel on NSF-funded opportunities to 200+ faculty and students	
Technica Hackathon	Oct. 2024
Volunteer and mentor; world's largest hackathon for underrepresented genders in tech	
MSET Robotics Workshops	2020—2022
Organizer and curriculum designer; Taught robotics, programming, and computer modeling to underprivileged youth	

ADDITIONAL INFORMATION

Clubs: Stylus Literary Magazine (Former Associate Editor), Photography Club, Linguistics Club

Languages: Python, Java, R, MATLAB, JavaScript, HTML/CSS

Packages: PyTorch, NLTK, pandas, NumPy, Matplotlib

Developer Tools: Git, Docker, GCP, Google Vertex AI, VS Code, Eclipse

Natural Languages: English (native), Gujarati (native), Spanish (intermediate), Korean (beginner)