

# Aakriti Shah

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## Research Interests

My passion lies in using technology for social good and am drawn to leveraging my skills to cultivate a better society. I am open to exploring different topics, but am interested in conducting research in Natural Language Processing, Computer Vision, and Healthcare AI.

## Education

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| <b>MS</b> <b>University of Southern California</b> , Computer Science   | Aug 2024 – Exp. May 2026 |
| <ul style="list-style-type: none"> <li>• Dean's List</li> <li>• <b>Coursework:</b> Algorithms, Natural Language Processing, Quantum Computing, Quantum Cryptography</li> </ul>  |                          |
| <b>BS</b> <b>Rollins College</b> , Computer Science & Business Management   | Sept 2020 – Dec 2023     |
| <ul style="list-style-type: none"> <li>• Honors Degree Program; President's List; Magna Cum Laude</li> <li>• <b>Coursework:</b> Operating Systems, Algorithms, Software Engineering, Computer Organization &amp; Architecture, Data Science &amp; Analytics, Discrete Math, Calculus, Software Engineering</li> </ul> |                          |

## Research Experience

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| <b>Research Assistant</b> , AIMed Lab  | May 2025 – Ongoing<br><a href="#">Abstract</a>                         |
| <ul style="list-style-type: none"> <li>• Conducting digital pathology research focused on the detection of prostate cancer through tissue compartment segmentation (stroma, lumen, epithelium).</li> <li>• Using DL and foundational models such as UNet, nnUnet, and UNI.</li> <li>• Current average inference Dice score is around to 0.845.</li> </ul>  |  |
| <b>Research Assitant</b> , ARKAI Lab   | May 2025 – Ongoing   |
| <ul style="list-style-type: none"> <li>• Conducting research on targeted unlearning in LLMs and how it ties to the way humans store, retrieve, and erase information.</li> <li>• Prompting a Harry Potter-unlearned Llama 2-7B model and applying ACT theory from psychology to explore how unlearning in LLMs parallels the entanglement of ideas in the human mind and how this effects recollection.</li> </ul> |  |
| <b>Research Assistant</b> , Dr. Anita Penkova  | Sept. 2024 – Ongoing   |
| <ul style="list-style-type: none"> <li>• Conducting computer vision medical imaging research focused on early detection of Diabetic Retinopathy.</li> <li>• Optimizing preprocessing techniques (CLAHE, Gaussian Blur, MGA-CSG) with optimization for retinal fundus images to combat the lack of quality data.</li> </ul>   |  |
| <b>Research Project</b> , Natural Language Processing  | Jan. 2025 – May 2025<br><a href="#">Project</a> <a href="#">Paper</a>  |
| <ul style="list-style-type: none"> <li>• Developed a Hinglish conversational chatbot by curating and augmenting multi-lingual datasets with code-switched data and synthetically generated samples.</li> <li>• Fine-tuned LLMs using instruction-tuned datasets for open-domain dialogue generation and evaluated outputs based on syntactic and semantic criteria.</li> </ul>                                     |  |
| <b>Honors Thesis</b> , Dr. Daniel Myers  | Jan. 2023 – Dec. 2023<br><a href="#">Project</a> <a href="#">Paper</a> |
| <ul style="list-style-type: none"> <li>• Manually labeled real-world interview data from non-profit Crave; compared human-coded sentiment to LLM-generated output.</li> <li>• Explored the implications of LLM sentiment performance in low-resource or nu-</li> </ul>   |  |

anced emotional contexts.

**Research Intern**, National Science Foundation

Jan. 2023 – Dec. 2023

[Paper](#) 

- Investigated vulnerabilities in ML models for autonomous driving under adversarial perturbations.
- Participated in weekly seminars on research practices, methods, and ethics, covering both qualitative and quantitative approaches, with perspectives from computer science and psychology.
- Analyzed robustness and transfer learning across model architectures.

## Technical Projects

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**voteSmarter**, Civic Engagement Mobile App

[Project](#) 

- Created a mobile app connecting users to political candidates based on values and location.
- Some features include voter registration, polling locations, candidate database.

**ASLearning**, ML for Accessibility

[Project](#) 

- Built a mobile app using object detection to assist communication between hearing-impaired and English-speaking users.
- Used Dart, TensorFlow, Firebase, and agile methods to prototype and deploy.

## Technical Skills

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**Programming:** Python, SQL, Java, JavaScript, R, Assembly (ARM), C, C++, XML, Dart, C#, LaTeX, Swift

**Frameworks & Libraries:** Node.js, pandas, Angular, Numpy, React, Flask, TensorFlow, MongoDB, Tomorrow.io, High-Charts

**Tools & Technologies:** Trello, Jupyter Notebooks, Figma, Canva, Tableau, CSS and HTML, Miro, Photoshop, GCP, Docker

**Other Skills:** Agile Development, Data Validation and Processing, Collaboration, Web and Mobile App Development

## Teaching and Outreach

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**Volunteer**, Viterbi Impact

Aug. 2024 – Ongoing

- Engaging in local community service projects including fire prevention, premature baby care, and food distribution.

**Volunteer**, AAPI Coming Together (ACT)

May. 2024 – Ongoing

- Supporting civic outreach and cultural advocacy within the Asian American community.
- Developed **voteSmarter** to support ACT's voter education efforts and empower civic engagement in the Asian American community.

**Instructor**, iDTech Camps

June 2022 June 2022 – Aug. 2022- Aug. 2022

- Taught Java, Python, C#, and game development to grade school students.
- Promoted creative thinking and logical reasoning in early tech learners.

## Extracurriculars

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**Volunteer** for Viterbi Impact (USC)

2024 - Ongoing

**Member** of Crochet Club (USC)

2024 - Ongoing

**Volunteer** for Annenberg Media (USC)

2024 - 2024

**Rollins Rowing Team**

2020 - 2022

**Member** of Association of Computer Machinery (Rollins College)

2021 - 2023