

Aakriti Shah

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Research Interests

I have a passion for using machine learning for social good and am drawn to leveraging my skills to cultivate a **better society**. I am very open to exploring different topics, but am interested in and have experience with conducting research in **Natural Language Processing** (LLMs specifically), **Computer Vision**, and **Healthcare AI**.

Education

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

Research Experience

Research Assistant , AIMed Lab	May 2025 – Ongoing Project Abstract
<ul style="list-style-type: none"> • Conducting digital pathology research focused on the detection of prostate cancer through tissue compartment segmentation (stroma, lumen, epithelium). • Introducing method to add lumen back into segmentation during postprocessing. • Using DL and foundational models such as UNet, nnUnet, and UNI. Average inference Dice score is around to 0.845. 	
Research Assistant , ARKAI Lab	May 2025 – Ongoing Project
<ul style="list-style-type: none"> • Conducting research on targeted unlearning in LLMs and how it ties to the way humans store, retrieve, and erase information. • 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. 	
Research Assistant , Dr. Anita Penkova	Sept. 2024 – Ongoing
<ul style="list-style-type: none"> • Conducting computer vision medical imaging research focused on early detection of Diabetic Retinopathy. • Optimizing preprocessing techniques (CLAHE, Gaussian Blur, MGA-CSG) with optimization for retinal fundus images to combat the lack of quality data. 	
Research Project , Natural Language Processing	Jan. 2025 – May 2025 Project Paper
<ul style="list-style-type: none"> • Developed a Hinglish conversational chatbot by curating and augmenting multi-lingual datasets with code-switched data and synthetically generated samples. • Fine-tuned LLMs using instruction-tuned datasets for open-domain dialogue generation and evaluated outputs based on syntactic and semantic criteria. 	
Honors Thesis , Dr. Daniel Myers	Jan. 2023 – Dec. 2023 Project Paper
<ul style="list-style-type: none"> • Manually labeled real-world interview data from non-profit Crave; compared human-coded sentiment to LLM-generated output. 	

- Explored the implications of LLM sentiment performance in low-resource or nuanced 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

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

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

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

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