

Shivam Singh

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Permanent Resident: United States

Research Interests

- **Broad Interests:** Computer Vision, Generative Models, Multimodal Foundation Models
- **Specific Interests:** Layered image/video decomposition editing, Multimodal generation, Long-horizon world modeling.

Education

Arizona State University Tempe, AZ
Ph.D. in Computer Science August 2024 – Current
GPA: 4/4

Jadavpur University Kolkata, India
Bachelors of Engineering in Computer Science 2020 - 2024
GPA: 8.34/10 (First Class Distinction)

Experience

Applied Scientist Intern, Prime Video & Amazon MGM Studios – Sunnyvale, CA May 2026 - Current
Mentors - Srujana Gattupali, Vidya Narayanan, Samarth Gupta

- Exploring physics-aware image layered decomposition and editing for real-world scenes.

Graduate Research Assistant, Arizona State University – Tempe, AZ August 2024 - Current
Mentors - Yezhou Yang, Chitta Baral

- Computer vision and generative models for controllable image/video generation.

Data Analysis Intern, American Red Cross – Remote July 2023 - November 2023
Mentor - Umesh Singh

- Applied regression analysis and time-series forecasting to identify seasonal donation spikes and volunteer engagement patterns.

Undergraduate Research Assistant, Jadavpur University – Kolkata, India January 2023 - June 2024
Mentor - Ram Sarkar

- Focussed on developing lightweight ML architectures for medical imaging.

Publications & Presentations

Accepted

1. B. Pathiraja, M. Patel, **S. Singh**, C. Baral, Y. Yang, “RefEdit: A Benchmark and Method for Improving Instruction-based Image Editing Model for Referring Expression,” *ICCV*, 2025. [ArXiv]

Under Review

1. **S. Singh**, Y. Chen, A. Chatterjee, A. Raj, J. Hays, C. Baral, Y. Yang, “Chimera: Composite Image Generation using Part based Concepting,” 2025. [Website]
2. S. Majumder, A. Halder, **S. Singh**, S. Chakraborty, M. Kundu, and R. Sarkar, “W2CU-Net: A Weibull and Weierstrass Functions with Cosine Similarity Based Network for Liver and Tumor Segmentation from CT Scans,” submitted to *IEEE Transactions on Instrumentation and Measurement*, 2024.
3. **S. Singh**, A. Naskar, R. Sarkar, “Colon Disorder Classification using Altruistic Genetic Algorithm based Fused Deep Feature Selection Method,” submitted to *Evolving Systems*, 2024.
4. **S. Singh**, A. Halder, R. Sarkar, “SEA-Unet: Attention guided lightweight network for Liver segmentation,” submitted to *Evolving Systems*, 2024.

Technical Skills

Programming Languages: Python, C/C++ , Java, SQL, Javascript, HTML/CSS

Developer Tools: Git, SLURM, Google Cloud Platform, VS Code, Linux, Distributed Training, Latex

Libraries & Tools: Pytorch, TensorFlow, OpenCV, Pandas, NumPy, Matplotlib, OpenCV

Certifications

- **AWS Certified Machine Learning – Specialty**, Amazon Web Services (2023)

Awards and Achievements

- **Finalist – Smart India Hackathon**, Government of India (2022) Developed an online platform to connect higher education institutes with funding agencies to facilitate smoother and more efficient funding opportunities.
- **Ranked Top 0.5%** out of 1.1 million applicants in Joint Entrance Examination (JEE), India's national-level engineering entrance exam (2020).

Teaching Experience

Graduate Teaching Assistant, Arizona State University – Tempe, AZ

August 2024 – Current

- **Operating Systems (Fall 2024)** – Supervised exam review sessions and lab projects on core operating systems concepts such as process management, synchronization, and memory allocation.
- **Object-Oriented Programming and Data Structures (Spring 2025)** – Assisted students with object-oriented design, data structures, and algorithms; held office hours and gave lab feedback.