

Saumya Gupta

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EDUCATION

Stony Brook University, Stony Brook, NY, USA <i>PhD in Computer Science, GPA: 4.00/4.00</i>	08/2021 – 05/2026
National Institute of Technology Karnataka (NITK) Surathkal, India <i>BTech in Computer Science and Engineering, GPA: 9.49/10.00</i>	08/2014 – 05/2018

EXPERIENCE

Research Scientist Intern Adobe Inc., CA, USA • Agentic AI workflow to improve large language models (LLM) reasoning and planning for short social-media video editing using reinforcement learning (RL) Python, PyTorch, Huggingface, TRL, Unsloth	05/2025 – 08/2025
Research Scientist Intern Adobe Inc., CA, USA • Multi-modal LLMs for short social-media video engagement prediction and edit suggestions. Outperformed GPT-4o by 41.6% on engagement prediction and 24.1% on video editing suggestion quality (ICME'25) Python, PyTorch	05/2024 – 11/2024
Graduate Research Assistant Stony Brook University, NY, USA • Topology-preserving diffusion model that enforces exact object counts in images (ICLR'25) Python, PyTorch • Enhanced image segmentation by proposing structural uncertainty using topology and graph neural networks (NeurIPS'23). Integrating into MONAI's active learning pipeline to optimize annotation Python, PyTorch, C++ • Topology and boundary-aware loss function for multi-class image segmentation (ECCV'22 Oral) Python, PyTorch	08/2021 – 05/2026
Senior Software Engineer Samsung R&D Institute, Bangalore, India • Developed a lightweight deep learning model to replace the ISP pipeline, optimizing denoising across scenes/ISO levels (commercialized in Samsung Galaxy S21) Python, PyTorch, Tensorflow, TensorFlow Lite • Super-resolution of 3D Ultrasound ovarian volumes upto 2x (SPIE'21 Oral) Python, PyTorch • Introduced security measures such as encryption and anonymization/deanonymization of PHI data in Samsung's DICOM platform to ensure HIPAA compliance C++, PostgreSQL, OpenSSL	06/2018 – 06/2021
Intern Samsung R&D Institute, Bangalore, India • Rendered a tile-based vertical scrolling approach in Vulkan to minimize the load on GPU C, C++	05/2017 – 08/2017

SELECTED PUBLICATIONS

SmartEdit: Editing-driven Engagement Prediction and Enhancement of Short-Videos <i>Saumya Gupta, Ishita Dasgupta, Stefano Petrangeli, Somdeb Sarkhel</i>	ICME 2025
TopoDiffusionNet: A Topology-aware Diffusion Model <i>Saumya Gupta, Dimitris Samaras, Chao Chen</i>	ICLR 2025
Topology-aware Uncertainty for Image Segmentation <i>Saumya Gupta, Yikai Zhang, Xiaoling Hu, Prateek Prasanna, Chao Chen</i>	NeurIPS 2023
Learning Topological Interactions for Multi-Class Medical Image Segmentation <i>Saumya Gupta, et al.</i>	ECCV 2022 (Oral)

PROFESSIONAL ACTIVITIES

Peer Reviewer: AAAI, ECCV, CVPR, ICLR, NeurIPS, ICML, ISBI, DALI, TNNLS, TMI	2023-Present
Conference Tutorial & Workshop Organizer: MICCAI	2023, 2024
Instructor/Teaching Assistant: Bio-Informatics Bootcamp, Stony Brook University	2023, 2024, 2025

SKILLS

Languages, Tools, Frameworks: Python, C, C++, Java, PostgreSQL, PyTorch, Keras, TensorFlow, Unsloth, TRL, OpenCV, MATLAB, Git, LaTeX, Huggingface, Adobe After Effects, Photoshop

Domain Experience: Computer Vision (CV), Artificial Intelligence, Machine Learning (AI/ML), Large Language Models (LLMs), Reinforcement Learning (RL), Topological Data Analysis (TDA), Deep Learning