

# Saumya Gupta

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## EDUCATION

<b>Stony Brook University, Stony Brook, NY, USA</b> <i>PhD in Computer Science, GPA: 4.00/4.00</i>	08/2021 – 03/2026
<b>National Institute of Technology Karnataka (NITK) Surathkal, India</b> <i>BTech in Computer Science and Engineering, GPA: 9.49/10.00</i>	08/2014 – 05/2018

## EXPERIENCE

<b>Adobe Inc., CA, USA — Research Scientist Intern</b> • Training AI Agents 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
<b>Adobe Inc., CA, USA — Research Scientist Intern</b> • Multimodal LLMs (MLLMs) for social-media video engagement prediction and edit suggestions. Outperformed GPT4o by 41.6% on engagement prediction and 24.1% on suggestion quality ( <b>ICME'25</b> )   Python, PyTorch	05/2024 – 11/2024
<b>Stony Brook University, NY, USA — Graduate Research Assistant</b> • Topology-aware GenAI diffusion model that enforces exact object counts in images ( <b>ICLR'25</b> )   Python, PyTorch • Enhanced image segmentation by proposing structural uncertainty using topology and graph neural networks ( <b>NeurIPS'23</b> ). Integrated with MONAI's active learning to optimize annotation   Python, PyTorch, C++ • Topology and boundary-aware loss function for multi-class segmentation ( <b>ECCV'22 Oral</b> )   Python, PyTorch	08/2021 – 03/2026
<b>Samsung R&amp;D Institute, Bangalore, India — Senior Software Engineer</b> • 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 by up to 2x ( <b>SPIE'21 Oral</b> )   Python, PyTorch • Introduced security measures such as encryption and anonymization/deanonymization of PHI data in Samsung's healthcare DICOM platform to ensure HIPAA compliance   C++, PostgreSQL, OpenSSL	06/2018 – 06/2021
<b>Samsung R&amp;D Institute, Bangalore, India — Software Engineer Intern</b> • Rendered a tile-based vertical scrolling approach in Vulkan to minimize the load on GPU   C, C++	05/2017 – 08/2017

## SELECTED PUBLICATIONS

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

## PROFESSIONAL ACTIVITIES

<b>Peer Reviewer:</b> AAAI, ECCV, CVPR, ICLR, NeurIPS, ICML, ISBI, DALI, TNNLS, TMI	2023-Present
<b>Conference Tutorial &amp; Workshop Organizer:</b> MICCAI	2023, 2024
<b>Instructor/Teaching Assistant:</b> 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), Generative AI (GenAI), Deep Learning (DL)