

# Saumya Gupta

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## EDUCATION

<b>Stony Brook University, Stony Brook, NY, USA</b> <i>Ph.D. in Computer Science, GPA: 4.00/4.00</i>	Aug 2021 – Mar 2026
<b>National Institute of Technology Karnataka (NITK) Surathkal, India</b> <i>B.Tech. in Computer Science and Engineering, GPA: 9.49/10.00</i>	Aug 2014 – May 2018

## EXPERIENCE

<b>Graduate Research Assistant   Stony Brook University, NY, USA</b> <ul style="list-style-type: none"><li>Topology-preserving diffusion models for generating synthetic data (ICLR'25)   Python, PyTorch</li><li>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++</li><li>Topology-aware loss function for multi-class image segmentation (ECCV'22 Oral)   Python, PyTorch</li></ul>	May 2022 – Mar 2026
<b>Research Scientist/Engineer Intern   Adobe Inc., CA, USA</b> <ul style="list-style-type: none"><li>Multi-modal Large Language Models (MLLMs) for video engagement prediction and suggestion (ICME'25)</li></ul>	May 2024 – Nov 2024
<b>Graduate Teaching Assistant   Stony Brook University, NY, USA</b> <ul style="list-style-type: none"><li>For the CSE303 course Theory of Computation, conducted office hours, curated questions, and graded homework</li></ul>	Aug 2021 – May 2022
<b>Senior Software Engineer   Samsung R&amp;D Institute, Bangalore, India</b> <ul style="list-style-type: none"><li>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</li><li>Super-resolution of 3D Ultrasound ovarian volumes upto 2x (SPIE'21 Oral)   Python, PyTorch</li><li>Introduced security measures such as encryption and anonymization/deanonymization of PHI data in Samsung's DICOM platform to ensure HIPAA compliance   C++, PostgreSQL, OpenSSL</li></ul>	Jun 2018 – Jun 2021
<b>Intern   Samsung R&amp;D Institute, Bangalore, India</b> <ul style="list-style-type: none"><li>Rendered a tile-based vertical scrolling approach in Vulkan to minimize the load on GPU   C, C++</li></ul>	May 2017 – Jul 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>TopoCellGen: Generating Histopathology Cell Topology with a Diffusion Model</b> <i>Meilong Xu, Saumya Gupta, et al.</i>	CVPR 2025 (Oral)
<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, OpenCV, MATLAB, Visual Studio, Git, LaTeX, Android Studio, Sony Vegas, Adobe After Effects, Photoshop

**Domain Experience:** Computer Vision (CV), Artificial Intelligence (AI), Deep Learning (DL), Machine Learning (ML), Topological Data Analysis (TDA), Medical Image Analysis (MI), Programming