

Saumya Gupta

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EDUCATION

Stony Brook University, Stony Brook, NY, USA <i>Ph.D. in Computer Science, GPA: 4.00/4.00</i>	Aug 2021 – May 2025
National Institute of Technology Karnataka (NITK) Surathkal, India <i>B.Tech. in Computer Science and Engineering, GPA: 9.49/10.00</i>	Aug 2014 – May 2018

EXPERIENCE

Graduate Research Assistant Stony Brook University, NY, USA • Topology-preserving diffusion models for generating synthetic data (ongoing) 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-aware loss function for multi-class image segmentation (ECCV'22 Oral) Python, PyTorch	May 2022 – Present
Graduate Teaching Assistant Stony Brook University, NY, USA • For the CSE303 course Theory of Computation, conducted office hours, curated questions, and graded homework	Aug 2021 – May 2022
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	Jun 2018 – Jun 2021
Undergraduate Research Assistant NITK Surathkal, India • Minimized the time to detect faults in Software Defined Networks (SDNs) (silent blackhole detection) C++	Jul 2017 – May 2018
Intern Samsung R&D Institute, Bangalore, India • Rendered a tile-based vertical scrolling approach in Vulkan to minimize the load on GPU C, C++	May 2017 – Jul 2017

SELECTED PUBLICATIONS

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)
Ovarian Assessment Using Deep Learning Based 3D Ultrasound Super Resolution <i>Saumya Gupta, Venkata Suryanarayana K., Srinivas R. Kudavelly</i>	SPIE 2021 (Oral)
Currency Recognition System Using Image Processing <i>Vedasamhitha Abburu, Saumya Gupta, S. R. Rimitha, Manjunath Mulimani, Shashidhar G. Koolagudi</i>	IC3 2017

PROFESSIONAL ACTIVITIES

Conference/Journal Peer Reviewer: NeurIPS, ICML, ISBI, DALI, TNNLS	2023
Conference Tutorial Organizer: MICCAI	2023
Instructor/Teaching Assistant: Biomedical Informatics Bootcamp, Stony Brook University	2023

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

SELECTED AWARDS

Accepted to CRA-WP Grad Cohort for Women	2023
Stony Brook University Summer Fellowship	2022
Samsung Spot Award	2020, 2019
Samsung Quality Champions Annual Award	2018
Samsung Professional Level Software Certification	2018