

SAARTHAK KAPSE

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Education

Stony Brook University, NY, USA

Feb, 2021 – Present

Doctor of Philosophy, Biomedical Informatics

Advised by: *Prateek Prasanna, Dimitris Samaras, Joel Saltz*

Collaborators: *Srijan Das* (Assistant Professor at UNC Charlotte, USA), *Pushpak Pati* (Senior Data Scientist at JNJ, Switzerland), *Rajarsi Gupta*

(Assistant Professor at Stony Brook University, USA), *Chao Chen* (Associate Professor at Stony Brook University, USA), *Maria Vakalopoulou* (Assistant

Professor at CentraleSupélec, University Paris Saclay, France)

Indian Institute of Technology, Bombay, India

Aug, 2016 – Dec, 2020

Bachelor of Technology, Electrical Engineering

Publications (selected)

- Gigapixel Vision-Concept Contrastive Pretraining in Histopathology**[\[Link\]](#) *under review (ICCV 2025)*
Saarthak Kapse*, P. Pati*, S. Yellapragada, S. Das, R. Gupta, J. Saltz, D. Samaras, P. Prasanna
- Fast Vision Mamba: Pooling Spatial Dimensions for Accelerated Processing** [\[Link\]](#) *under review (ICCV 2025)*
Saarthak Kapse, R. Betz, S. Sivanandan
- Gen-SIS: Generative Self-augmentation Improves Self-supervised Learning** [\[Link\]](#) *under review (ICCV 2025)*
V. Belagali*, S. Yellapragada*, A. Graikos, Saarthak Kapse, Z. Li, T. Nandi, R. Madduri, P. Prasanna, J. Saltz, D. Samaras
- SI-MIL: Taming Deep MIL for Self-Interpretability in Gigapixel Histopathology**[\[Link\]](#) *CVPR 2024*
Saarthak Kapse*, P. Pati*, S. Das, J. Zhang, C. Chen, M. Vakalopoulou, J. Saltz, D. Samaras, R. Gupta, P. Prasanna
- Learned representation-guided diffusion models for large-image generation**[\[Link\]](#) *CVPR 2024*
A. Graikos*, S. Yellapragada*, M. Le, Saarthak Kapse, P. Prasanna, J. Saltz, D. Samaras
- Attention de-sparsification matters: Inducing diversity in pathology representation learning**[\[Link\]](#) *MedIA 2023*
Saarthak Kapse, S. Das, J. Zhang, R. Gupta, J. Saltz, D. Samaras, P. Prasanna
- Prompt-MIL: Boosting Multi-Instance Learning via Task-specific Prompt Tuning**[\[Link\]](#) *MICCAI 2023*
J. Zhang, Saarthak Kapse, K. Ma, P. Prasanna, J. Saltz, M. Vakalopoulou, D. Samaras
- Precise location matching improves dense contrastive learning in digital pathology**[\[Link\]](#) *IPMI 2023*
Saarthak Kapse*, J. Zhang*, K. Ma, P. Prasanna, M. Vakalopoulou, J. Saltz, D. Samaras
- CD-Net: Histopathology Representation Learning Using Context-Detail Transformer**[\[Link\]](#) *ISBI 2023*
Saarthak Kapse, S. Das, P. Prateek

Experience

Graduate Researcher | IMAGINE Lab, Stony Brook University, NY, USA

Feb, 2021 – Present

- Vision-Language Models for Concept-Grounded methods; Exploring better contextualization in Vision Mamba (ongoing)
- Self-Interpretability in gigapixel Histopathology Using Handcrafted Features Grounded Model (CVPR'24)
- Domain-Driven Self-Supervised Learning in Computational Pathology (MedIA'23; IPMI'23; ISBI'23)

Research Intern | Insitro, San Francisco, USA

May, 2024 – Nov, 2024

Accelerated Vision Mamba with application in single-cell imaging advised by *Srinivasan Sivanandan* and *Dr. Justin Lee*

Undergraduate Researcher | Indian Institute of Technology, Bombay, India

Jan, 2020 – Dec, 2020

Gene Mutation Prediction from non-small cell lung cancer histopathology slides advised by *Dr. Amit Sethi*

Research Intern | Philips Innovation Campus, Bangalore, India

May, 2019 – Jul, 2019

Liver Lesion Segmentation from CT Scans using 3D Volumetric Deep Learning Approach advised by *Dr. M.S Dinesh*

Technical Skills

Technologies: Computer Vision, Deep Learning, Self-Supervised learning, Vision-Language Models, Generative Models

Domains: Natural Imaging, Computational Pathology, Medical Imaging (MRI, CT, X-Ray)

Languages & Frameworks: Python, PyTorch, TensorFlow, Hugging Face, WandB, QuPath, L^AT_EX