Dr. Soumen Basu

Research Scientist, Meta

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Areas of Interest: AI in Healthcare, Computer Vision, Deep Learning

Education

PhD, Department of Computer Science
Indian Institute of Technology Delhi (07/2019 – 07/2024)

- *Thesis Title: Deep Learning Models for Detecting Gallbladder Cancer from Ultrasound*
- *Prime Minister's Research Fellow, Outstanding Teaching Assistant Award*

M.Tech in Computer Science
Indian Institute of Technology Delhi (07/2013 – 06/2015)
- GATE 2013 AIR 99

B.E. in Information Technology
Bengal Engineering and Science University, Shibpur (IIEST) (07/2008 – 06/2012)

Work Experience

Research Scientist, Meta, New York (02/2025 – Present)
- Monetization, Large Scale Foundation Models

Senior Chief Engineer, Samsung R&D, Bangalore (03/2024 – 01/2025)
- On-device Segmentation Foundational Models
- Submitted 1 US patent application on temporally stable person segmentation in videos

Applied Scientist Intern, Amazon Inc. (07/2023 – 12/2023)
- Stray object detection in conveyor belts – saved $120,000/ year on licensing
- Machine breakdown event prediction from sensor data

Member of Technical Staff, Adobe Systems, Bangalore (07/2015 – 07/2018)
- Developed scalable backend APIs for digital ads data pipeline

Publications

Journal (Q1/ Q2)

[1] **S. Basu**, M. Gupta, P. Rana, P. Gupta, C. Arora. *"RadFormer: Transformers with global–local attention for interpretable and accurate Gallbladder Cancer detection"*, ***Medical Image Analysis***, 2023. **(Impact Factor: 11.8)** [Paper Link] [Citations: 43]

[2] P. Gupta, **S. Basu**, et al. *"Deep-learning enabled ultrasound based accurate detection of gallbladder cancer: A prospective diagnostic study"*, ***The Lancet Regional Health – South East Asia***, 2023. **(Impact Factor: 6.2)** [Paper Link] [Citations: 29]

[3] P. Gupta, **S. Basu**, et al. *"Deep learning models for differentiation of xanthogranulomatous cholecystitis and gallbladder cancer on ultrasound"*, ***Indian Journal of Gastroenterology***, 2023. **(Impact Factor: 2.1)** [Paper Link] [Citations: 10]

[4] P. Gupta, **S. Basu**, C. Arora. *"Applications of artificial intelligence in biliary tract cancers"*, ***Indian Journal of Gastroenterology***, 2024. **(Impact Factor: 2.1)** [Paper Link] [Citations: 7]

Conference (A*/A)

[1] **S. Basu**, M. Gupta, P. Rana, P. Gupta, C. Arora. "Surpassing the Human Accuracy: Detecting Gallbladder Cancer from USG with Curriculum Learning", **_CVPR_** 2022. (A*, h5-index: 440) [Paper Link] [Citations: 52]

[2] **S. Basu**, M. Gupta, C. Madan, P. Gupta, C. Arora. _"FocusMAE: Gallbladder Cancer Detection from Ultrasound Videos with Focused Masked Autoencoders"_, **_CVPR_** 2024. (A*, h5-index: 440) [Paper Link] [Citations: 10]

[3] **S. Basu**, S. Singla, M. Gupta, P. Rana, P. Gupta, C. Arora. _"Unsupervised Contrastive Learning of Image Representations from Ultrasound Videos with Hard Negative Mining"_, **_MICCAI_** 2022. (h5-index: 96) [Paper Link] [Citations: 22]

[4] **S. Basu**, A. Papanai, M. Gupta, P. Gupta, C. Arora. _"Gall Bladder Cancer Detection from US Images with Only Image Level Labels"_, **_MICCAI_** 2023. (h5-index: 96) [Paper Link] [Citations: 8]

[5] M. Gupta, **S. Basu**, et al. _"How reliable are the metrics used for assessing reliability in medical imaging?"_, **_MICCAI_** 2023 (Oral). (h5-index: 96) [Paper Link] [Citations: 3]

[6] C. Madan, M. Gupta, **S. Basu**, P. Gupta, C. Arora. _"LQ-Adapter: ViT-Adapter with Learnable Queries for Gallbladder Cancer Detection"_, **_WACV_** 2025 (Oral). (h5-index: 109) [Paper Link]

[7] C. Madan, A. Satia, **S. Basu**, P. Gupta, U. Dutta, C. Arora. _"Focus on Texture: Rethinking Pre-training in Masked Autoencoders for Medical Image Classification"_, Accepted at **_MICCAI_** 2025. (h5-index: 96)

Mentorship Experience

- Mentored 2 Undergrads, 2 Masters student, and 3 RAs to became successful co-authors in CVPR 2022, MICCAI 2022, MICCAI 2023, CVPR 2024, and WACV 2025. Delivered high-quality publications including two oral papers.
- Led a team of 6 Teaching Assistants to manage the Machine Learning course with 150 students. Successfully assigned duties, coordinated tutorial sessions and examinations, and received the Outstanding TA award for exceptional leadership.

Grants and Awards

- Prime Minister's Research Fellowship
- Oral Presentation at MICCAI 2023 (3% of the submission)
- Oral Presentation at WACV 2025 (8% of the submissions)
- Outstanding Teaching Assistant Award for Machine Learning course, IIT Delhi (2023)
- MICCAI Student Travel Award (2022) – first authors of highest quality papers. Award value: $1000
- CVPR Travel Grant (2022)
- Winner (2nd) of Object Detection Challenge, ICVGIP 2020

Reviewer Experience

Journals

- Nature Digital Medicine
- Nature Scientific Reports
- International Journal of Computer Vision (IJCV)
- Abdominal Radiology
- IEEE Transactions on Multimedia
- IET Image Processing

Conferences

- CVPR, ICCV, ECCV, MICCAI, AAAI, IJCAI

Media Coverage

- News Medical [Link]
- Indian Express [Link]
- Economic Times [Link]
- Business Standard [Link]
- The Week [Link]

Talks

- IIT Ropar
- Samsung R&D India, Bangalore
- Emory University
- SciTech Talks Podcast
- Amazon Inc.
- IIT Delhi PhD Seminar