Soumen Basu

Research Scientist, Meta

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Google Scholar LinkedIn

Areas of Interest

- Computer Vision, Deep Learning, Machine Learning in Medical Imaging, AI in Healthcare

Education

Ph.D. Department of Computer Science
Indian Institute of Technology Delhi (07/2019 – 07/2024)

- *Area:* Computer Vision, Medical Image Analysis, Deep Learning
- *Advisor:* Prof. Chetan Arora
- *Thesis Title:* Deep Learning Models for Detecting Gallbladder Cancer from Ultrasound
- Prime Minister's Research Fellow, Outstanding Teaching Assistant Award
- GPA: 9.348/10

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

- GATE 2013 AIR 99 (CS), GPA: 8.383/10

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

- 1st Div with Honours (Distinction), 79.63%

Work Experience

Research Scientist – Meta, New York (02/2025 – Present)

- Area: Monetization, Foundation Models
- Improving state-of-the-art large foundation models for increasing revenue shares.

Senior Chief Engineer – Samsung R&D, Bangalore (03/2024 – 01/2025)

- Area: Computer Vision, Machine Learning
- 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)

- Area: Computer Vision, Machine Learning
- Stray object detection in conveyor belts, optimizing production.
- Saved $120,000/ year in license costs with an in-house model.

Member of Technical Staff – Adobe Systems, Bangalore (07/2015 – 07/2018)

- Developed scalable backend APIs for digital ads data pipeline

Publications

Journal

[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, Q1)** [Paper]

[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, Q1)** [Paper]

[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]

[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]

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*). [Paper]

[2] **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 (A). [Paper]

[3] **S. Basu**, A. Papanai, M. Gupta, P. Gupta, C. Arora. *"Gall Bladder Cancer Detection from US Images with Only Image Level Labels"*, ***MICCAI*** 2023 (A). [Paper]

[4] M. Gupta, **S. Basu**, et al. *"How reliable are the metrics used for assessing reliability in medical imaging?"*, ***MICCAI*** 2023 (A, Oral Presentation) . [Paper]

[5] **S. Basu**, M. Gupta, C. Madan, P. Gupta, C. Arora. *"FocusMAE: Gallbladder Cancer Detection from Ultrasound Videos with Focused Masked Autoencoders"*, ***CVPR*** 2024 (A*). [Paper]

[6] C. Madan, M. Gupta, **S. Basu**, P. Gupta, C. Arora. *"LQ-Adapter: ViT-Adapter with Learnable Queries for Gallbladder Cancer Detection"*, ***WACV*** 2025 (A, Oral Presentation). [Paper]

[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"*, ***MICCAI*** 2025 (A). [Paper]

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 STAR (Student Travel) Award – first authors of highest quality papers (2022).
- 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
- ACM Transactions on Computing for Healthcare

Conferences

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

Media Coverage

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