Soumen Basu

Vision and Graphics Lab,
405 Bharti Building, IIT Delhi
Hauz Khas, New Delhi 110016, India

Email: soumen.basu@cse.iitd.ac.in
Web: https://www.cse.iitd.ac.in/~soumen
Phone: +91-9051501506

Research Interests

- Computer Vision, Deep Learning
- Medical Image Analysis, AI in Healthcare
- Deep Learning with Limited Supervision
- Self/weakly/un-supervised Learning
- Explainable AI

Education

PhD, Computer Science and Engineering
Indian Institute of Technology, Delhi, India
Thesis Advisor: Prof. Chetan Arora
July 2019 – December 2023

Masters (M. Tech), Computer Science and Engineering
Indian Institute of Technology, Delhi, India
July 2013 – June 2015

Publications

1. S. Basu, M. Gupta, P. Rana, P. Gupta and C. Arora. "*Surpassing the Human Accuracy: Detecting Gallbladder Cancer from USG Images with Curriculum Learning*". IEEE/CVF **CVPR 2022**.

2. S. Basu, S. Singla, M. Gupta, P. Rana, P. Gupta and C. Arora. "*Unsupervised Contrastive Learning of Image Representations from Ultrasound Videos with Hard Negative Mining*". **MICCAI 2022**.

3. S. Basu, M. Gupta, P. Rana, P. Gupta and C. Arora. "*RadFormer: Transformers with Global-Local Attention for Interpretable and Accurate Gallbladder Cancer Detection*". **Elsevier Medical Image Analysis** (Impact Factor: 13.8), **January, 2023**.

4. S. Basu, A. Papanai, M. Gupta, P. Gupta and C. Arora. "*Gallbladder Cancer Detection from US Images with Only Image Level Labels*". **MICCAI 2023** (Accepted).

5. M. Gupta, S. Basu and C. Arora. "*How reliable are the metrics used for assessing reliability in medical imaging?*". **MICCAI 2023** (Accepted).

Work Experience

- ***Applied Scientist Intern***
  Amazon India
  July 2023 – Current

- ***Doctoral Researcher***, and Prime Minister's Research Fellow (Government of India)
  Indian Institute of Technology Delhi.
  July 2019 – Current

- ***Research Assistant***, Department of Computer Science and Engineering,
  The Pennsylvania State University, USA
  August 2018 – May 2019

- ***Member of Technical Staff***
  Adobe Systems India, Bangalore
  July 2015 – July 2018

Course Projects

- Automated X-Ray report generation from X-Ray images
- Segmentation of Surgical Tools in Endoscopy Images
- Object Detection for Anti-Poaching Aerial Patrolling of Protected Areas
- Text Object Detection from Signboards
- Automated digitization of hand-written forms

Services

- Program Committee Member at AAAI 2023

	• Reviewer at CVPR 2023 • Reviewer at IPCAI 2023 • Reviewer at ICCV 2023
Awards	• Recipient of MICCAI 2022 Student Travel Award • CVPR 2022 Travel Grant • Recipient of the prestigious Prime Minister's Research Fellowship, Government of India. • Recipient of Alumni Doctoral Grant, Department of Computer Science, IIT Delhi • Winner (2nd position) in ICVGIP 2020 Object Detection Challenge
Skills	• Python, PyTorch, OpenCV, Keras, Scikit-learn • Computer Vision, Deep Learning, Git, Bash, Flask, Latex
References	• Prof. Chetan Arora, Professor, IIT Delhi (PhD supervisor) • Dr. Pankaj Gupta, Associate Professor, PGIMER Chandigarh