Soumen Basu

Vision and Graphics Lab,
405 Bharti Building,
Indian Institute of Technology Delhi
Hauz Khas, New Delhi 110016, India

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

Research Interests

Computer Vision, Deep Learning, Medical Image Analysis

Profile Summary

I am a 4th year PhD student, and the prestigious Prime Minister's Research Fellowship (Government of India) holder. I am primarily interested in Computer Vision and Deep Learning research. My thesis topic is on medical computer vision, but the techniques I work with are transferable and generic. My previous publications in CVPR, MICCAI, and Elsevier Medical Image Analysis included contributions in Curriculum Learning, Contrastive Learning, and Explainable AI. I am looking for internships in Summer/ Fall 2023, and full-time roles in early 2024.

Education

- Ph.D., Department of Computer Science and Engineering,
  Indian Institute of Technology, Delhi, India
  Advisor: Prof. Chetan Arora
  July 2019 – December 2023 (Expected)

Work Experience

- Doctoral Researcher, and Prime Minister's Research Fellow (Government of India)
  Department of Computer Science and Engineering,
  Indian Institute of Technology Delhi.
  July 2019 – Till Now

- 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

Publications (Journal and Core A* conferences)

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: 13.828).

Academic Projects

- Object Detection for Anti-Poaching Aerial Patrolling of Protected Areas
- Automated X-Ray report generation from X-Ray images
- Segmentation of Surgical Tools in Endoscopy Images
- Text Object Detection from Signboards
- Open-SfM Tuning for 3D-Reconstruction of Indian Monuments using Crowd-Sourced Images
- Automated digitization of hand-written forms

Services	• Program Committee Member for AAAI 2023 • Practicum curriculum design at Delhi Skill and Entrepreneurship University
Awards	• Recipient of MICCAI 2022 Student Travel Award • CVPR 2022 Travel Grant • Recipient of the highly 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
Technical Skills	• PyTorch, Python, OpenCV, Keras • Scikit-learn, Unix, Git, Flask, LaTex