



Name: Dr. Soma Debnath

Designation: Assistant Professor

Qualifications: M.Sc in Computer Sc., Ph.D. in CSE

Email ID: soma.debnath@sxuk.edu.in

Biographical Sketch

Dr. Soma Debnath is an Assistant Professor in the Department of Computer Science under the Faculty of Science at St. Xavier's University, Kolkata. She joined the University in October 2024. She received B.Sc., M.Sc. degrees in Computer Science in 2012 and 2014 respectively. She awarded Ph.D. in Computer Science and Engineering from National Institute of Technology Durgapur, India in 2022. She has achieved Gold Medal for securing first position in Masters. In 2016 she awarded Inspire Fellowship from Department of Science and Technology, India. She qualified UGC NET in 2015. Her areas of research interest are Computer Vision, Image Processing, AI, Machine Learning and Deep Learning. She is having more than 4.5 years of teaching experience and 9 years of research experience.

Areas of Specialisation and Research

- ❖ Computer Vision
- ❖ Computational Photography
- ❖ Image Processing
- ❖ Machine Learning
- ❖ Deep Learning

Teaching Experience

- ❖ Assistant Professor – Department of Computer Science at St. Xavier's University, Kolkata from October, 2024.
- ❖ Assistant Professor – Department of Information Technology at Amity University Kolkata from March 2022 – October 2024.
- ❖ Assistant Professor – Department of Computer Science and Engineering at NIST University, Berhampur, Odisha from August 2021- Feb 2022.

Administrative Responsibility

- ❖ Program coordinator of BCA from July 2023- Oct 2024 at Amity Institute of Information Technology, Amity University Kolkata.
- ❖ Website Coordinator of Faculty of Science August 2025- Till date at St. Xavier's University Kolkata

Publications

❖ Book Chapters:

1. A. Adhikary , **S.Debnath**, D. Sarkar, "ML and Blockchain for IOE: A Deep Insight into Framework, Security, and its Applications with Industrial IoE", Blockchain Technology for IoE: Security and Privacy Perspective, CRC press, 2023. eBook ISBN9781003366010, pages: 21.
2. M. Gupta, **S.Debnath**, "Deep Learning Algorithms for Computer Vision: A DeepInsight into Principles and Applications", Intelligent Systems and Applications inComputerVision, CRC press, 2023,eBook ISBN9781003453406, pages: 11.
3. **S. Debnath**, A. Adhikary, "Quantum Computing for Cryptography: An Extensive Survey", Edge of Intelligence: Exploring the Frontiers of AI at the Edge, willey <https://doi.org/10.1002/9781394314409.ch12>, March 2025.
4. **S. Debnath**, "Digitalization of Healthcare: The Rise of Digital Twin Trend Worldwide and Its Implementation in Healthcare" Reliability Analysis and Modelling for Complex System, Elsevier, ISBN: 9780443336553, November 2025 .

❖ Journals:

1. **S.Debnath**,S.Changder,"ComputationalApproachestoAestheticQualityAppraisement of DigitalPhotographs: State of the Art and Future ResearchDirectives", Journal of "Pattern Recognition and Image Analysis", Issue 4, Vol.30,2020.
2. **S.Debnath**, R.Roy, and S.Changder,"Photo Classification Based in the Presence of Diagonal Line using Pre-trained DCNN VGG16", Multimedia Tools and Applications (Springer), doi.org/10.1007/s11042-021-11557-w. 2022.
3. **S.Debnath**,R.Roy, and S.Changder,"A Novel Approach using Deep Convolutional Neural Network to Classify the Photographs Based on Leading-line by Fine-tuning the Pre-trained VGG16 Neural Network", Multimedia Tools and Applications (Springer), doi:10.1007/s11042-022-13338-5.

❖ **Conferences (International):**

1. **S. Debnath** and S. Changder, "An Amalgam Approach to Detect Edges Using Ultrametric Contour Map in Natural Scene Images" ICoAC IEEE Conference, Chennai (India), page:81-86, ISBN:978-1-5386-4348-8/17, Dec 2017.
2. **S. Debnath**, Amanand S. Changder, "Automatic Detection of Regular Geometrical Shapes in Photograph using Machine Learning Approach," Tenth International Conference on Advanced Computing (ICoAC), pp.1-6, doi:10.1109/ICoAC44903.2018.8939083, Chennai, India, 2018.
3. **S. Debnath**, M. S. Hossain, S. Changder, "Deep Photo Classification Based on Geometrical Shape of Principal Object Presents in Photographs via VGG16 DCNN", 7th International Conference on Mathematics and Computing (ICMC2021), IEST Shibpur, India, 2021.

❖ **Patents:**

1. **A system for s-curves and c-curves recognition in photographs using deep convolutional neural network**, Date of Publication: 09-08-2024, Application no. 202311007015, status: Published, **Indian Patent**.

Professional Activities

❖ **Reviewer**

➤ **Journals:**

1. IEEE Transactions on Multimedia
2. Canadian Journal of Remote Sensing
3. SN Computer Science

➤ **Conferences:**

1. International Symposium on Artificial Intelligence (ISAI2022)
2. IEEE CIACON 2025

➤ **Member:**

1. Professional member of Computer Society of India, Kolkata Chapter.

Awards and Achievements

- ❖ INSPIRE Fellowship from DST INDIA in 2016
- ❖ UGC-NET qualified in 2015
- ❖ Gold Medal in M.Sc