

Subhadeep Koley

Computer Vision & Machine Learning Researcher

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EDUCATION

- University of Surrey** Guildford, United Kingdom
PhD — *SketchX Lab, Centre for Vision, Speech and Signal Processing (CVSSP)*
April 2022 — Present
Research Field: Computer Vision & Deep Learning
Supervisor: Prof. Yi-Zhe Song
Co-Supervisor: Prof. Tao (Tony) Xiang
Top-Venue Publications: 8 × CVPR
- West Bengal University of Technology** Kolkata, India
B. Tech — *Electronics and Communication Engineering*; GPA: 8.88/10
May 2014 — June 2018

SKILLS SUMMARY

- Languages:** Python (PyTorch), MATLAB, C, C++
- Subjects:** Deep Learning, Machine Learning, Computer Vision, Pattern Recognition, Digital Image Processing
- Dev Tools:** GitHub, VSCode, \LaTeX , JIRA, Confluence, Perforce, ReviewBoard, HTCondor

PROFESSIONAL EXPERIENCE

- The MathWorks Inc.** Hyderabad, India
Senior Associate Engineer – SDE II (Full-time)
Jul 2019 — Mar 2022
 - Participation in all phases of the software development life-cycle, collaborating in cross-functional teams and with engineers specializing in image processing, computer vision, deep learning, and machine learning.
 - Investigating, analyzing and shipping solutions to complex image processing, computer vision, medical imaging, & deep learning problems encountered by engineers and scientists.
 - Took a major role in developing and shipping popular products like *Hyperspectral Imaging Library*[™] & *Medical Imaging Toolbox*[™] from scratch, single-handedly developing multiple crucial features in those tools.
- Johnson Controls Inc.** Mumbai, India
Graduate Engineer (Full-time)
Oct 2018 — Jul 2019
 - HVAC & process-control system designing, Metasys[®] UI & controller configuration, and control graphic designing for intelligent building management & security system applications.
 - Follow processes, maintain required quality standards, & on-time deliveries to ensure user satisfaction.

SELECTED PUBLICATIONS (FULL LIST)

- [Picture that Sketch: Photorealistic Image Generation from Abstract Sketches](#): S. Koley, AK. Bhunia, A. Sain, PN. Chowdhury, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023.
- [Sketch2Saliency: Learning to Detect Salient Objects from Human Drawings](#): AK. Bhunia, S. Koley, A. Kumar, A. Sain, PN. Chowdhury, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023.
- [Exploiting Unlabelled Photos for Stronger Fine-Grained SBIR](#): A. Sain, AK. Bhunia, S. Koley, PN. Chowdhury, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023.
- [What Can Human Sketches Do for Object Detection?](#): PN. Chowdhury, AK. Bhunia, A. Sain, S. Koley, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023. (**Top 12 Paper Award Candidate**)
- [CLIP for All Things Zero-Shot Sketch-Based Image Retrieval, Fine-Grained or Not](#): A. Sain, AK. Bhunia, PN. Chowdhury, S. Koley, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023.
- [SceneTrilogy: On Human Scene-Sketch and its Complementarity with Photo and Text](#): PN. Chowdhury, AK. Bhunia, A. Sain, S. Koley, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2023.
- [Sketching without Worrying: Noise-Tolerant Sketch-Based Image Retrieval](#): AK. Bhunia, S. Koley, AFUR. Khilji, A. Sain, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2022.
- [Doodle It Yourself: Class Incremental Learning by Drawing a Few Sketches](#): AK. Bhunia, VR. Gajjala, S. Koley, R. Kundu, A. Sain, T. Xiang, Y-Z. Song, IEEE **CVPR**, 2022.
- [Cross modal face recognition with illumination-invariant local discrete cosine transform binary pattern \(LDCTBP\)](#): S. Koley, H. Roy, S. Dhar, D. Bhattacharjee, **Pattern Analysis & Applications**, Springer, 2023. [Impact Factor: 2.307]

10. [Illumination invariant face recognition using Fused Cross Lattice Pattern of Phase Congruency \(FCLPPC\)](#): **S. Koley**, H. Roy, S. Dhar, D. Bhattacharjee, **Information Sciences**, Elsevier, 2021. [*Impact Factor: 8.233*]
11. [Gammadion binary pattern of Shearlet coefficients \(GBPSC\): An illumination-invariant heterogeneous face Descriptor](#): **S. Koley**, H. Roy, D. Bhattacharjee, **Pattern Recognition Letters**, Elsevier, 2021. [*Impact Factor: 4.757*]
12. [Local-Friis-Radiation-Pattern \(LFRP\) for Face Recognition](#): H. Roy, **S. Koley**, **Sensing and Imaging**, Springer, 2021.
13. [Bat optimized 3D anaglyph image watermarking based on maximum noise fraction in the digital Shearlet domain](#): **S. Koley**, **Multimedia Tools and Applications**, Springer, 2022. [*Impact Factor: 2.577*]
14. [Visual attention model based dual watermarking for simultaneous image copyright protection and authentication](#): **S. Koley**, **Multimedia Tools and Applications**, Springer, 2020. [*Impact Factor: 2.577*]
15. [A feature adaptive image watermarking framework based on Phase Congruency and Symmetric Key Cryptography](#): **S. Koley**, **JKSU-CIS**, Elsevier, 2019. [*Impact Factor: 9.006*]
16. [Single Image Visibility Restoration using Dark Channel Prior and Fuzzy Logic](#): **S. Koley**, A. Sadhu, H. Roy, S. Dhar, **IEEE IEMENTech**, 2018.

ACCOMPLISHMENT

- Full research scholarship to pursue PhD at CVSSP, University of Surrey, UK.
- Selected among **Top 12 Paper Award Candidates** in CVPR 2023 out of 9155 submissions (0.13%).

PROFESSIONAL & VOLUNTARY WORK

- Serving as reviewer for:
 - [Future Generation Computer Systems](#), Elsevier, 2020–
 - [Signal Processing](#), Elsevier, 2020–
 - [Expert Systems with Applications](#), Elsevier, 2021–
 - [EURASIP Journal on Image and Video Processing](#), Springer, 2021–
 - [Frontiers in Computer Science](#), 2022–
 - [Information Sciences](#), Elsevier, 2022–
 - [The Imaging Science Journal](#), Taylor & Francis, 2022–
 - [Cybernetics and Systems](#), Taylor & Francis, 2023–
 - [IEEE Transactions on Pattern Analysis and Machine Intelligence](#), 2023–
 - Various IEEE international conferences including CVPR, ICCV.