

# Subhadeep Koley

Computer Vision & Deep Learning Researcher

[LinkedIn](#)

[Google Scholar](#)

[ORCID](#)

[Personal Website](#)

Email: [subhadeepkoley@gmail.com](mailto:subhadeepkoley@gmail.com)

[s.koley@surrey.ac.uk](mailto:s.koley@surrey.ac.uk)

Mobile: +44-777-6625-276

## EDUCATION

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- University of Surrey** Guildford, United Kingdom  
• *Ph. D. – SketchX Lab, Centre for Vision, Speech and Signal Processing (CVSSP)* April 2022 – Present  
*Supervisor:* Prof. Yi-Zhe Song  
*Co-Supervisor:* Prof. Tao(Tony) Xiang
  - West Bengal University of Technology** Kolkata, India  
• *Bachelor of Technology – Electronics and Communication Engineering; GPA: 8.88/10* May 2014 – June 2018

## SKILLS SUMMARY

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- Languages:** Python (PyTorch), MATLAB, C, C++
  - Subjects:** Digital Image Processing, Computer Vision, Pattern Recognition, Deep Learning, Machine Learning
  - Tools:** L<sup>A</sup>T<sub>E</sub>X, Perforce, ReviewBoard, JIRA, Confluence, GitHub, VSCode

## PROFESSIONAL EXPERIENCE

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- The MathWorks Inc.** Hyderabad, India  
• *Senior Associate Engineer (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, machine learning.
    - Development of image processing, computer vision, deep learning algorithms in spatial and frequency domain.
    - Investigating, analyzing and shipping solutions to complex image processing, computer vision, & deep learning problems encountered by engineers and scientists.
  - Johnson Controls Inc.** Mumbai, India  
• *Graduate Engineer (Full-time)* Oct 2018 - Jul 2019
    - HVAC system designing, Metasys UI & controller configuration, & control graphic designing for intelligent building management & security system application.
    - Follow processes, maintain required quality standards, & on-time deliveries to ensure user satisfaction.

## SELECTED PUBLICATIONS (FULL LIST)

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- “Sketching without Worrying: Noise-Tolerant Sketch-Based Image Retrieval”: AK. Bhunia, **S. Koley**, AFUR. Khilji, A. Sain, PN. Chowdhury, 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.
  - “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.
  - “Gammadion Binary Pattern of Shearlet Coefficients (GBPSC): An illumination-invariant heterogeneous face Descriptor”: **S. Koley**, H. Roy, D. Bhattacharjee. **Pattern Recognition Letters**, Elsevier, 2021.
  - “Local-Friis-Radiation-Pattern (LFRP) for Face Recognition”: H. Roy, **S. Koley**. **Sensing and Imaging**, Springer, 2021.
  - “Visual attention model based dual watermarking for simultaneous image copyright protection and authentication”: **S. Koley**. **Multimedia Tools and Applications**, Springer, 2020.
  - “Bat Optimized 3D Anaglyph Image Watermarking based on Maximum Noise Fraction in the Digital Shearlet Domain”: **S. Koley**. **Multimedia Tools and Applications**, Springer, 2022.
  - “A feature adaptive image watermarking framework based on Phase Congruency and Symmetric Key Cryptography”: **S. Koley**. **Journal of King Saud University–CIS**, Elsevier, 2019.
  - “Single Image Visibility Restoration using Dark Channel Prior and Fuzzy Logic”: **S. Koley**, A. Sadhu, H. Roy, S. Dhar, **IEEE IEMENTech** 2018.
  - “Cross modal face recognition with illumination-invariant Local Discreet Cosine Transform Binary Pattern (LDCTBP)”: **S. Koley**, H. Roy, S. Dhar, D. Bhattacharjee, Under review in a SCI indexed Elsevier journal

## PRIOR RESEARCH EXPERIENCES

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- **A secure and fast image & video copyright protection scheme based on phase congruency and adaptive  $\alpha$ - $\beta$  blending:**
  - **Supervisor:** [Prof. Subir Kumar Sarkar](#), Jadavpur University
  - **Timeline:** 2017 - 2018
  - In this project, we have developed a novel algorithm for digital image or video watermarking.
- **Fuzzy logic and dark channel prior based image & video defogging algorithms:**
  - **Supervisor:** [Dr. Hiranmoy Roy](#), RCCIIT
  - **Timeline:** 2017 - 2018
  - In this project, we have developed an efficient and fast algorithm for digital image and video defogging and restoration.
- **Cross-modal illumination invariant face sketch-photo recognition:**
  - **Supervisor:** [Prof. Debotosh Bhattacharjee](#), Jadavpur University  
[Dr. Hiranmoy Roy](#), RCCIIT
  - **Timeline:** 2017 - 2019
  - In this project, we have developed a few efficient and fast frameworks for illumination invariant and cross-modal face sketch-photo recognition.

## ACCOMPLISHMENT

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- **IELTS (Academic):** Issued by British Council, 2022, CEFR Level: C1, Overall Band Score: 7.0/9.0
- **ACS Certified Peer Reviewer:** Issued by American Chemical Society (ACS), 2020

## PROFESSIONAL & VOLUNTARY WORK

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- Served as a 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-
- Served as a reviewer for various IEEE international conferences (2019-).