

RESEARCH INTERESTS	Computer Vision & Machine Learning, 3D Vision, 3D Reconstruction, Neural Rendering, Generative Modelling, Synthetic Data Generation, Few-shot Learning, Anomaly Detection, handwriting/Sketch Generation.
EDUCATION	<div> University of Edinburgh, UK 2023 - Present <ul style="list-style-type: none"> - PhD in the School of Informatics (Visual Computing Group) - Supervisor: Dr. Hakan Bilen, Dr. Changjian Li </div> <div> Jadavpur University, Kolkata, India 2016 - 2020 <ul style="list-style-type: none"> - B.E Electrical Engineering (CGPA 8.6/10) </div>
EXPERIENCE	<div> MBZUAI, Abu Dhabi, UAE November, 2020 - April, 2023 <ul style="list-style-type: none"> - <i>Research Assistant at Computer Vision Lab</i> - <i>Advisor:</i> Dr. Fahad Shahbaz Khan, Dr. Salman Khan - <i>Research Direction:</i> Generative models, Document analysis, Handwriting generation - <i>Collaborated with:</i> Dr. Mubarak Shah, University of Central Florida, USA - <i>Description:</i> During my time here, I published several of my works in 1xCVPR, 2xICCV, 1xECCV. </div> <div> University of Manitoba, Canada May, 2019 - August, 2019 <ul style="list-style-type: none"> - <i>Research Intern under Mitacs Globalink Internship program</i> - <i>Title:</i> “Flexible deep learning models in computer vision” - <i>Advisor:</i> Dr. Yang Wang, Associate Professor - <i>Description:</i> I worked on one-shot scene-specific crowd counting that adapts to specific scene. </div> <div> Robert Bosch, Bangalore, India May, 2018 - July, 2018 <ul style="list-style-type: none"> - <i>Research Intern at Computer Vision Lab, RTC Department</i> - <i>Title:</i> “Synthetic to Photo-realistic Image Generation” - <i>Advisor:</i> Dr. Amit Arvind Kale, Principal Senior Expert - <i>Description:</i> I worked on various domain adaptation techniques and methods. </div> <div> Indian Institute of Technology (IIT) Roorkee, India. May, 2017 - June, 2020 <ul style="list-style-type: none"> - <i>Advisor:</i> Dr. Partha Pratim Roy - <i>Research Direction:</i> Machine learning, computer vision, pattern recognition, document analysis - <i>Collaborated with:</i> Dr. Umapada Pal, CVPR Unit, ISI-Kolkata </div>
SELECTED RESEARCH	<ol style="list-style-type: none"> Ankan Bhunia, Changjian Li, Hakan Bilen, “<i>Odd-One-Out: Anomaly Detection by Comparing with Neighbors</i>,” <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2025 - [pdf] Ankan Bhunia, Changjian Li, Hakan Bilen, “<i>Looking 3D: Anomaly Detection with 2D-3D Alignment</i>,” <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2024 - [pdf] Amandeep Kumar, Ankan Bhunia, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Salman Khan, Ming-Hsuan Yang, Fahad Shahbaz Khan, “<i>Generative Multiplane Neural Radiance for 3D-Aware Image Generation</i>,” <i>IEEE International Conference on Computer Vision (ICCV)</i>, 2023 - [pdf] Amandeep Kumar, Ankan Bhunia, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Fahad Shahbaz Khan, “<i>Cross-modulated Few-shot Image Generation for Colorectal Tissue Classification</i>,” <i>International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI)</i>, 2023 - [pdf] Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Jorma Laaksonen, Mubarak Shah, Fahad Shahbaz Khan, “<i>Person Image Synthesis via Denoising Diffusion Model</i>,” <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2023 - [pdf] Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Jorma Laaksonen, Michael Felsberg, “<i>DoodleFormer: Creative Sketch Drawing with Transformers</i>,” <i>European Conference on Computer Vision (ECCV)</i>, 2022 - [pdf] Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Mubarak Shah, “<i>Handwriting Transformers</i>,” <i>IEEE International Conference on Computer Vision (ICCV)</i>, 2021 - [pdf] Ayan Bhunia, Abhirup Das, Ankan Bhunia, Sairaj Kishore, Partha Roy, “<i>Handwriting Recognition in Low-resource Scripts using Adversarial Learning</i>,” <i>IEEE Conference on Computer Vision and Pattern Recognition (CVPR)</i>, 2019 [pdf] Ankan Bhunia, Ayan Bhunia, Aneeshan Sain, Partha Roy, “<i>Improving Document Binarization via Adversarial Noise-Texture Augmentation</i>,” <i>IEEE International Conference on Image Processing (ICIP)</i>, 2019 [pdf]

10. Ayan Bhunia, **Ankan Bhunia**, Shuvojit Ghose, Partha Roy, Umapada Pal, “A Deep One-Shot Network for Query-based Logo Retrieval,” *Pattern Recognition* (I.F. 8.518) [pdf]
11. **Ankan Bhunia***, Aishik Konwer*, Abir Bhowmik, Ayan Bhunia, Partha Roy, “Script Identification in Natural Scene Image and Video Frames using an Attention-based Convolutional-LSTM Network,” *Pattern Recognition* (I.F. 8.518) - [pdf]
12. **Ankan Bhunia**, Ayan Bhunia, Prithaj Banerjee, Aishik Konwer, Abir Bhowmik, Partha Roy, Umapada Pal, “Word Level Font-to-Font Image Translation using Convolutional Recurrent Generative Adversarial Networks,” *International Conference on Pattern Recognition (ICPR)*, 2018 - [pdf]
13. Ayan Bhunia, Subham Mukherjee, Aneeshan Sain, Abir Bhowmik, **Ankan Bhunia**, Partha Roy, Umapada Pal, “Indic Handwritten Script Identification Using Offline-Online Multi-modal Deep Network,” *Information Fusion* (I.F. 17.564) - [pdf]
14. **Ankan Bhunia**, Alireza Alaei, Partha Roy, “Signature Verification Approach using Fusion of Hybrid Texture Features,” *Neural Computing and Applications* (I.F. 5.606) - [pdf]
15. Aishik Konwer, Ayan Bhunia, **Ankan Bhunia**, Prithaj Banerjee, Partha Roy, Umapada Pal, “Staff Line Removal using Generative Adversarial Networks,” *International Conference on Pattern Recognition (ICPR)*, 2018 - [pdf]
16. Ayan Bhunia, Abir Bhowmik, **Ankan Bhunia**, Aishik Konwer, Partha Pratim Roy, Umapada Pal, “Handwriting Trajectory Recovery using End-to-End Deep Encoder-Decoder Network,” *International Conference on Pattern Recognition (ICPR)*, 2018 - [pdf]

SELECTED PATENTS

1. Amandeep Kumar, **Ankan Bhunia**, Hisham Cholakkal, Sanath, Narayan, Rao Anwer, Fahad Shahbaz Khan, “System and Method for Handwriting Generation”, 2024, ID: **US20240161360A1**
2. **Ankan Bhunia**, Salman Khan, Hisham Cholakkal, Rao Anwer, Fahad Shahbaz Khan, “System and Method for Handwriting Generation”, 2023, ID: **US11756244B1**

RESEARCH AREAS

- (1) **Applied Computer Vision:** Synthetic data generation for real-world tasks (photo-realistic rendering, diffusion-based generation, LLM-guided automatic data generation), Anomaly detection in real-world objects.
- (2) **Generative Modelling:** GANs, Denoising Diffusion models, VAE, Autoregressive models.
- (3) **Applications of Image Generation:** Creative AI-art generation, Few-shot generation, Sparse image data generation, Text-to-Image generation, Conditional GANs.
- (4) **3D Vision Applications:** 3D generative modelling, 3D reconstruction problems.
- (5) **Semi-supervised & Unsupervised Models:** Few-shot image detection, Domain adaptation.
- (6) **Document Image Analysis:** Vision tasks for sparse image data like sketch/handwriting.

TECHNICAL SKILLS

Programming Languages: Python, C, MATLAB, HTML/CSS
Deep Learning Framework: PyTorch, Tensorflow, Keras
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, PyCharm
Miscellaneous: Blender, Pybullet, OpenCV, OpenAI gym, Numpy, Matplotlib, Pandas, Scikit-Learn.

NOTABLE DETAILS

- (1) I have over **600 citations** on [Google Scholar](#) with *h-index* **12**.
- (2) I have published in A* computer vision conferences (i.e. **CVPR**, **ICCV**, **ECCV**).
- (3) I have served as a reviewer for **TPAMI**, **ICCV**, **ECCV**, **CVPR**, **WACV**.

LINKS

✉ ankan.bhunia@ed.ac.uk –  [Google Scholar](#) –  [Homepage](#) –  [LinkedIn](#) –  [GitHub](#)