

**RESEARCH INTERESTS** Computer Vision, Deep Learning, Machine Learning, Generative Modelling, Few-shot Learning, Sketch Generation, Document Image Analysis.

**EDUCATION** **University of Edinburgh, UK** 2023 - Present  
 - PhD in the School of Informatics (Visual Computing Group)  
 - Supervisor: Dr. [Hakan Bilen](#)

**Jadavpur University, Kolkata, India** 2016 - 2020  
 - B.E Electrical Engineering (CGPA 8.6/10)

**EXPERIENCE** **MBZUAI, Abu Dhabi, UAE** November, 2020 - April, 2023  
 - *Research Assistant at Computer Vision Lab*  
 - *Advisor:* Dr. [Fahad Shahbaz Khan](#), Dr. [Salman Khan](#)  
 - *Research Direction:* Generative models, Document analysis, Handwriting generation  
 - *Collaborated with:* Dr. [Mubarak Shah](#), University of Central Florida, USA

**University of Manitoba, Canada** May, 2019 - August, 2019  
 - *Research Intern under Mitacs Globalink Internship program*  
 - *Title:* “Flexible deep learning models in computer vision”  
 - *Advisor:* Dr. [Yang Wang](#), Associate Professor  
 - *Description:* I worked on one-shot scene-specific crowd counting that adapts to specific scene.

**Robert Bosch, Bangalore, India** May, 2018 - July, 2018  
 - *Research Intern at Computer Vision Lab, RTC Department*  
 - *Title:* “Synthetic to Photo-realistic Image Generation”  
 - *Advisor:* Dr. [Amit Arvind Kale](#), Principal Senior Expert  
 - *Description:* I worked on various domain adaptation techniques and methods.

**Indian Institute of Technology (IIT) Roorkee, India.** May, 2017 - June, 2020  
 - *Advisor:* Dr. [Partha Pratim Roy](#)  
 - *Research Direction:* Machine learning, computer vision, pattern recognition, document analysis  
 - *Collaborated with:* Dr. [Umapada Pal](#), CVPR Unit, ISI-Kolkata, Dr. [Alireza Alaei](#), Research Fellow, Griffith University, Australia.

**SELECTED RESEARCH**

1. Amandeep Kumar, **Ankan Kumar Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Salman Khan, Ming-Hsuan Yang, Fahad Shahbaz Khan, “*Generative Multiplane Neural Radi-ance for 3D-Aware Image Generation*”, **ICCV, 2023** [[pdf](#)]
2. Amandeep Kumar, **Ankan Kumar Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Fahad Shahbaz Khan, “*Cross-modulated Few-shot Image Generation for Colorectal Tissue Classification*”, **MICCAI, 2023** [[pdf](#)]
3. **Ankan Kumar Bhunia**, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Jorma Laaksonen, Mubarak Shah, Fahad Shahbaz Khan, “*Person Image Synthesis via Denoising Diffusion Model*”, **CVPR, 2023** [[pdf](#)] [[webpage](#)]
4. **Ankan Kumar Bhunia**, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Jorma Laaksonen, Michael Felsberg, “*DoodleFormer: Creative Sketch Drawing with Transformers*”, **ECCV, 2022** [[pdf](#)] [[webpage](#)]
5. **Ankan Kumar Bhunia**, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Mubarak Shah, “*Handwriting Transformers*”, **ICCV, 2021** [[pdf](#)] [[webpage](#)]

6. Ayan Bhunia, Abhirup Das, **Ankan Kumar Bhunia**, Sairaj Kishore, Partha Roy, “*Handwriting Recognition in Low-resource Scripts using Adversarial Learning*”, **CVPR, 2019** [pdf]
7. **Ankan Kumar Bhunia**, Ayan Bhunia, Aneeshan Sain, Partha Roy, “Improving Document Binarization via Adversarial Noise-Texture Augmentation”, **ICIP, 2019** [pdf]
8. Ayan Bhunia, **Ankan Kumar Bhunia**, Shuvojit Ghose, Partha Roy, Umapada Pal, “*A Deep One-Shot Network for Query-based Logo Retrieval*”, **Pattern Recognition (I.F.-8.518)** [pdf]
9. **Ankan Kumar 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]
10. **Ankan Kumar 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*”, **ICPR, 2018** [pdf]
11. Ayan Bhunia, Subham Mukherjee, Aneeshan Sain, Abir Bhowmik, **Ankan Kumar Bhunia**, Partha Roy, Umapada Pal, “*Indic Handwritten Script Identification Using Offline-Online Multimodal Deep Network*”, **Information Fusion (I.F.-17.564)** [pdf]
12. **Ankan Kumar Bhunia**, Alireza Alaei, Partha Roy, “*Signature Verification Approach using Fusion of Hybrid Texture Features*”, **Neural Computing and Application (I.F.-5.606)** [pdf]
13. Aishik Konwer, Ayan Bhunia, **Ankan Kumar Bhunia**, Prithaj Banerjee, Partha Roy, Umapada Pal, “*Staff line Removal using Generative Adversarial Networks*”, **ICPR, 2018** [pdf]
14. Ayan Bhunia, Abir Bhowmik, **Ankan Kumar Bhunia**, Aishik Konwer, Partha Pratim Roy, Umapada Pal, “*Handwriting Trajectory Recovery using End-to-End Deep Encoder-Decoder Network*”, **ICPR, 2018** [pdf]

#### SELECTED PATENTS

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

#### RESEARCH AREAS

- (1) **Generative Modelling:** GANs, Denoising Diffusion models, VAE, Autoregressive models.
- (2) **Applications of Image Generation:** Creative AI-art generation, Few-shot generation, Sparse image data generation, Text-to-Image generation, Conditional GANs.
- (3) **3D vision applications:** 3D generative modelling, 3D reconstruction problems.
- (4) **Semi-supervised & Unsupervised Models:** Few-shot image detection, Domain adaptation.
- (5) **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:** OpenCV, OpenAI gym, Numpy, Matplotlib, Pandas, Scikit-Learn.

#### NOTABLE DETAILS

- (1) I have over **400 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 attended **ECCV'22** conference in Tel-Aviv, Israel and presented my paper DoodleFormer.
- (4) I have served as a reviewer for **TPAMI, ICCV ECCV, CVPR, WACV**.
- (5) I was selected for *Mitacs Globalink Scholarship* in 2019 and had the opportunity to spend three months at University of Manitoba, Canada.

#### LINKS

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