Ankan Kumar Bhunia

🌐 *https://ankanbhunia.github.io*

RESEARCH INTERESTS

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

EDUCATION

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

EXPERIENCE

MBZUAI, Abu Dhabi, UAE November, 2020 - Present
- *Research Assistant at Computer Vision Lab*
- *Advisor*: Prof. Fahad Shahbaz Khan, Prof. Salman Khan
- *Research Direction*: Generative models, Document analysis, Handwriting generation
- *Collaborated with*: Prof. 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*: Prof. 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*: Prof. Partha Pratim Roy
- *Research Direction*: Machine learning, computer vision, pattern recognition, document analysis
- *Collaborated with*: Prof. Umapada Pal, CVPR Unit, ISI-Kolkata, Dr. Alireza Alaei, Research Fellow, Griffith University, Australia.

SELECTED RESEARCH

[1] **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]

[2] **Ankan Kumar Bhunia**, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Mubarak Shah, *"Handwriting Transformers"*, **ICCV**, *2021* [pdf] [webpage]

[3] Ayan Bhunia, Abhirup Das, **Ankan Kumar Bhunia**, Sairaj Kishore, Partha Roy, *"Handwriting Recognition in Low-resource Scripts using Adversarial Learning"*, **CVPR**, *2019* [pdf]

[4] **Ankan Kumar Bhunia**, Ayan Bhunia, Aneeshan Sain, Partha Roy, "Improving Document Binarization via Adversarial Noise-Texture Augmentation", **ICIP**, *2019* [pdf]

[5] Ayan Bhunia, **Ankan Kumar Bhunia**, Shuvozit Ghose, Partha Roy, Umapada Pal, *"A Deep One-Shot Network for Query-based Logo Retrieval"*, **Pattern Recognition** *(I.F.-8.518)* [pdf]

[6] **Ankan Kumar Bhunia***, Aishik Konwer*, Abir Bhowmik, Ayan Bhunia, Partha Roy, *"Script identification in natural scene image and video frames using an attention based Convo-lutional-LSTM network"*, **Pattern Recognition** *(I.F.-8.518)* [pdf]

[7] **Ankan Kumar Bhunia**, Ayan Bhunia, Prithaj Banerjee, Aishik Konwer, Abir Bhowmik, Partha Roy, Umapada Pal, *"Word Level Font-to-Font Image Translation using Convo- lutional Recurrent Generative Adversarial Networks"*, **ICPR**, *2018* [pdf]

[8] 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]**

[9] **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]**

[10] Aishik Konwer, Ayan Bhunia, **Ankan Kumar Bhunia**, Prithaj Banerjee, Partha Roy, Umapada Pal, *"Staff line Removal using Generative Adversarial Networks"*, **ICPR***, 2018* **[pdf]**

[11] Ayan Bhunia, Abir Bhowmick, **Ankan Kumar Bhunia**, Aishik Konwer, Partha Pratim Roy, Umapada Pal, *"Handwriting Trajectory Recovery using End-to-End Deep Encoder-Decoder Network"*, **ICPR***, 2018* **[pdf]**

SUBMITTED PAPERS

[1] **Ankan Kumar Bhunia**, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Jorma Laaksonen, Mubarak Shah, Fahad Shahbaz Khan, *"Person Image Synthesis via Denoising Diffusion Model"*, 2022 **[pdf]**

[2] Amandeep Kumar, **Ankan Kumar Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Fahad Shahbaz Khan, *"Few-shot image generation via cross-modulated dense local fusion"*, 2022 **[pdf]**

[3] Amandeep Kumar, **Ankan Kumar Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Salman Khan, Fahad Shahbaz Khan, *"Generative Multiplane Neural Radiance for 3D-Aware Image Generation"*, 2022 **[pdf]**

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, Matplolib, Pandas, Scikit-Learn.

NOTABLE DETAILS

(1) I have over **300** *citations* on *Google Scholar* with *h-index* **10**.
(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**, **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

✉ ankankumarbhunia@gmail.com – 🌐 Homepage – 🔗 Linkedin – GitHub – G Google Scholar