Ankan Bhunia

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Research Interests

My research interests span Computer Vision and Machine Learning, particularly 3D vision and embodied object-centric perception. I am also interested in related areas such as robotics and the development of agentic world models.

Education

University of Edinburgh — Edinburgh, UK
PhD in School of Informatics (Visual Computing Group) — *May 2023 – Sept 2026 (expected)*
Supervisor: Dr. Hakan Bilen, Dr. Changjian Li

Jadavpur University — Kolkata, India
B.E Electrical Engineering — *2016 - 2020*

Experience

MBZUAI — Abu Dhabi, UAE
Research Assistant at Computer Vision Lab — *Nov 2020 - Apr 2023*
Advisor: Dr. Fahad Shahbaz Khan, Dr. Salman Khan
Research Direction: Image generative models
Description: Published several works in 1xCVPR, 2xICCV, 1xECCV.

University of Manitoba — Manitoba, Canada
Research Intern under Mitacs Globalink Internship program — *May 2019 - Aug 2019*
Title: "Flexible deep learning models in computer vision"
Advisor: Dr. Yang Wang, Associate Professor
Description: Worked on one-shot scene-specific crowd counting that adapts to specific scene.

Robert Bosch — Bangalore, India
Research Intern at Computer Vision Lab, RTC Department — *May 2018 - July 2018*
Title: "Synthetic to Photo-realistic Image Generation"
Advisor: Dr. Amit Arvind Kale, Principal Senior Expert
Description: Worked on various domain adaptation techniques and methods.

Indian Institute of Technology (IIT) Roorkee — Roorkee, India
Research Intern — *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

Selected Research

Interactive Anomaly Detection for Articulated Objects via Motion Anticipation | *NeurIPS 2025*
Ankan Bhunia, Changjian Li, Hakan Bilen
[paper] / [webpage] / [openreview]

Odd-One-Out: Anomaly Detection by Comparing with Neighbors | *CVPR 2025*
Ankan Bhunia, Changjian Li, Hakan Bilen
[paper] / [code] / [dataset]

Looking 3D: Anomaly Detection with 2D-3D Alignment | *CVPR 2024*
Ankan Bhunia, Changjian Li, Hakan Bilen
[paper] / [code] / [dataset] / [webpage]

Person Image Synthesis via Denoising Diffusion Model | *CVPR 2023*
Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Jorma Laaksonen, Mubarak Shah, Fahad Shahbaz Khan
[paper] / [code] / [demo] / [webpage]

Generative Multiplane Neural Radiance for 3D-Aware Image Generation | *ICCV 2023*
Amandeep Kumar, **Ankan Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Salman Khan, Ming-Hsuan Yang, Fahad Shahbaz Khan
[paper] / [code]

Cross-modulated Few-shot Image Generation for Colorectal Tissue Classification | *MICCAI 2023*
Amandeep Kumar, **Ankan Bhunia**, Sanath Narayan, Hisham Cholakkal, Rao Anwer, Jorma Laaksonen, Fahad Shahbaz Khan
[paper] / [code]

DoodleFormer: Creative Sketch Drawing with Transformers | *ECCV 2022*
Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Jorma Laaksonen, Michael Felsberg
[paper] / [code] / [webpage]

Handwriting Transformers | *ICCV 2021*
Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Muhammad Anwer, Fahad Shahbaz Khan, Mubarak Shah
[paper] / [code] / [demo] / [webpage] / [bloomberg article] / [patent]

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

Improving Document Binarization via Adversarial Noise-Texture Augmentation | *ICIP 2019*
Ankan Bhunia, Ayan Bhunia, Aneeshan Sain, Partha Pratim Roy
[paper] / [code]

A Deep One-Shot Network for Query-based Logo Retrieval | *Pattern Recognition (2019)*
Ayan Bhunia, **Ankan Bhunia**, Shuvozit Ghose, Partha Roy, Umapada Pal
[paper]

Script Identification in Natural Scene Image and Video Frames using an Attention-based ... | *Pattern Recognition (2019)*
Ankan Bhunia*, Aishik Konwer*, Abir Bhowmik, Ayan Bhunia, Partha Roy
[paper] / [code]

Word Level Font-to-Font Image Translation using Convolutional Recurrent Generative Adversarial Networks | *ICPR 2018*
Ankan Bhunia, Ayan Bhunia, Prithaj Banerjee, Aishik Konwer, Abir Bhowmik, Partha Roy, Umapada Pal
[paper]

Indic Handwritten Script Identification Using Offline-Online Multi-modal Deep Network | *Information Fusion (2019)*
Ayan Bhunia, Subham Mukherjee, Aneeshan Sain, Abir Bhowmik, **Ankan Bhunia**, Partha Roy, Umapada Pal
[paper]

Signature Verification Approach using Fusion of Hybrid Texture Features | *Neural Computing and Applications*
Ankan Bhunia, Alireza Alaei, Partha Roy
[paper]

Staff Line Removal using Generative Adversarial Networks | *ICPR 2018*
Aishik Konwer, Ayan Bhunia, Abir Bhowmik, **Ankan Bhunia**, Prithaj Banerjee, Partha Pratim Roy, Umapada Pal
[paper]

Handwriting Trajectory Recovery using End-to-End Deep Encoder-Decoder Network | *ICPR 2018*
Ayan Bhunia, Abir Bhowmik, **Ankan Bhunia**, Aishik Konwer, Prithaj Banerjee, Partha Pratim Roy, Umapada Pal
[paper]

Selected Patents

System and Method for Handwriting Generation | *2024*
Amandeep Kumar, **Ankan Bhunia**, Hisham Cholakkal, Sanath, Narayan, Rao Anwer, Fahad Shahbaz Khan
US20240161360A1

System and Method for Handwriting Generation | *2023*
Ankan Bhunia, Salman Khan, Hisham Cholakkal, Rao Anwer, Fahad Shahbaz Khan
US11756244B1

Technical Skills

Programming Languages: Python, C, MATLAB, HTML/CSS
Deep Learning Frameworks: 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

I have over **900** *citations* on Google Scholar with *h-index* **12.**

I have published in A* computer vision conferences (i.e. **CVPR**, **ICCV**, **ECCV**, **NeurIPS**).

I have served as a reviewer for **TPAMI**, **ICCV**, **ECCV**, **CVPR**, **WACV**.

Last updated: November 20, 2025