Ankan Dash

Computer Vision, Machine Learning, Deep Learning, Data Science

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SUMMARY

PhD candidate in Computer Science with specialization in Computer Vision and AI. Skilled in Machine Learning, Computer Vision, Deep Learning, LLMs, VLMs, Python, Pytorch, TensorFlow, Keras, Scikit-learn, OpenCV, MATLAB, SQL, C++, HTML, CSS. My area of interest is Deep Learning for Computer Vision, LLMs and VLMs.

EDUCATION

Doctor of Philosophy, PhD in Computer Science, *Newark, NJ*   2020 – Present
New Jersey Institute of Technology
Relevant Courses: Machine Learning, Deep Learning, Deep Learning on Graphs, Data Structures and Algorithms, Database Management System Design, Data Mining, Introduction to Big Data

Master of Science, Aerospace Engineering, *Champaign, IL*   2019
University of Illinois at Urbana-Champaign
Relevant Courses: Mathematical Methods I, Finite Element Analysis, Advanced Gas Dynamics, Aerospace Propulsion, Orbital Mechanics

WORK EXPERIENCE

AI/ML Computer Vision - Intern at Samsung Research America, Mountain View, CA   05/2024 – 08/2024
- Successfully developed real-time reverse pass-through feature. (Supervisor: Mr. Aamer Khani, Director Engineering - ML, AR, VR).

AI/ML Computer Vision - Intern at Samsung Research America, Mountain View, CA   05/2023 – 08/2023
- Successfully developed the POC for implementation of **Apple's EyeSight** feature and Diffusion Models for image inpainting and restoration for Samsung Galaxy AI. (Supervisor: Mr. Aamer Khani, Director Engineering - ML, AR, VR).

AI – ML Engineer Intern at Samsung Research America, Mountain View, CA   06/2022 – 08/2022
- Successfully built deep learning-based computer vision models for Samsung's AR platform

Graduate Research Assistant at New Jersey Institute of Technology, *Newark, NJ*   01/2021 – Present
- Conduct research in the field of Computer Vision, LLMs, Deep Learning applications.

Graduate Research Assistant at University of Illinois at Urbana-Champaign, *Champaign, IL*   01/2018 – 12/2018
- Developed PIV and PTV models for flow field predictions over airfoils.
- Published 1 research paper to investigate free fall computational fluid dynamics of objects using PIV and 3D-PTV techniques.

PROJECTS

Eye-See-You: Reverse Pass-Through VR with Full Head Avatars (IJCAI 2025)   06/2024 – 12/2024
- Developed a novel framework for reverse pass-through VR and one-shot full head avatar using reverse pass-through.
- Developed a new dataset for simulation of VR scenario.

Flowchart Understanding using Vision-Language Models (NAACL 2025)   06/2024 – 12/2024
- Developed a novel approach for improving flowchart understanding by leveraging intermediate text representations.

Real-time reverse pass-through for VR headsets, Samsung Research America   05/2024 – 08/2024
- Successfully developed real-time realistic looking reverse pass-through and 3D avatar or digital persona feature.

POC of Apple's EyeSight features for VR headsets, Samsung Research America   05/2023 – 08/2023
- Successfully implemented the POC for **Apple's EyeSight** feature. My approach does not require any 3D scan of the face using depth cameras.
- The approach generates outputs which are of high fidelity and natural looking.

GANeRFine: Universal GAN based NeRF refinement model   03/2024 – 09/2024
- Developed a GAN based model which can be used to refine the outputs of any NeRF based model.

High Resolution Solar Image Generation using Generative Adversarial Networks   09/2020
- Developed Deep Learning models to generate Solar images using Image-to-Image translation.

TECH SKILLS

- LLMs, VLMs
- Machine Learning
- Deep Learning
- Computer Vision, 3D
- Python, OpenCV, Scikit-learn
- Data Science
- PyTorch, TensorFlow
- HTML, CSS
- MATLAB, C++, Java

ADDITIONAL INFORMATION

<u>Publication:</u>

- Ankan Dash, Jingyi Gu, Guiling Wang, Chen Chen, "Eye-See-You: Reverse Pass-Through VR with Full Head Avatars". International Joint Conference on Artificial Intelligence**, IJCAI - 2025**.
- Junyi Ye, Ankan Dash, Wenpeng Yin, Guiling Wang, "Beyond End-to-End VLMs: Leveraging Intermediate Text Representations for Superior Flowchart Understanding". **NAACL-25**. https://arxiv.org/pdf/2412.16420
- Ankan Dash, Jingyi Gu, Guiling Wang, " Self-Supervised Learning for User Localization." International Conference on Computing, Networking and Communications (ICNC 2024). https://arxiv.org/pdf/2404.15370
- Ankan Dash, Jingyi Gu, Guiling Wang, " Hier-GAN: Hierarchical Inpainting GAN with Auxiliary Inputs for Combined RGB and Depth Inpainting." CVPR - Computer Vision in the Wild, 2024.
- Ankan Dash and Guiling Wang. 2024. " Attentive Partial Convolution for RGBD Image Inpainting" Companion Proceedings of the ACM on Web Conference 2024. https://dl.acm.org/doi/pdf/10.1145/3589335.3651906
- Ankan Dash, Junyi Ye, Guiling Wang, " A review of Generative Adversarial Networks (GANs) and its applications in a wide variety of disciplines -- From Medical to Remote Sensing. IEEE Access" https://ieeexplore.ieee.org/iel7/6287639/6514899/10372211.pdf
- Du, Wenlu, Ankan Dash, Jing Li, Hua Wei, and Guiling Wang. 2023. "Safety in Traffic Management Systems: A Comprehensive Survey" Designs 7, no. 4: 100. https://doi.org/10.3390/designs7040100
- Dash, A., Ye, J., Wang, G. et al. High-Resolution Solar Image Generation Using Generative Adversarial Networks. Ann. Data. Sci. (2022). https://doi.org/10.1007/s40745-022-00436-2
- Kim, Jin-Tae, Yaqing Jin, Shikun Shen, Ankan Dash, and Leonardo P. Chamorro (2020) "Free fall of homogeneous and heterogeneous cones." Physical Review Fluids 5, no. 9 (2020): 093801 https://doi.org/10.1103/PhysRevFluids.5.093801

<u>Spoken Languages:</u> English, Hindi, Odia

ONLINE CERTIFICATIONS

LLM Engineer Course by Udemy
GANs by DeepLearning.AI on Coursera
Deep Learning Specialization by DeepLearning.AI on Coursera
Python Specialization by Udemy

PATENT APPLICATIONS

1. System for High-Resolution Image Generation (ATTORNEY DOCKET NO. 94350.00282)
2. Virtual Reality Headset System (ATTORNEY DOCKET NO. 94350.00283)
3. Virtual Reality Headset System (ATTORNEY DOCKET NO. 94350.00284)