Hiran Sarkar

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Area(s) of interest: rigid and deformable 3D reconstruction, implicit deep learning, 3D and 2D human pose estimation, domain adaptation, generative modeling

EXPERIENCE

Independent Research

JUNE 2022 - Present

- Topic - Rigid and non-rigid 3D reconstruction, human pose estimation *advised by Dr. Rishabh Dabral*

Indian Institute of Science, Bangalore (Video Analytics Lab), Remote - *Research Intern*

JUNE 2021 - MAY 2022

I have worked on **Domain Adaptation** and **Domain Generalization** using self-supervision across multiple settings under Professor Venkatesh Babu.

- Worked on unsupervised source-free domain adaptation technique using a subsidiary pretext task which acts as an aid to help attain domain invariance thereby minimizing domain discrepancies. The paper is accepted at **ECCV 2022**.
- Developed an unsupervised non-source-free domain adaptation technique using a Bag-of-VisualWords (BoW) like representation. We looked into the tradeoff between negative transfer risk and domain invariance exhibited at different layers of the network. The paper is accepted at **NeurIPS 2022**.

Teamcognito, Kolkata - *Research Intern*

OCT 2020 - JAN 2021

- Worked on a Speech Recognition model using Recurrent Neural Network Transducer. Trained on the **Common-Voice** dataset.
- Worked on “Malware Detection on IoT devices based on traffic Meta-Data” using a custom-built model.

EDUCATION

Netaji Subhash Engineering College, Kolkata - *Bachelor’s of Technology*

JULY 2019 - JUNE 2023

Majoring in Computer Science and Engineering

Current CGPA: 9.34

PUBLICATIONS

Subsidiary Prototype Alignment for Universal Domain Adaptation
Neural Information Processing Systems (NeurIPS) 2022
Jogendra Nath Kundu*, Suvaansh Bhambri*, Akshay Ravindra Kulkarni*, **Hiran Sarkar**, Varun Jampani, Venkatesh Babu Radhakrishnan

Concurrent Subsidiary Supervision for Unsupervised Source-Free Domain Adaptation
European Conference on Computer Vision (ECCV) 2022
Jogendra Nath Kundu*, Suvaansh Bhambri*, Akshay Ravindra Kulkarni*, **Hiran Sarkar**, Varun Jampani, Venkatesh Babu Radhakrishnan

PROJECTS

Image Style Transfer - [LINK]

Implemented the paper Rethinking and Improving the Robustness of Image Style Transfer in TensorFlow. This paper focuses on why pre-trained networks of the ResNet family have a detrimental effect on Image Style Transfer as opposed to a pre-trained VGG network even though ResNet is better in downstream tasks like classification. It uses the L-BFGS (quasi-newton method) optimizer which improves the speed of the training task.

Cartoon GAN - [LINK]

This project is to transform photos of real-world scenes into cartoon-style images. It uses a generative adversarial network for training, consisting of a generator and a discriminator. It uses two losses. Adversarial loss (discriminator loss), which helps drive the generator to achieve the desired manifold transformation; and content loss (perceptual loss) which preserves the image content during cartoon stylization.

OPEN SOURCE

Winter of Code at DeepFusionAI, Remote - *Open Source Developer*
DEC 2020 - FEB 2021

- Worked on Social Distance Detector using MobileDets.

Contributor at TensorFlow

- Fixed various bugs and added a feature in the main TensorFlow GitHub repository.