Anupam Anurag Tripathi

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EDUCATION

Northwestern University **Evanston, IL**
Master of Science in Artificial Intelligence | GPA: 3.93/4 **Expected: Mar 2020**
University of Mumbai **Mumbai, India**
Bachelor of Technology in Computer Engineering | GPA: 3.6|4 **Aug 2015 - June 2019**
Relevant Coursework: Advanced Computer Vision, Computational Photography, Data Science Seminar, Geospatial Vision and Visualization, Deep Learning Foundations, Statistical Pattern Recognition, Statistical Language Modelling.

WORK EXPERIENCE

Graduate Research Assistant (Data Science) - Kellogg School of Management, Northwestern University: **Feb 2020 – Present**
- Developing an econometric model with the help of ML techniques to find the causal impact of Eco labels on demand steering.
- Analysing the delivery time slots using Probit and Mixed Logit regression to offer incentives for the customers.

Machine Learning Intern - Sin Emerging Technologies **Jun 2020 – Sep 2020**
- Engineered an AR/VR game for exercising purposes, using Pose Estimation to determine the correctness of the given task.
- Used Key-Point Detection to identify the 32 important joints of the body and using a Convolutional Network, and treating the key point coordinates as variable sized images to classify the given set of positions as squat, t-pose etc.
- Designed a chat bot to communicate with the user to guide him through the exercise and comment on the posture.

Artificial Intelligence Intern - Home Drone **Sep 2018 - Jan 2019**
- Designed drones to be smarter and fully automated for applications such as outdoor projectors and intra office transport.
- Developed path detection algorithms to help drones navigate in known indoor environments in the shortest way possible.

Machine learning Research Intern - University of Mumbai **Dec 2017 - Jan 2018**
- Designed Deep Networks for human emotion detection that could detect the 7 basic emotions with an accuracy of 95%.
- Implemented Haar Cascades, CNN and Transfer Learning for Facial Expression Detection and RNN for Voice Detection.

Web Development Intern - kWatt Solutions, IIT Bombay **Nov 2017 - Jan 2018**
- Managed the website and added several functionalities like webinars, live chat bots and improving the security mechanisms.
- Boosted the website's online user traffic rate by 18% and reduced the bounce rate by 5%.

SKILLS

Languages: Python, Java, MATLAB, C, C++
Libraries/Framework: PyTorch, Tensorflow, Keras, Tflearn, Caffe, PyTorch3D, NLTK, OpenCV, CUDA, PySpark
Databases and Tools: MySQL, Oracle11g, Postgresql, Firebase, Mongo DB, Tableau, Trifacta, D3.js, Databricks, AWS, Azure
Web Technologies: HTML, CSS, JavaScript, PHP, JQuery, Bootstrap, Angular, Node JS

PUBLICATIONS

- Vision: A Deep Learning Approach to provide walking assistance to the visually impaired: Nikhil Thakurdesai, Anupam Tripathi, Dheeraj Butani, Smita Sankhe. arXiv:1911.08739, November 2019.

PROJECTS

Novel View Synthesis (Facebook) **Apr 2020 - Present**
- Applied Multi-Plane Image representation (MPI) with the aim to improve computational time for creating novel views.
- Implemented a Deep Learning approach for getting the mesh parameters for all objects in a light field images data.
- Generated 'n' disparity maps for 'n' views and a fully differentiable renderer for point-clouds using 3D-CNNs.

Look alike not alike (Home Depot) **Oct 2020 - Dec 2020**
- Analysing the products that have similar size, shape and packing but differ in functionality.
- Calculating the cosine similarity between the encodings of the product images and other features, using Convolutional Autoencoders.
- Developing a search algorithm to get all the similar looking products for any given product.

3D Anthropometric Measurement **Apr 2020 - Jun 2020**
- Used a self-supervised learning approach to measure the clothing size of a person, given the pictures of him/her from various angles, by 3D modeling in the form of a mesh.
- Deformed the initialized mesh, to match it's projection to the input views employing an Siamese Network for Adversarial loss.
- Employed A-star algorithm to measure the distances on mesh surface, and scaling each measurement using 1D embeddings.

Image Inpainting **Jan 2020 - Mar 2020**
- Utilized k-nearest pixels to predict missing pixels using LSTMs, making it independent of the shape and size of the missing part, overcoming the disadvantages of Pixel-RNN- the current state of the art for Inpainting using Recurrent Neural Networks.
- Performed Poisson blending to preserve intensities between the predicted region and the background of the original image.

Audio Assistance for Blind **Jul 2018 - May 2019**
- Developed an application which provides real time walking assistance to the visually impaired in the form of audio instructions.
- Implemented YOLOv3 for Object Detection and Monocular Vision for Depth Estimation.
- Used a Deep Learning approach to generate the 2nd image of the pair of images needed to estimate depth using stereo vision.
- Secured 1st place at Hackathon organized by AWS held at Northwestern University, Evanston.

Other Projects: Text to SQL, Data Analytics on Chicago Police Dataset, Facial Emotion Recognition, Face Recognition using One Shot Learning, COVID-19 Spread Prediction using Graph Neural Networks.