Anupam Anurag Tripathi

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EDUCATION

Northwestern University **Evanston, IL**
Master of Science in Artificial Intelligence | GPA: 3.91/4 **Expected: Dec 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, Geospatial Vision and Visualization, Deep Learning Foundations, Data Science, Statistical Pattern Recognition, Statistical Language Modeling, Machine Learning, Neural Networks, Data Analytics and Machine Learning, Data Mining, Advanced Databases, Image Processing

WORK EXPERIENCE

Sin Emerging Technologies - Machine Learning Intern **June 2020 – Present**
- Engineering an AR/VR game for exercising purposes, using Pose Estimation to determine the correctness of the given task.
- Creating a chat bot to communicate with the user to guide him through the exercise and comment on the posture.

Kellogg School of Management, Northwestern University - Graduate Research Assistant **Feb 2020 – Present**
- Developing an econometric model with the help of ML techniques to find the causal impact of Eco labels on demand steering.

Home Drone - Artificial Intelligence Intern **Sept 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.

University of Mumbai - Machine Learning Intern **Dec 2017 - Jan 2018**
- Designed Deep Networks for human emotion detection with a best performing accuracy of 96.39%.
- Implemented Haar Cascades, CNN and Transfer Learning for Facial Expression Detection and RNN for Voice Detection.

kWatt Solutions, IIT Bombay - Web Development Intern **Nov 2017 - Jan 2018**
- Re-designed the website by adding 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: PyTorch, Tensorflow, Keras, Tflearn, Caffe, PyTorch3D, Scikit-Learn, Scipy, Panda, NLTK, OpenCV, Pygame
Databases: MySQL, Oracle11g, Postgresql, Firebase
Tools: Tableau, Trifacta, D3.js, Databricks, AWS, Azure

PROJECTS

Novel View Synthesis **April 2020**
- Applying Multi-Plane Image representation (MPI) with the aim to improve the computational time for creating novel views.
- Generating 'n' disparity maps for 'n' views and a fully differentiable renderer for point-clouds using 3D-CNNs.

3D Anthropometric Measurement **April 2020**
- Measured the clothing size of a person, given the pictures of him/her from various angles by 3D modeling in form on a mesh.
- Deformed the initialized mesh, to match it's projection to the input views employing an Siamese Network for Adversarial loss.

COVID-19 Spread Prediction using Graph Neural Networks **Feb 2020**
- Formulated a highly scalable pipeline to analyze COVID19 data on a real time basis and predict the cases of the following day.
- Used census data and travel data as links and states as nodes to implement Message Passing and SageConv.

Image Inpainting **Jan 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.

Text to SQL **Jan 2020**
- Designed a recursive, attention based Encoder-Decoder approach, for converting text in natural language and corresponding database schema information to structured SQL queries.
- Employed two encoders for text and schema, and eight decoders for each of the class of SQL query words to be predicted.

Data Analytics on the Chicago Police Dataset **Sept 2019**
- Analyzed the Chicago Police Dataset using SQL, Graph Analytic techniques like NetworkX and Graph Frames, ML algorithms, Time Series analysis and NLP techniques like N grams to observe patterns in misconducts before and after this data went public.
- Compared the results with the expected behaviour and presented findings based on visualizations in Tableau and D3.js.

Audio Assistance for Blind **July 2018**
- 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.