

Anupam Anurag Tripathi

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EDUCATION

Northwestern University IL

Evanston,

Master of Science in Artificial Intelligence | GPA: 3.93/4

Expected: Mar 2021

Relevant Coursework: Advanced Computer Vision, Computational Photography, Data Science, Geospatial Vision and Visualization, Deep Learning Foundations, Statistical Pattern Recognition, Statistical Language Modelling, Design and Analysis of Algorithms.

University of Mumbai

Mumbai, India

Bachelor of Technology in Computer Engineering | GPA: 3.6/4

Aug 2015 - Jun 2019

Relevant Coursework: Artificial Intelligence, Neural Networks, Advanced Databases, Applied Math, Big Data, Image Processing.

WORK EXPERIENCE

Graduate Research Assistant (Data Science) - Kellogg School of Management

Feb 2020 –

Present

- Developing an econometric model using 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.

Student Researcher - Home Depot

Oct 2020 - Dec 2020

- Generated strategies to mitigate inventory shrink losses by analysing misclassification of visually similar products.
- Created multi-dimensional encodings by concatenating the output vector of Convolutional Autoencoder to product weight, dimensions and Glove embedding of product description.
- Developed a search algorithm to calculate encoding of products by generating multiple metrics derived using cosine similarity.
- Enhanced precision of demand/pricing models by **10%**, and presented insights of analytical results for **2500+** products.

Machine Learning Intern - Sin Emerging Technologies

Jun 2020 – Sep 2020

- Determined correctness of workout postures of an AR/VR game using Pose Estimation.
- Identified important joints by implementing Key-Point Detection and treated those (x, y, z) coordinates as RGB pixels.
- Detected the workout form using Convolutional Neural Networks on generated image data and deployed the model using Onnx.

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

- Built a pipeline that extracted live video from a webcam showing the person's Facial Expressions in real-time.
- Performed a comparative study using a Fully Connected Neural Network, a CNN trained from scratch, and a CNN trained using Transfer Learning with a winning accuracy of **95%**.

SKILLS

Tech Stack: Python, Java, MATLAB, C, C++, MySQL, Oracle11g, PostgreSQL, MongoDB

Tools and Frameworks: AWS, Azure, PyTorch, Tensorflow, Keras, Tableau, OpenCV, CUDA, Databricks

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) aiming to improve computational time for creating novel views.
- Reduced the view rendering time to **80%** by strategically placing planes using alpha density & vanishing points of the scene.
- Implemented a two-pass Deep Learning approach to generate and refine MPI for real time video view synthesis.

3D Anthropometric Measurement

Apr 2020 - Jun 2020

- Acquired clothing measurements of clients by using self-supervision from 360° input images with an R2 score of **0.62**.
- Deformed a pre-defined body mesh by comparing its projection to input views by training a Siamese network on adversarial loss.
- Measured circumference of body parts using A* algorithm on the trained mesh & provided final estimates with 1D embeddings.

Image Inpainting

Jan 2020 - Mar 2020

- Restored missing regions of an image by improving the state-of-the-art PixelRNN model with an SSIM score of **0.83**.
- Enhanced the network efficiency and shape independence by passing k pixels nearest to the missing parts of the image.
- Preserved intensities between restored and original regions of the image by implementing Poisson blending.
- Secured 1st position at Hackathon organized by AWS held at Northwestern University, Evanston.

Audio Assistance for Blind

Jul 2018 - May 2019

- Developed an application that provides real time walking assistance to the visually impaired in the form of audio instructions.
- Employed YOLOV3 for Object Detection with **85%** accuracy and used monocular depth estimation to cut camera costs by **50%**.
- Secured 1st position at Prakalpa, an annual state-level technical symposium held at the University of Mumbai.

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