Praneet Bomma

Machine Learning Engineer

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WORK EXPERIENCE

Machine Learning Engineer
Deep Learning Analytics *08/2021 - Present*

Data Scientist
Blackstraw.ai *09/2019 - 07/2021*

Machine Learning Engineer
Vidgyor Media Technologies *06/2019 - 08/2019*

Deep Learning Engineer (Intern)
Mobicule Technologies *12/2018 - 01/2019*

SKILLS

Deep Learning | Machine Learning | Computer Vision | Keras | Pytorch | Tensorflow | Sklearn | OpenCV | Deepstream | NLTK | OpenVINO | Edge Computing | Python | Docker | TF Serving | CUDA | TensorRT | Pytorch Distributed | ROS

EDUCATION

B. E. (CS)
Mumbai University
2015 – 2019 *7.23 CGPA*

PROJECTS

Floor Visualizer (DLA)
System to visualize custom tiled floor in a room.
- Used pretrained semantic segmentation models.
- Implemented and trained custom Conditional Variational AutoEncoders for image to image transformation.
- Implemented and trained custom Conditional GAN for image generation.
- Implemented a research paper from scratch to transfer shadows in images.
- Worked on blender and pyvista for 3D image reconstruction.

Health Risk Monitoring System (Blackstraw)
CCTV Surveillance system to detect Social Distancing & Facemask violations
- Built facemask and social distancing violations detector using Yolov3
- Optimized Yolov3 model using TensorRT for faster inference.
- Developed algorithm to approximate distance between 2 persons that takes into account the vertical axis.
- Deployed 40 cameras in production using Deepstream 5.0
- Dockerized components for production deployment.

MAFAT
Data Science competition by The Israeli Ministry of Defense Directorate of Defense Research & Development (DDR&D) to classify whether a radar signal segment represents a human or an animal.
- Achieved Rank 23 globally on the competition public leaderboard.
- Implemented CRNN architecture for classification.
- Achieved 0.9028 ROC AUC score.
- Worked with Focal Loss and Hyperparameter tuning for tackling class imbalanced data issues.
- Used ensemble technique to get the best score between 2 well performing trained architectures.
- Worked on transformers for improving the AUC score.

Docify (Mobicule)
System to extract details from Indian ID cards like Aadhar Card, PAN Card and Driving Licence.
- Trained UNet model for segmenting ID cards in a busy background.
- Used CTPN for text localisation and Tesseract for text extraction.
- Implemented image processing techniques for improving input data to tesseract for better extraction.

Action Prediction (DLA)
System to predict footballing actions from a video.
- Implemented and trained branched LSTM architecture for action prediction.
- Developed data preparation and ingestion pipeline for training and inference.
- Converted to ONNX for faster inference with Triton Server.
- Implemented visualization scripts to analyse predictions in heterogenous scenes.

Rain Attenuation Prediction (DLA)
System to predict signal attenuation based on temporal and visual information.
- Implemented and trained branched architecture with 3D Convolutions, LSTM.
- Incorporated skip connections and priors for better results.
- Developed data preparation and ingestion pipeline for training and inference.

Autonomous Navigation (Blackstraw)
Autonomously navigating Maini using Stereo Camera and LIDAR.
- Implemented real-time instance segmentation using Yolact++.
- Improved segmentation results by augmenting data to handle camera lighting issues.
- Formulated and implemented Neural Path Planner to achieve intermediate waypoints independent of GPS.
- Improved Occupancy Grid generation from 4 FPS to 20 FPS.
- Worked on Path Planner with Dynamic Window Approach for achieving intermediate goals.
- Integrated all components and implemented inter-process communication between components using Robot Operating System (ROS).

ReLIE
Implemented paper by Google Research - Representation Learning for Information Extraction from Form-like Documents.
- Implemented the neural network described in paper from scratch.
- Filled up the gaps/unknown things left out in the paper during implementation.
- Used a publicly available dataset.
- Improved results by using Focal Loss for imbalanced data.

ACHIEVEMENTS

MAFAT Challenge

Ranked 23rd globally in MAFAT Challenge organized by Israeli Ministry of Defence. Only 25 teams out of 300 got AUC above 0.90.

Outstanding Performer

Awarded the best performer for Q2, Q3 - 2020 and Q1 - 2021 in Blackstraw

1st Runner-Up

Hackathon organised by K. J. Somaiya College, Vidyavihar

1st Runner-Up

ITSA Hackathon organised by Sardar Patel College of Engineering

ACTIVITIES

Official author for Towards Data Science Publications

Published Paper in AFITA Conference on Disorder Detection of Tomato Plants using Ensemble Techniques

Head Organiser of ERR_404 2.0 State Level Hackathon

BLOGS

Visualising LSTM Activations in Keras

Towards Data Science

Indian Financial Markets in Pandemic

Report

Distributed Training in Pytorch (DDP)

Analytics Vidhya

Real-time Object Detection on CPU

Towards Data Science

CERTIFICATIONS

Deep Learning Specialization

Coursera

HOBBIES

I love playing sports. Especially Cricket & Football.

I closely follow Indian Cricket and English Premier League.

Learning to play guitar.

I like talking about tech.