Santosh Kumar

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Software Developer
LinkedIn: santoshbishnoi

Results-focused software engineering professional with extensive experience in development, machine learning and computer vision. Analytical and detail-oriented.

Education

Electrical Engineering, *Indian Institute of Technology, Delhi* July 2020

Skills

Tools and Languages C, C++, Python, Java, SQL
Programming Courses Data Structure and Algorithms, Machine Learning, Computer Vision, DBMS

Technical Experience

Software Development Engineer **Oct 2020 — Present**
Samsung R&D Institute, Delhi

- **On-device Fitness App with Multi Person Real-time Body Pose Tracking.**
  - Quantized OpenPose Network by Optimizing Quantization Intervals with Loss with KL-Divergence Algorithm.
  - Implemented CPP API with Non-maximum Suppression to parse Human KeyPoints, K-Partite Graph for Body Parts Association.
  - Applied Disjoint Set Data Structure to find the full body pose of multiple people.
  - Refined final poses using both Physical and Geometric Constraints for use in Multi Person Fitness App.
- **Developed C++ and Python API for Multiple Object Detection Models for On-Device NPU**
  - Performed Pruning, Graph Optimization and Quantization on YoloV4, YoloV5 and EfficientDet Models.
  - Implemented Non-Max Suppression and Bounding Box detection, Reduced post processing latency by 70% with greedy algorithm.
  - Overachieved FPS requirement by 30% and Achieved target accuracy.
- **Awarded Spot Award for Final Delivery of Products**

Software Developer Intern **May 2019 — July 2019**
Samsung R&D Institute, Delhi

- Developed Object Detection model with transfer learning for automation of Quality Assurance of displays.
- Trained and Pruned Faster R-CNN for custom dataset of 30 classes. Automated QA process with arduino and frame detection.

Emotion Recognition in Audio Using Deep Neural Networks **July 2019 — Jan 2020**
IIT Delhi

- Explored Feature extraction techniques - MFCC(and Derivatives) and Spectral Dynamic Features to extract both static and dynamic features.
- Implemented CNN-LSTM Architecture to extract both deep abstract features and long term temporal features.

Mining Taxi Hotspots in Delhi for Emergency Medical System **Oct 2019 — July 2020**
Transportation Research and Injury Prevention Centre, IIT Delhi

- Extracting stop points from GPS Trajectory of Taxis in Delhi for Emergency Medical System.
- Evaluated various clustering models like Hierarchical clustering and Grid Clustering using Vehicle Detection in Satellite Images.

Achievements

JEE Advanced 2016 AIR 276(GE)
JEE Mains 2016 AIR 607(GE)
BOARD OF SECONDARY EDUCATION, RAJASTHAN 10th 15th State Rank
BOARD OF SECONDARY EDUCATION, RAJASTHAN 12th 13th State Rank