Aditya Bhat

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SUMMARY

AI/ML Engineer with specialization in Deep Learning and Computer Vision. Skilled in Python, TensorFlow, Deep Learning models, Classification, Localisation, Detection, Tracking, and Segmentation.

EDUCATION

MSc In Computer Science(Specializing in Computer Vision) | Rutgers University, New Brunswick, NJ | CGPA: 4.0 **Sep 2021 - May 2023**

BE In Information Science| BMS Institute of Technology Bangalore, India | Percentage: 71% **Aug 2013 - Jun 2017**

SKILLS

Language: Python, C++, SQL. | ***Editors***: Unity 3d , Google Colab, Jupyter Notebook, Pycharm, Spyder, Visual Studio, MS Office | ***Frameworks:*** Tensorflow, Keras, OpenCV, Numpy, Pandas, Matplotlib, scikit-learn, PIL. | ***Models***: Detecron 2 YOLOv5, Resnet50, Mask RCNN, VGG16.

WORK EXPERIENCE

Nokia Bell Labs **New Jersey, US**

Applied AI/ML Machine Vision Intern **Jun 2022 - Aug 2022**

- Devised and improved fixed camera localization system's performance, under nonidealities such as occlusion for both single camera and multi-camera set up.
- Developed a custom lightweight classification model to detect the occlusions in the robots and achieved a test accuracy of 95% .
- Reconstructed the occluded bot by implementing a keypoint detection model using detectron2 by annotating over 2000 images of a bot for 9 key points, i.e head, 4 corners, and 4 corresponding wheels. This also helped in determining the level of occlusion.
- Worked on the multi-camera tracking system and combined the localized estimates of objects of interest from multiple cameras using a scoring system that assigns scores based on the area of detected bbox and level of reconstruction (if the object is occluded)
- Calculated the homography matrix of 2 cameras by manually measuring the ground truth at Nokia Bell Labs facility to check the performance of the scoring system in real-time.

Thinking Stack **Bangalore, India**

AI/ML Engineer **Oct 2020 - Jun 2021**

- Developed over 5 custom YOLOv5 models for detection of safety PPE kit by manually annotating over 5000 images and training with up to 4 augmentation techniques achieving an overall mAP value of 0.81.
- Led a team of 2 in the development of 'SEER' module which served as a complete package for object detection problems (using YOLOv5), from the collection of data to evaluate the final model, which reduced the overall model development time by 50%.
- Created activity detection system which took body key points as input to predict the activity using 'posenet' module and LSTM network. Training data was generated using Unity3d by animating a human character.
- Devised analytical solution for 'Decathlon' i.e. age and gender detection, classifying people under 'Employee' or 'Not employee' using resnet50. Built a GUI using the tkinter python package for classifying raw data manually.

DHS Informatics **Bangalore, India**

Machine Learning Intern **Feb 2020 - Jul 2020**

- Developed content-based image retrieval system which used a dataset of over 2000 images, extracted color histogram as image descriptors to return similar images based on query image.
- Collaborated with the vision team and worked on U-Net, Mask RCNN for image segmentation, contours for eye tracking, and developed face recognition models using algorithms such as LBPH, and face recognition library.
- Coached undergraduate students in final year machine learning projects, created documentation and reports for the same to a class with a student strength of 30.

Oracle Financial Service Software **Bangalore, India**

Technical Analyst **Jun 2018 - Mar 2019**

- Guided and validated MOS automation and installation of Behaviour detection package to the clients which generate alerts and cases based on scenario rules set by the bank.
- Resolved bugs reported by customers and followed up with the development and Product Management Team, conducted meetings, managed client calls, fixed product bugs, and ensured customer satisfaction with quick responses and solutions.

PERSONAL PROJECTS

Drowsiness detection system (*Used language and libraries: Python, OpenCV, dlib library)* **Mar 2021 - Apr 2021**

- Coded a module using dlib library which extracts facial points including eyes. The status of the driver is determined by calculating the Euclidean Distance between the top and bottom points of the eye.

Tennis game (*Used language and libraries: Python, C#, openCV, socket)* **Jul 2021 - Aug 2021**

- Developed a tennis game in which player movement was handled by a python script that detects and tracks brown-colored objects via the camera.
- Established UDP connection to transfer the coordinates of the object from python to Unity.

Augmented Reality for homeowners (*Used language and libraries: Unity3D, C#, ARCore)* **Apr 2021 - May 2021**

- Created an AR app that spawns a real-sized house which helps architects and their clients to visualize buildings before it's actually constructed.