Ashish Sethi

+91-99992-84091 | ashish18024@iiitd.ac.in | linkedin.com/in/ashish | github.com/ashish

Education

Indraprastha Institute of Information Technology Delhi (IIIT Delhi) — New Delhi, India
M.Tech in Computer Science Engineering, Specialization in AI; CGPA: 8.05/10.00 — *Aug. 2018 – Aug. 2020*

Guru Gobind Singh Indraprastha University — New Delhi, India
B.Tech in Electronics and Communication; percentage of 77.53% — *Aug. 2014 – Aug. 2018*

Experience

Staff Engineer — June 2020 – Present
LightMetrics Technologies — *Bengaluru, India*

Video Compression

- Architected Generative-AI based Video Compression algorithm to save data cost over the network.
- This algorithm gives 50% savings than the existing H264 algorithm.

Face Detection

- Architected end-to-end face detection on edge devices, achieving a remarkable 84% mAP score.
- Successfully deployed the mask-enabled face detection model on Qualcomm SNPE, currently operational in 100K trucks/cars worldwide.

Head Pose Estimation

- Developed mask-aware pose estimation, achieving a significant MAE reduction from 9.7 to 3.4 through contrastive loss.
- Architected and implemented an uncertainty-based algorithm, resulting in a 15% reduction in false positives for pose estimation.

Other Responsibilities

- Collaborating with IIIT Delhi for federated learning project on Edge Devices.
- Took interviews of more than 100 candidates in the machine learning domain.

Applied Computer Vision Engineer — Dec. 2017 – June 2018
DreamVu.Inc — *Hyderabad, India*

- Developed an end-to-end algorithm for camera calibration in omnistereo cameras.
- Implemented a versatile approach treating each camera as a virtual one, adaptable to different field-of-view settings.

Summer Research Internship — June 2017 – Aug. 2017
Indian Institute of Technology Guwahati — *Guwahati, India*

- Developed mean-shift tracking and background subtraction algorithms from scratch.
- Implemented non-deep learning-based object detection using HOG features and Random Forest, backed by a comprehensive literature survey.

Winter Research Internship — Dec. 2016 – Jan. 2017
Srujana Centre for Innovation, LV Prasad Eye Institute ,Hyderabad — *Hyderabad, India*

- Worked on 3D modeling eyes in Anterior Segment Imaging using computer vision.
- Developed the camera calibration algorithm of stereo camera setup for small objects.

Summer Research Internship — June. 2016 – Dec. 2016
Cluster Innovation Centre, University of Delhi — *New Delhi, India*

- Worked on 3D mapping of indoor environment using Microsoft Kinect in ROS.
- Developed the 3D 6 axis of freedom robotic arm using Solidworks.

Research Papers and Patents

- Selected as one of 150 candidates from India and Singapore for the Google AI Research Week Scholar 2022 at Google Research India
- Filed a patent for Artificial Intelligence-based Video Compression and Decompression.

Projects

Detecting Malnourishment in Children *master's thesis* Jan. 2019 – Aug. 2020

- Orchestrated the entire process, from data collection to model training.
- Curated a new, compact dataset of malnourished and healthy children using online images, in collaboration with medical professionals.
- Created a deep learning algorithm tailored for small datasets to detect malnourishment.
- Designed a 3D-printed cradle model to capture image datasets of newborn babies in hospital settings.

Deepfake Detection Jan. 2020 – June 2020)

- Worked on deepfake detection, creating a Metric-based self-attention CNN architecture.
- Achieved a 90% accuracy rate in distinguishing between real and fake videos.

NeoNet: A Deep CNN for 6-month Infant Brain MRI Segmentation Aug. 2019 – Dec. 2019

- Tackled the complexity of segmenting infant brain MRI with overlapping voxel intensity ranges.
- Emphasized the importance of early-stage studies and developed a 3D-UNet model for MRI segmentation into three regions.

Urbanization Detection Jan. 2019 – May 2019

- Detected urbanization changes in satellite images over two time periods.
- Developed a Siamese U-Net segmentation network, achieving a 84% IoU score for change detection.

Reinforced Co -Training Jan. 2019 – May 2019

- Utilized reinforcement learning policies for unlabelled data selection in semi-supervised learning.
- Implemented a co-training algorithm to train an image classifier using both labeled and unlabeled data.

Genetic CNN Aug 2018 – Dec 2018

- Employed Genetic Algorithm to optimize CNN architecture for classification.
- Developed two encoding techniques in the Genetic Algorithm for efficient architecture design.

Technical Skills

Languages: C++, Python, MATLAB, LaTeX
Frameworks: Tensorflow, Keras, PyTorch, OpenCV, Scikit-learn, Scikit-image
Developer Tools: Git, VS Code, Jupyter Lab, Codeblocks
Libraries: pandas, NumPy, Matplotlib

Co-curricular Activities

- Volunteered at LatinX 2021 Workshop and ICML 2021.
- Served as a reviewer for WACV 2020.
- Quarterfinalist in the Texas Innovation Challenge 2016 with the "Book Reader for Visually Impaired" project.
- Conducted a seven-day Image Processing and Basic MATLAB training program at HMR College with a professor, instructing around 50 students (Aug '16).
- Selected for EPICS under IEEE for the "Automatic Smart Wheelchair" project.
- Participant in ABU ROBOCON 2016.