(443) 469-5143
Baltimore, MD
ybaweja1@jhu.edu

Yashasvi Baweja

Machine Learning Engineer

Portfolio: yashasvi97.github.io
github.com/yashasvi97
linkedin.com/in/yashasvi-baweja

I'm a deep learning & computer vision enthusiast interested in working on projects that create impact by leveraging applied ML research.

Skills

Tools and Languages	Python, Git, LaTeX, MarkDown, Bash, C/C++, HTML, Vim, SLURM
Deep Learning Research	PyTorch, Tensorflow, NumPy, pandas, IPython, OpenCV, Tensorboard
Communication	English, Hindi (fluent speaker), Punjabi (listening)

Experience

Graduate Researcher / Face Anti-Spoofing **Aug 2019 — May 2021**
Vision(ECE) Lab, JHU *Baltimore, MD*

- Addressed challenge of detecting spoofs in face authentication videos by deploying one class neural networks
- Proposed a CNN training framework with only real face data while detecting spoofs as anomalies
- Attained 6% reduction in error rate for four publicly available datasets. Published research at IJCB, 2020
- Extended research to incorporate local information in videos by employing vision Transformers

Undergraduate Researcher & Developer / Periocular Recognition **Aug 2017 — May 2019**
Image Analysis & Biometrics Lab, IIITD *New Delhi, India*

- Developed a novel loss for training CNNs in presence of data from different modalities
- Extended Triplet Loss by adding two branches(spectrum/resolution) to account for heterogeneity
- Achieved State-of-the-art for periocular recognition and published research at BTAS, 2018

Internships

Research Intern / fMRI super-resolution **May 2021 — Sep 2021**
Neuro-Radiology, Johns Hopkins Medicine *Baltimore, MD*

- Enhanced activation maps for fMRI brain scans using Convolutional Neural Networks(CNNs)
- Trained UNet(ResNet-34) architecture across cross platform (CPU/GPU) nodes using PyTorch
- Achieved 20% gain in PSNR values over nearest-neighbor approach. Abstract submitted to RSNA

Software Developer / Personalised greeting system **May 2018 — Sep 2018**
Infosys Center for AI, IIITD *New Delhi, India*

- Led R&D team in building face recognition system for Yamaha Research(Japan)
- Shipped final product deliverable ready for deployment in golf carts for personalized greetings

Research & Development Intern / Landslide prediction system **May 2017 — Sep 2017**
IIT Mandi *Mandi, India*

- Built the first landslide prediction prototype at IIT Mandi using Arduino microcontroller
- A decision tree based model predicted the probability of landslide at logging location
- Compared multiple class-imbalance mitigation techniques for the task of landslide prediction

Education

Master of Science in Electrical & Computer Engineering, *Johns Hopkins University* May 2022
Bachelor of Technology in Computer Science, *Indraprastha Institute of Information Technology, Delhi* May 2019

Publications

1. **Anomaly detection-based unknown face presentation attack detection**, **Y. Baweja**, P. Oza, P. Perera & V. M. Patel; at *International Joint Conference on Biometrics(IJCB), 2020*
2. **Heterogeneity aware deep embedding for mobile periocular recognition**, R. Garg*, **Y. Baweja***, S. Ghosh, R. Singh, M. Vatsa & N. Ratha; at *Biometrics: Theory, Applications and Systems(BTAS), 2018*
3. **Comparison of Class Imbalance Techniques for Real-World Landslide Predictions**, K. Agrawal, **Y. Baweja**, (+8 authors) & V. Dutt; at *International Conference on Machine Learning and Data Science(ICLMDS), 2017*

Activities & Awards

Reviewer for IEEE Transactions on Image Processing	2022 — Present
Teaching Assistant for Compressed Sensing course	2022 — Present
Top 3 awardee for best presentation at IJCB, 2020	2020
Recipient of Graduate Student Fellowship, ECE department	2019
Teaching Assistant for Computer Vision	2019
Teaching Assistant for Systems Management	2018