Yashasvi Baweja

AI Research & Development Engineer

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Education

- **Johns Hopkins University(JHU)** — Baltimore, MD
  [Doctor of Philosophy] in Electrical & Computer Engineering — *Aug. 2019 – Present*
  Graduating with Masters. On job market from Fall 2022

- **Johns Hopkins University** — Baltimore, MD
  [Master of Science in Engineering] in Electrical & Computer Engineering — *Aug. 2019 – May. 2022*
  Specialization: Artificial Intelligence and Data Science

- **Indraprastha Institute of Information Technology(IIIT)-Delhi** — New Delhi, India
  [Bachelor of Technology] in Computer Science & Engineering — *Aug. 2015 – May. 2019*

Experience

- **ECE department, JHU** — Baltimore, MD
  Course Assistant for Compressed Sensing and Sparse Recovery — *Jan 2022 - Present*
  - **Office hours**: Held 2-hours/week doubt clearing sessions related to course content.
  - **Grading**: Graded weekly assignments for 20 students in class.

- **Johns Hopkins Medical Institute** — Baltimore, MD
  Research Associate at Neuro-Radiology Division — *May 2021 - Oct 2021*
  - **fMRI**: Addressed the challenge of improving activation maps in individual fMRI brain scans.
  - **Training CNN**: Trained a Convolutional Neural Network(ResNet-34) to enhance resolution from 3T to 7T.
  - **Research**: The proposed model improved PSNR value by over 20% compared to nearest-neighbor approach.

- **ECE department, JHU** — Baltimore, MD
  Graduate Research Assistant — *Aug 2019 - May 2021*
  - **Face Anti-spoofing**: Addressed the challenge of detecting novel spoofs in face authentication videos.
  - **Anomaly detection**: Applied anomaly detection & trained a one class CNN using only face data.
  - **Research**: Proposed model achieved a 6% reduction in error rate averaged over four datasets.
  - **Presentation**: Presented the published work at IJCB, 2020 held ~~at Houston, TX~~ virtually(due to Covid-19).

- **Infosys Center for AI** — New Delhi, India
  Research & Development Intern — *Aug 2017 - May 2019*
  - **Implementation**: Developed a novel training algorithm to account for heterogenous data(e.g. resolution/spectrum) in face and periocular recognition.
  - **Presentation**: Presented the published research work at BTAS, 2018 held at Los Angeles, CA.
  - **Team work**: Led the R&D team responsible for building a face recognition system for Yamaha--Research(Japan).
  - **Deliverable**: Built & shipped the final product to be fitted at golf carts for personalized greetings.

Publications (*= equal first author contribution)

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

Programming Skills

Languages: Python, LaTeX, C, C++, Java, Bash, MATLAB, HTML **Technologies**: PyTorch, Tensorflow, Scikit-Learn, NumPy, SciPy, Matplotlib, IPython, pandas, OpenCV, TensorBoard, Git, Vim, Keras, Visual Studio

Projects

- **Landslide prediction module**: Developed a landslide prediction system for hilly region at IIT Mandi - Using Arduino & sensors like humidity, soil moisture and motion sensors, built a station that logged sensor values to the cloud. A decision tree based on the logged values predicted the probability of landslide at the installed location.
- **Golf cart greeting system**: Built a personalized golf cart greeting system for Yamaha Research, Japan - Used CNNs to automatically detect and recognize a person(in database) and display personalized greetings on a Tablet installed at the front of the golf cart. To account for fast computation on the go, I fine-tuned the LightCNNv3 for face recognition.
- **Smart glasses for the blind**: Built a smart glass reader using OCR to parse text - In undergrad, built a smart glass reader which parsed the text using OCR and converted it into audio as an aid for visually challenged people to read.
- **Reconstructing faces from voices using emotion ques**: Reconstructing Faces from Voices using Generative Adversarial Networks - As part of the final project for MLSP course, we implemented the paper "Reconstructing faces from voices" & retrained the network by adding an emotion component in feature space to generate specific emotion faces from voice samples.

Awards & Recognition

- **2020**: Top 3- Collected 100$ cash prize for best ppt award at IJCB.
- **2019**: Funding- Awarded JHU ECE Dean fellowship for graduate studies.
- **2018**: Regional- Selected among 250/100k+ students for Google Intern Connect.
- **2015**: National- Secured 7k rank/1.5 mn+ candidates in JEE Mains.
- **2013**: Regional- Awarded bronze medal at local Maths Olympiad.

External Links

- **Github**: https://github.com/yashasvi97
- **LinkedIn**: https://www.linkedin.com/in/yashasvi-baweja
- **Twitter**: https://twitter.com/whybaweja
- **Website**: https://yashasvi97.github.io/