Akansh Maurya

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Education

Universität des Saarlandes   **April. 2023 – April 2025**
Masters in Visual Computing   *Saarbrücken, Germany*

Institute of Engineering and Technology   **Sep. 2017 – July 2021**
Bachelor of Technology in Electrical Engineering **CGPA: 8.69/10**   *Lucknow, India*

Experience

Interdisciplinary Institute for Societal Computing   **April 2023 – Present**
HiWi(Research Assistant)   *Saarbrücken, Germany*

- Collaborating with **Prof. Ingmar Weber** on pioneering deep learning methods to detect mobility patterns from vehicle density in low-resolution satellite images. This novel, challenging, and cost-effective research addresses an under-explored area.
- Build a pipeline to automate the satellite image data collection and pre-process from PlanetScope using Open Street Map(OSM). Developed a method to extract Google Popular Times.
- Presented my work in progress at **I2SC kickoff conference**, and will be presenting latest work at **Max Planck Institute for Demographic Research**.

Sony Research India   **Sept 2022 – Feb 2023**
Healthcare Machine Learning Researcher   *Bengaluru, India*

- Built **AI-powered** solution for detection of Chronic obstructive pulmonary disease(**COPD**) from thermal images.
- Prepared clinical **data collection SOW**, Reviewed 12+ vendors.
- Collaborated with **IIT KGP** and for data collection using the novel temperature-based sensor.

Robert Bosch Center for Data Science and Artificial Intelligence   **Sept 2021 – Sept 2022**
Post Baccalaureate Research Assistant (RBCDSAI, IIT Madras)   *Chennai, India*

- Worked with **Dr. Ganapathy Krishnamurthi** to make interpretable weakly-supervised DL algorithms to detect and localize multiple abnormalities in Chest X-rays.
- **2 research papers** accepted at an International conference(**MICCAI 2021 and ISBI 2023**). **1 journal paper** under review at the International Journal of Biomedical Imaging.
- **Secured 3rd position** in Chest XR COVID-19 detection Grand Challenge among 200 teams.
- **Secured 13th position** in Pulmonary Artery Segmentation Challenge 2022 among 460 participants.

Internship

Indian Institute of Science (IISc)   **Oct 2020 – May 2021**
Research Intern (Signal Processing Interpretation and REpresentation (SPIRE) Laboratory)   *Bangalore, India*

- Worked under the guidance of **Dr. Prashanta Kumar Ghosh** to build an app that can help detect an asthmatic patient based on cough sound and sustained phonation. I pre-processed 285 patient recordings for feature engineering and calculated statistical features on MFCCs and their derivatives to train classifiers like Support Vector Machine, XGB.
- My research finding includes: Wheeze sound best classifies Asthmatic patients with 86% Accuracy; Gender classification from breath signal with AUC score of 88.59%; proof of decrease in the quality of sound in Asthmatic Patients.
- Identified that 25% to 75% chunk of whole breath signal is priamarly responsible for detecting Asthmatic patients.
  Certificate — Presentation

Indian Institute of Technology(IIT), Bombay   **May 2020 – July 2020**
Research Intern (Embedded Real Time System(ERTS) Labs)   *Mumbai, India*

- Under the supervision of **Prof. Kavi Arya**, I developed a Deep Learning-based web app that automates verifying and validating of ID card images; It reduced the processing time from 14 days to 3 hours.
- Developed a RotateNet model that corrected orientated images, improved OCR results on rotated images, implemented text detection and recognition with DBNet and CRNN, and got 27 fps speed to process images.
- I coded a custom fuzzy string matching algorithm to validate text present in the ID card. F1 score of the whole system is 0.90054. Certificate — Report — Video

Publication

- Shambhat V, **Maurya A.**, Krishnamurthi G. et al. (2021). "A study on Criteria for Training Collaborator Selection in Federated Learning." (Accepted in **MICCAI BrainLes 2021**) Link
- **Maurya A.**, Krishnamurthi G. et al. (2022). "PARSE challenge 2022: Pulmonary Arteries Segmentation using Swin U-Net Transformer(Swin UNETR) and U-Net" (arXiv:2208.09636) (Accepted in **ISBI 2023**)
- R Sidharth, **Maurya A.**, Krishnamurthi G. (2023). "COVID-19 detection from Chest X-Ray images: A Survey" (Under Review at IJBI)
- **Maurya A.**, Manjrekar O., Arya K., et al. (2020). "A system for verifying non-standard personal identity documents using deep learning models."(Submitted ICDAR-IJDAR, 2021 journal track).

Language

- English (C1) TOEFL: 105, GRE: 315
- German (A1) and learning
- Hindi (First Language)

Leadership / Extracurricular

- Served as Joint Secretary at Electrical Engineering Society(EES), IET Lucknow, organized 5 research talks and 2 technical workshop for students.
- Served as a Volunteer and Academic Assistant of Parmarth- the social club of IET Lucknow; I taught children of slums nearby college, conducted cloth and food distribution to the needy.
- Like to play Chess(ELO 1486), badminton and Kho-kho; I also participated in many inter-college events.

Referral

- Dr. Ingmar Weber, Alexander von Humboldt Professor in AI at Saarland University
- Dr. Ganapathy Krishnamurthi, Associate Professor at IIT-Madras
- Dr. Nitin Anand Shrivastava, Assistant Professor at IET Lucknow
- Dr. Pushkar Tripathi, Assistant Professor at IET Lucknow