Aditya Kumar Singh

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EDUCATION

International Institute of Information Technology

MS by Research - CSE; CGPA: 9.5/10

Hvderabad, India

Aug 2021 - Dec 2023

Courses: Statistical Methods in AI, Data Analytics, Digital Image Processing, Computer Vision, NLP, Multivariate Statistics

Indian Institute of Science Education and Research

Kolkata, India

• MS - Mathematics & Statistics; CGPA: 8.38/10 BS - Mathematics & Statistics; CGPA: 8.04/10

Aug 2019 - Jul 2021 Aug 2016 - Jul 2019

Courses: Regression Analysis, DSA, Statistical Inference, Linear Algebra I and II, Real Analysis I and II, Group and Ring Theory

EXPERIENCE

Associate ML Intern - Wadhwani AI

Remote

Anthropometry Team

May 2023 - Present

- o Constructing VWM (virtual weighing machine) for new-born babies (1-42 days).
- Responsibility: Mainly on model explainability part. Analyze model uncertainties (via conformal estimation) and build a confidence model upon it (via quantile regression, gaussian process) to evaluate its confidence range

Graduate Research Assistant - CVIT Lab @ IIIT Hyderabad

Research student (Full-time) under Dr. Makarand Tapaswi

Jan 2022 - Present

- o Long-from video summarization via key-segment localization in long-form videos like web-series, and movies to generate story summaries. We leveraged recaps (as supervision) for our model-training. Paper arriving soon!
- $\circ \ \ [CVPR'23] \ \textbf{- Learning emotion/mental-states for movie-characters and scenes:} \ \ via \ joint-modeling \ on \ action,$ characters and dialog signals to predict multi-label emotions/mental-states for each character and scene. Link

MS Thesis @ ISI Kolkata

OnSite

Project Student (Part-time) under Dr. Uma Shankar

Aug 2020 - Jul 2021

- o Modeling and Reviewing: Multi-label classification of highly imbalanced Amazon rainforest images via transfer learning using all possible fine-tuned pre-trained models used in ImageNet challenges till 2020. Plus, implemented & reviewed promising ML models (Random Forest, XGboost, GBC, etc.) on the same.
- Final touch: Ensembled all the above ImageNet models in *Integrated Stacking* format and fine-tuned (*Meta learning*) to achieve the best result among all the tried out methods. Paper Link
- Teaching Assistant (Head TA) @ IISER Kolkata

Aug 2020 - Jul 2021

- CS3102 Programming in Python (Instructor: Dr. Dwaipayan Roy) For Ph.D. and Masters student.
- o CS1101 Introduction to Programming (Instructor: Dr. Dwaipayan Roy) For UnderGrad students

SKILLS SUMMARY

• Languages Python, C, MATLAB, R

• Frameworks Wandb, Scikit, NLTK, SpaCy, TensorFlow, Keras, PyTorch, Huggingface, Fortuna-AWS

• Tools & Platforms Linux, Web, Windows, Docker, GIT

PROJECTS

- Video Object Segmentation: involves segmenting moving objects from the background using UVOS Methods: MATNet and RTNet & SVOS: TransVOS. Tech & Tools: Python, Matlab, PyTorch, OpenCV (May '22). MATNet Link
- Hypernym Discovery NLP: Generate possible hypernyms for a given hyponym via detecting hyponym-hypernymy relation for a list of pair of words. Tech: Python, NLTK, PyTorch, Pyhocon (May '22). Project Link
- Vehicle Tracking and Counter Kalman Filtering: Tools: OpenCV, Tkinter (December '21). Project Link
- Natural Language Understanding with the Quora Question Pairs Dataset: Detect dupliacy within the given pair of question from Quora. Tech & Tools: Python, Huggingface, Scikit-Learn, PyTorch (November '21). Project Link

Publications

- CVPR'23: How you feelin'? Learning Emotions and Mental States in Movie ScenesLink
- MS Thesis @ IISER Kolkata: Multi-Label Classification on Remote-Sensing ImagesLink

Honors and Awards

- Finalist at QIF (Qualcomm Innovation Fellowship India 2022) May, 2022
- Winner at ICVGIP 2021 Contest Audio-Visual Retrieval Track December, 2021
- INSPIRE scholarship holder funded by DST Govt. of India, 2016 to 2021

Volunteer Experience

Member @ Student Parliament IIIT Hyderabad

Addressed & resolved issues faced by students (e.g., placement, technical, and hostel)

Hyderabad, India Mar 2022 - Mar 2023

Placement coordinator @ Student Placement Committee IIIT Hyderabad

Hyderabad, India

Handled logistics of invited companies and organized interviews.

Aug 2022 - Aug 2023