

Aditya Kumar Singh

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EDUCATION

- International Institute of Information Technology** Hyderabad, India
MS by Research - CSE; GPA: 9.5 *August 2021 - July 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
Integrated BS-MS - Mathematics & Statistics; GPA: 8.38 *August 2016 - July 2021*
Courses: Regression Analysis, DSA, Statistical Inference, Linear Algebra I and II, Real Analysis I and II, Group and Ring Theory

EXPERIENCE

- Graduate Research Assistant - CVIT Lab @ IIIT Hyderabad** OnSite
Research student (Full-time) under [Dr. Makarand Tapaswi](#) *January 2022 - Present*
 - Long-form video summarization:** via human-emotion recognition and tracking as well as auto key-points detection in long-form videos like web-series, and movies, which in itself is a novel research problem. It involves a novel way of auto-labeling multi-modal data samples. Further, the approach to fuse multi-modal signals and train our model to make sense of it is itself a very challenging task. *Paper arriving soon!*
 - Learning emotion and mental states for movie characters:** via joint-modeling on scene, characters and dialog modalities to predict more than one emotion or mental state (multi-label) for each character and the whole scene. Besides, we analysed the self-attention mechanism on how model learns to look at relevant modalities at the right time. *Paper arriving soon!*
- MS Thesis @ ISI Kolkata** OnSite
Project Student (Part-time) under [Dr. Uma Shankar](#) *August 2020 - July 2021*
 - 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 date. 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 @ IISER Kolkata** OnSite
Head TA (Part-time) under supervision of [Dr. Dwaipayan Roy](#) *August 2020 - July 2021*
 - CS3102 – Programming in Python:** For Ph.D. and Masters student.
 - CS1101 – Introduction to Programming:** For UnderGrad students

SKILLS SUMMARY

- Languages:** Python, C, MATLAB, R
- Frameworks:** Scikit, NLTK, SpaCy, TensorFlow, Keras, PyTorch, Huggingface
- Tools & Platforms:** Linux, Web, Windows, Docker, GIT

PROJECTS

- Video Object Segmentation:** Segmented moving objects from the background using deep-learning CNN based SoTA Frameworks (UVOS Methods: MATNet and RTNet, SVOS: TransVOS). *Tech & Tools: Python, Matlab, PyTorch, OpenCV (May '22).* [Link to the MATNet](#)
- Hypernym Discovery - NLP:** Generate possible hypernyms for a given hyponym via detecting hyponym-hypernym 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 duplicacy within the given pair of question from Quora. *Tech & Tools: Python, Huggingface, Scikit-Learn, PyTorch (November '21).* [Project Link](#)

PUBLICATIONS

- MS Thesis @ IISER Kolkata: Multi-Label Classification on Remote-Sensing Images:** [Link](#)

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** Hyderabad, India
Addressed & resolved issues faced by students (e.g., placement, technical, and hostel issues) *March 2022 - Present*
- Placement coordinator @ Student Placement Committee IIIT Hyderabad** Hyderabad, India
Handled logistics of invited companies and organized interviews. *Aug 2022 - Present*