Aniruddha **Mahapatra**

FOURTH YEAR UNDERGRADUATE · COMPUTER SCIENCE

Indian Institute of Technology, Roorkee, India

☐ (+91) 9830491342 | ✉ amahapatra@cs.iitr.ac.in | ⌨ anime26398 | ⬛ aniruddha98

Education

Indian Institute of Technology, Roorkee (IITR)   *Roorkee, India*

BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE   *July. 2016 - PRESENT*

- Cumulative Grade Point Average : 9.417/10

Kendriya Vidyalaya No. - 1, Salt Lake, Kolkata   *Kolkata, India*

HIGHER SECONDARY   *April. 2014 - April. 2016*

- Secured 94.2 % in class XII Board Exam conducted by Central Board of Secondary Education, India.

Kendriya Vidyalaya No. - 1, Salt Lake, Kolkata   *Kolkata, India*

SECONDARY   *April. 2014*

- 10/10 CGPA in class X Board Exam conducted by Central Board of Secondary Education, India.

Publications

Unsupervised Domain Adaptation for Remote Sensing Images Using Metric Learning and Correlation Alignment   *NCVPRIPG*

ANIRUDDHA MAHAPATRA | BIPLAB BANERJEE   *December 2019*

Accepted for publication in National Conference On Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG) 2019. **[Paper Link]**

Assessment of Sentinel-1 and Sentinel-2 Satellite Imagery for Crop Classification in Indian Region During Kharif and Rabi Crop Cycles   *IEEE IGARSS*

JITENDRA SINGH | **ANIRUDDHA MAHAPATRA** | SAURAV BASU | BIPLAB BANERJEE   *August 2019*

Singh, Jitendra, Aniruddha Mahapatra, Saurav Basu, and Biplab Banerjee. "Assessment of Sentinel-1 and Sentinel-2 Satellite Imagery for Crop Classification in Indian Region During Kharif and Rabi Crop Cycles." In IGARSS 2019-2019 IEEE International Geoscience and Remote Sensing Symposium, pp. 3720-3723. IEEE, 2019. **[Paper Link]**

Internships

Adobe, India   *Bangalore, India*

RESEARCH INTERNSHIP   *May 2019 - July 2019*

- Developed a task-aware neural video compression algorithm for action recognition by jointly minimizing both reconstruction and action prediction loss.
- Designed a pipeline to achieve reduced-binarized embedding for RGB-videos, with adjustable compression factor, achieving maximum compression greater than standard mpeg4 compression.
- Achieved very low inference time on standard video action recognition datasets like, UCF101, HMBD51, MERL, with very low computation (both GPU memory and CPU RAM) required as compared to SOTA action recognition models on RGB videos.
- Used the trained compression-action-recognition model for designing query-answering model for retail-store video analytics over Edge-devices. **[Report Link] [Presentation Link]**

IBM India Research Laboratory, India   *Roorkee, India*

REMOTE RESEARCH INTERNSHIP   *May 2018 - December 2018*

- Evaluated the potential of SAR and optical imagery in crop identification for an Indian region using multi-class classification based on the support vector machine (SVM) and Autoencoders with Auxillary Loss applied to the temporal features.
- The experiments are conducted for Kharif and Rabi crop cycles with major crops in the region of interest.
- The experiments suggest that the joint use of optical and radar imagery results in better classification accuracy compared to using them individually. **[Github Link]**
- A paper for the same was accepted for publication in IEEE International Geoscience and Remote Sensing Symposium 2019. **[Paper Link]**

Projects

Explainable Medical Diagnosis Using Deep Learning
Roorkee, India

BACHELOR THESIS PROJECT | PROF. MARCO PEDERSOLI | PROF. JOSE DOLZ | PROF. BALASUBRAMANIAN RAMAN
August 2019 - Present

- Developing a deep learning model to generate diagnostic medical reports with visually grounded evidence.
- Implemented and evaluated 3 baseline models on IU-Xray dataset. **[Report Link]**
- Using stacked attention modules and dual attention modules and learning for better alignment visual and semantic features for producing more accurate and better explainable reports.

Unsupervised Domain Adaptation for Remote Sensing Images Using Metric Learning and Correlation Alignment
Roorkee, India

UNDERGRADUATE RESEARCH PROJECT | DR. BIPLAB BANERJEE
May 2018 - September 2018

- Learned embeddings in lower dimensional space using Siamese Networks (with Clustering Loss) on labelled source domain images.
- Reduced co-variance between the source and unlabelled target domain data using Correlation Alignment Loss to get domain invariant mapping.
- Jointly trained our model for two losses (convex optimization) on Pavia and Botswana Remote Sensing Image dataset and achieved state-of-the-art results. **[Github Link]**
- A paper for this work is accepted for publication in National Conference On Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIGP) 2019. **[Paper Link]**

Human Gaze Detection Using Eye and Head-Pose Estimation
Roorkee, India

UNDERGRADUATE PROJECT | ARIES, IIT ROORKEE
January 2018 - March 2018

- Created datasets for detection of direction of human-gaze for 4 directions and specific hand gestures. Trained Convolutional Neural Networks for gaze-direction estimation and gesture recognition using the datasets.
- Made an interactive video player using dectected gaze and hand gestures using HTML/CSS and NodeJS . **[Github Link]**

Teaching Experience

Electronics and ICT Academy, IIT Roorkee
Roorkee, India

LAB TEACHING ASSISTANT
July. 2017

- Gave a tutorial on implementation of C++ STL library data structures as part of Faculty Development Program for Professors from local government colleges in the course on "Data Structures and Programming in C".

Achievements

2017   **World Rank - 1764**: Codechef Snackdown Pre-Elimination 2017.

2016   **All India Rank 1683**: Joint Entrance Examination (Advanced) AIR 1683 amongst 200,000 students.

2016   **KVPY All India Rank 480**: Highly prestigious National Fellowship awarded by **Indian Institute of Science** and **Government of India** to students who show high aptitude in research. **[Link]**

2016   **National Top 1 Percentile**: National Standard Examination in Physics (NSEP), conducted by **IAPT**. **[Link]**

Extracurricular Activity

Artificial Intelligence and Robotics Section, IIT Roorkee
Roorkee, India

JOINT SECRETARY
March. 2018 - PRESENT

- Core team member of ARIES, an IIT Roorkee student group promotes the culture of Artificial Intelligence, Internet-of-Things, and Electronics in campus by providing and mentoring student projects, participating in competitions, organising workshops.

ACM - IIT Roorkee Students Chapter
Roorkee, India

CHAIR
March. 2018 - PRESENT

- Chair of ACM IIT Roorkee student group that aims at uniting the computing fraternity at IIT Roorkee under one tag and allowing the students to learn together and share their knowledge.
- Involved in organising classroom discussion sessions, hackathons, talks and lecture series in campus.

Student Mentorship Program IIT Roorkee
Roorkee, India

STUDENT MENTOR
July. 2019 - PRESENT

- Involved in guiding the freshers in IIT Roorkee through various spheres of campus life.