Aditya **Narendra**

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Education

May 2017 – May 2021 | **Odisha University of Technology and Research (OUTR)** — **Bhubaneswar, Odisha**
Bachelor of Technology (B.Tech) in Fashion and Apparel Technology — CGPA: 8.43/10
Undergraduate Thesis - **Applications of Artificial Intelligence in Fashion Industry** [GitHub]
Courses - Data Structures, Algorithms, Machine Learning, Linear Algebra, Calculus, Probability & Statistics

Experience

Dec 2022 – Present | **ETH Zürich | Assisted Forest Regeneration Lab** [Web] — **Zurich, Switzerland**
Research Affiliate | Advisor: Dr. Leland Werden
- Working on a project on quantification of potential carbon capture and plant biodiversity recovery of forest, savannah, and mangrove assisted restoration projects.
- Currently analyzing data related to regeneration practices and creating data pipelines.
- Built a transformer based model for summarization of grey literature regarding regeneration practices.

Jul 2023 – Aug 2023 | **Neuromatch Academy** [Web] — **Remote**
Research Volunteer | Advisors: Dr. José Biurrun Manresa & Dr. Xi-He Xie
- Participated in the 2023 Summer School on Computational Neuroscience.
- Worked on 'Prediction of Future Continuous Motion States from ECoG Recordings' based on joystick tracking data. [GitHub] [**Slides**] [**Notes**]

Aug 2022 – Oct 2023 | **Center of Excellence - Artificial Intelligence [Web] | Tech Mahindra [Web]** — **Bhubaneswar, India**
Associate Researcher | Advisors: Prof. Jibitesh Mishra & Ipsit Misra
- Developed robust and interpretable deep learning models for applications such as smart traffic systems and healthcare.
- Taught '*401-Deep Learning*' [Link] an introductory DL course to 50+ undergrads from various backgrounds.
- Published 3 research papers at international conferences and filed 1 Patent at IPO.

Aug 2022 – Sept 2023 | **Carnegie Mellon University | Xu Lab [Web]** — **Pittsburgh, USA**
Research Intern | Advisor: Prof. Min Xu
- Built an end-to-end multimodal model for particle picking and subtomogram alignment.
- Also worked on modeling continuous conformational changes in cryo-ET images with self-supervised representation learning. [GitHub]

Jul 2022 – Aug 2022 | **École de Technologie Supérieure (ÉTS Montreal)** — **Montreal, Canada**
Summer School Research Intern | Advisors: Prof. Thomas Grenier & Prof. Pierre-Marc Jodoin
- Participated in the 2022 Summer school on Deep Learning for Medical Imaging (3rd Edition). [Web]
- Worked on benchmarking various weakly supervised segmentation techniques for cardiac diseases diagnosis. [GitHub]

Jul 2021 – Jan 2022 | **International Institute of Information Technology, Hyderabad (IIIT-H) [Web]** — **Hyderabad, India**
Research Intern | Advisor: Prof. Jayanthi Sivaswamy & Prof. C.V. Jawahar
- Worked on an attention-based model for Covid-19 detection from Chest-X Rays.
- Created a database for the segmentation of sub-cortical structures from MRI scans of youths.

Skills

Languages: C, C++, Python

Frameworks: Tensorflow, PyTorch, Keras, REST API

Misc.: Git, Linux, LaTeX, Matlab, QGIS

Research Interests

AI for Social Good

Trustworthy Machine Learning

Data Mining and Visualization

Publications

Deep Learning Based Classification of the Big Four Snake Species Using Visual Features [Paper] [GitHub]
Nishikanta Parida, Aditya Narendra, Pooja Reddy Kolimi, Priyansu Panda & Ipsit Misra
IEEE International Conf. on Interdisciplinary Approaches in Tech & Management for Social Innovation, India [IATMSI'24]

From Robots to Books: An Introduction to Smart Applications of AI in Education (AIEd) [Paper] [Slides]
Shubham Ojha, Siddharth Mohapatra, Aditya Narendra & Ipsit Misra
Springer International Conference on Recent Innovations in Computing, Hungary [ICRIC'23]

Chaurah: Smart Raspberry-Pi Parking System [Paper] [Slides] [GitHub]
Soumya Ranjan Choudhaury, Aditya Narendra, Ashutosh Mishra & Ipsit Misra
International Conference on Communication and Computational Techniques, India [ICCCT'23]

Patents

AI-Based Emergency Healthcare Solution (Patent No- 202331002146) [Link] [India Patents Office]
Ipsit Misra, Jibitesh Mishra, Aditya Narendra & Khirod Behera
[Published and Under Examination]

Select Projects

Satellite Data-based Pollution Forecasting using CNNs [GitHub] **Jan 2023 - Apr 2023**
Advisor: Prof. Jibitesh Mishra

- Built a CNN-based model to predict Breezometer Air Quality Index (BAQI) using Sentinel-2 images achieving over **87%** accuracy matching existing industry models. **[Paper In Preparation]**
- Created a dataset of over 10,000 satellite images at resolution 1280 x 1280 and 10,000 Breezometer air quality data records across 57 cities in India.

MoSwasthya: ML Based Application for Cardiac Disease Risk Prediction [GitHub] [Video] [Slides] **Nov 2022 - Dec 2022**
Advisor: Ipsit Misra

- Created an all-in-one application that provides an Ensemble Method based FAPS (First Action Prediction System) which estimate the cardiac disease risk on non-medical inputs with a real-day accuracy of **91.24%.**
- This application also provides user-health analytics and details of healthcare facilities based on user location.

Vision-Based Models for Sorting and Segregation of Waste [GitHub] [Slides] **July 2022 - Aug 2022**
Associated Organization: Omdena

- Worked as a **Junior ML Engineer** on state-of-art CNN techniques for segregation and sorting of waste/trash into 10 commonly occurring classes as a task lead for the model-building team. [Link]
- Evaluated this approach on benchmark datasets demonstrating matching accuracies of over **97%** in most cases.
- Worked as a co-task lead for the deployment of the application using the Hugging Faces-Gradio Framework.

Awards

2022 Smart Odisha Hackathon: Awarded **1st Prize** out of 1000 teams **worth $2500** by the Government of Odisha [Link] .

2022 Hugging Face Gradio NYC Hackathon: Awarded **2nd prize** out of 100 teams **worth $200** by Hugging Face [Link] .

2022 DLMI Summer School: Received a **full-ride grant** to attend the DLMI summer school at ÉTS Montreal [Link] .

OUTR Merit Scholarship: Secured scholarships for **ranking 1st** in the department during my last two undergrad years.

2021 OUTR Best Thesis Award: Received nomination for my thesis among 1200+ students in 2021 undergraduate batch.

Service

401-Deep Learining | Head Instructor: Taught an introductory DL course [Link] to over 50 undergrads at COE-AI Lab .

OUTR Outreach Commitee | Member: Facilitated sessions and bootcamps to promote undergraduate research and provide STEM education to underprivileged students.

Departmental Mentorship Program | Mentor: Worked for over 2 years as an mentor to assist first-year undergraduates.