

Atharva Chandak

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Education

Birla Institute of Technology and Science, Pilani (BITS Pilani)

B.E.(HONS) IN COMPUTER SCIENCE

CGPA: 8.29/10

Pilani, India

AUG 2019 - PRESENT

Research Experience

Artificial Intelligence And Robotics Laboratory, Indian Institute of Science

RESEARCH INTERN | SUPERVISOR: DR. SURESH SUNDARAM

Bangalore (Remote)

JUN 2021 - PRESENT

- Working on **Generalized Continual Zero Shot Learning** for various **Computer Vision tasks**.
- **Integrating incremental learning setup with zero shot learning** for more realistic adaption of DL methods.
- Extending the work to **generalized, out of distribution tasks** and also enable **task free learning**.

AI/ML Lab, BITS Pilani

RESEARCH ASSISTANT | SUPERVISOR: DR. KAMLESH TIWARI

Pilani

APR 2021 - PRESENT

- Investigating various **Vision-Transformer networks** for fine-grained human action recognition.
- Reviewed the existing works on fine-grained action recognition and **summarised the major research gaps**.
- Applying **better temporal modelling techniques** and using direct **RGB frames** for the classification task.
- Exploring other ways to improve upon the current state-of-the-art networks.

CSIR-CEERI

RESEARCH INTERN | SUPERVISOR: DR. AMALIN PRINCE & MR. J SURIYA PRAKASH

Chennai (Remote)

MAY 2021 - AUG 2021

- Worked on **texture classification** of images using both **traditional ML** and **deep learning** based methods.
- Used traditional computer vision **algorithms like FAST, ORB & BRISK** combined with ML classifiers like **SVMs, KNNs, etc.**
- Extended the project to also implement simple image segmentation networks for performing **texture segmentation**.
- Applied these to **distinguish different types of industrial leather** produced & detect any cracks/faults in them.

Academic Projects

Image Super Resolution with Deep Learning

SUPERVISOR: DR. J. JENNIFER RANJANI

Pilani

JAN 2021 - APR 2021

- Analysed and implemented various Deep Learning techniques for image super resolution.
- Used **traditional Deep CNN based approaches (EDSR & RCAN)** and reviewed their drawbacks and possible improvements.
- Implemented **GAN based approaches (SRGAN & ESRGAN)** for achieving **higher perceptual quality** of images.
- Deduced various possible **future directions of research** for enhancing performance of these deep networks.

Other Projects

CapsViT for Deepfake Detection

ICLR CoSUBMITTING SUMMER(CSS) 2022

Remote

AUG 2021 - PRESENT

- Evaluated the performance of **Vision Transformers for deepfake detection** (images and videos both) task.
- Reviewed existing **Capsule Network architectures** leveraging their desired properties for deepfake analysis.
- Exploring a **novel architecture combining Capsule Networks with Vision Transformers**.
- **Innovating the attention module** to better focus on specific regions where the adversarial detection models are most likely to fail.

Competitions

E-Yantra Robotics Competition

RANK: TOP 20

IIT Bombay(Remote)

SEP 2020 - MAR 2021

- Were in the **top 20 teams** among 472 teams in the Robotics innovation challenge organized by IIT Bombay.
- **Maximized the number of delivery and returns of the parcels** by the UAV within fixed time to maximize score.
- Involved **control systems, path planning, image processing for QR scanning and marker detection, and developing algorithms** for a Gazebo simulated UAV.

AI RoboSoccer

RANK: 3RD

IEEE BITS Pilani Chapter

MAR 2021

- **Trained an RL Agent** which maximized the performance score of the simulated soccer team.
- Objective **reward** was **based on the number of goals scored and the passing accuracy** of the simulated players
- Used the **PPO algorithm** from **stable-baselines library** implementation for training the RL agent.

Skills

Languages	Advanced: Python Intermediate: C/C++, JavaScript
Deep Learning	Advanced: Pytorch Beginner: Tensorflow, Keras
Machine Learning	Advanced: scikit-learn, Numpy Intermediate: OpenCV, Pandas, Matplotlib
Robotics	Intermediate: Robot Operating System(ROS)
Web dev	Advanced: Flask Intermediate: Nodejs, Expressjs, React, HTML5, SASS
Others	Git, Linux

Achievements

- 2021 **Top 20**, among 472 teams, in E-Yantra Robotics Competition
- 2021 **3rd**, among 148 teams in AI Robosoccer
- 2019 **AIR 598**, out of 1.23 million students in JEE MAIN examination
- 2019 **AIR 2249**, out of 0.15 million students in JEE Advanced examination

Extracurricular Activity

ORGANIZATIONS

BITS-ACM Student Chapter

CORE TEAM MEMBER

Pilani, India

AUG 2019 - PRESENT

- **Organized a software development hackathon** (HackBITSPilani).
- **Contributed and managed various open source projects** by BITS-ACM.
- Developed **frontend web game** for Checkmate-2020, an annual puzzle based event organized by the chapter.

ShARE BITS Pilani

SENIOR MEMBER

Pilani, India

JUL 2020 - PRESENT

- **Prepared and delivered consulting presentations** on various topics related to technology such as blockchain, EVs, etc.
- Solved various corporate level problems while also **inculcating** the **“Do Well Do Good” ideology** of ShARE.
- **Interned at a startup (Catalytic Corps)** to build a framework to identify and **solve problems in Indian MSME sector**.

Volunteering Experience

National Service Scheme(NSS) at BITS Pilani

VOLUNTEER

Pilani, India

AUG 2019 - PRESENT

- Volunteering at **Computer Literacy Program** team of NSS BITS Pilani.
- Helped organise various social impact events like **Blood Donation Camps, Youth conference, etc.** for the people of Pilani.