

Harsh Kumar

DEEP LEARNING ENTHUSIAST | SECOND YEAR UNDERGRADUATE | APPLIED MATHEMATICS

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"There will be plenty of time to rest in the grave."

Education

Indian Institute of Technology, Roorkee

INTEGRATED M.Sc. IN APPLIED MATHEMATICS

- CGPA: 8.984/10

Roorkee, India

2020 - Exp. 2025

Projects

PAPERS WE READ

CONTRIBUTOR | GITHUB REPOSITORY

- This is an open source repository maintained by Vision And Language Group containing summaries and analysis of recently published research papers. [\[GitHub Link\]](#)
- Contributed to summaries from recent Deep Learning Conferences.

Model Extraction on Video Vision Transformers

CONTRIBUTOR | RESEARCH PROJECT FOR INTER IIT TECH MEET 10.0

- Our team of eight developed an efficient strategy to extract the video-based models in the black box and grey box setting
- We extracted Video Swin Transformer and MoviNet trained on the Kinetics datasets to obtain competitive results in the novel task
- Used conditional video generator and adversarial crafting along with knowledge distillation based techniques
- Won the gold medal in the High Prep event amongst 22 IITs across India
- Report can be accessed [here](#), code implementation can be found [here](#)

Image Steganography with ECC and SegNets

CONTRIBUTOR | ONGOING RESEARCH PROJECT AT VISION AND LANGUAGE GROUP

- Developing a SegNet based, ECC powered model to perform steganography on images. Establishes a three party network to show the security of the encryption
- [\[GitHub Link\]](#)

U-Net Semantic Segmentation Pytorch implementation

OPEN PROJECT | VISION AND LANGUAGE GROUP

- Implemented **U-Net** for semantic segmentation of human faces the helen* dataset

Algorithmic Backtesting on Indian Stocks

PROJECT | FINANCE CLUB, IIT ROORKEE

- Studied and backtested a long-only trading system based on RSI and SMA
- Created a Profit Booking Logic and outperformed the benchmark on REL. [\[GitHub Link\]](#)

Achievements

- 2022 **Gold Medal in High Prep Event**, Inter IIT TechMeet 10.0
- 2021 **Won Silver Medal**, R-Street Quant Challenge by Finance Club IIT Roorkee
- 2021 **Ranked 15 in India**, CSAW 2021
- 2021 **Ranked Top 300 Globally**, PicoCTF
- 2021 **2nd Position**, n00bCTF 2021 by InfoSec IITR
- 2021 **Top 10**, Syntax Error by SDS Labs IITR
- 2020 **All India Rank - 4000**, Joint Entrance Exam (JEE) Advanced

Skills

Programming	Python, C++, Bash, HTML, \LaTeX , Julia
Packages	Pytorch, TensorFlow, Numpy, scikit-learn, opencv, Django
Utilities	Git, Linux Shell, Jupyter Notebooks, SSH, Markdown
Languages	English, Hindi, German

Introduction to Transfer Learning

MAINTAINER

Blog

June 2021

- Introduce transfer learning and its nuances so that newbies would not get lost in specialized terms and jargons while starting.
- Includes work done with VGG-16 on a kaggle challenge
- [\[Link\]](#)

Extracurricular Activity

Vision and Language Group, IIT Roorkee

CORE MEMBER

Roorkee, India

May, 2021 - Present

- Core member of VLG, a student group that promotes **Deep Learning research culture** at IITR by discussing relevant research papers, organizing workshops and working on related projects.[\[Link\]](#)
- Involved in paper discussions, contributing to projects, organizing workshops, etc.

Programming and Algorithms Group, IIT Roorkee

CORE MEMBER

Roorkee, India

October, 2021 - Present

- Core member of PAG, a student run community that fosters the culture of **Competitive Programming in IITR**
- Involved in conducting contests, organizing open lectures etc.

InfoSec, IIT Roorkee

CORE MEMBER

Roorkee, India

March, 2021 - Present

- Member of a group of information security enthusiasts who believe in freedom of information and privacy while maintaining ethical and legal aspects. Took part in a lot of **CTFs** around the world
- Involved in organizing CTFs, conducting open discussions, organizing workshops etc.

Data Science Group, IIT Roorkee

CONTRIBUTOR

Roorkee, India

February, 2022 - Present

- Involved in the task of model extraction for Video based transformers
- Contributions [\[GitHub\]](#)

Finance Club, IIT Roorkee

JUNIOR MEMBER

Roorkee, India

March, 2021 - January, 2022

- Actively involved in cultivating a robust **financial culture in IITR** by organizing workshops, competitions and writing blogs.
- Enthusiastically participated in various projects and group discussions on the latest research and developments