

AAYAN YADAV

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Education

Indian Institute of Technology, Roorkee

Bachelor of Technology in Data Science and Artificial Intelligence

CGPA : 8.9/10.0

Oct. 2022 – May 2026

Uttarakhand, India

Experience

Proteus | Remote [\[GitHub\]](#) [\[Website\]](#)

July 2024 - December 2024

- Built a classifier for detecting AI generated images. Improved upon SoTA classifier by finetuning contrastive language-image based encoder. Also experimented with some few shot techniques and adversarial training.

Publications

Benchmarking Object Detectors with COCO: A New Path Forward

Shweta Singh*, **Aayan Yadav***, Jitesh Jain, Humphrey Shi, Justin Johnson, Karan Desai

ECCV 2024

[\[Website\]](#)[\[Preprint\]](#)[\[GitHub\]](#)

- Created refined annotations for the COCO-2017 dataset to mitigate imperfections by leveraging the Segment Anything model and LVIS dataset in a semi-automatic pipeline.
- Benchmarked 50 pre-trained object detectors on the new validation set, resulting in a larger performance boost for more recent models and ranking flips leading to ranking that aligned more accurately with human judgement.
- Trained a Mask RCNN and Cascade RCNN models on cleaner annotations. We find that smaller models trained on cleaner annotations perform better than larger models trained on imperfect annotations, demonstrating that a better dataset leads to parameter efficiency.

StegaVision: Enhancing Steganography with Attention Mechanism (Student Abstract)

Abhinav Kumar, Pratham Singla, **Aayan Yadav**

AAAI 2025

[\[Preprint\]](#)[\[GitHub\]](#)

- Explored the impact of various attention mechanism i.e. channel and spatial and their permutations on encoder-decoder architecture for steganography.

Projects

Sirius | Pathway, OpenAI Swarm [\[GitHub\]](#)

November 2024

- Build an agentic RAG system using SoTA techniques like AdaRAG, PlanRAG, HyDE, SPLADE, MetRAG, RRF etc.

MedMatcher | Google Colab, Pytorch, Hugging Face [\[GitHub\]](#)

December 2023

- Similar Document Template Matching for Medical Dataset. Fine-tuned LayoutLMv3 model on custom medical document dataset using weighted cross entropy loss and minibatch gradient descent.

Achievements

All India Rank 1353, JEE Advanced 2022 150k+ students in India take this for admission in IITs.

All India Rank 1962, JEE Main 2022 1M+ students in India take this for JEE Advanced eligibility.

All India Rank 993, KVPY(SX) 2022 KVPY is a highly prestigious national fellowship awarded by the Indian Institute of Science to students showing high aptitude in research.

All India Rank 84, WBJEE 2022 150k+ Indian students take this for admission to colleges in West Bengal.

Recipient of NTSE Scholarship given by NCERT, 2021 NTSE is a national-level examination for the secondary school level to identify and recognize students with high intellect and skills.

Extracurricular

Vision and Language Group, IIT Roorkee | Project Head

March 2023 – Present

Deep learning group on campus that organizes open discussions and projects related to deep learning.[\[Website\]](#)

Data Science Group, IIT Roorkee | Member

April 2023 – Present

Data Science and Machine Learning Group on campus that organizes workshops, talks and projects.[\[Website\]](#)

Geek Gazette, IIT Roorkee | Editorial Member

November 2023 – Present

Write articles in biannual magazine[\[Website\]](#)

References

Prof. Justin Johnson | Email: justincj@umich.edu

United States

Assistant Professor at University of Michigan | Co-founder at World Labs

Dr Karan Desai | Email: kdexd@umich.edu

United States

Ph.D. in CSE at Universtiy of Michigan | Member of Technical Staff at World Labs