

AAYAN YADAV

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Education

*GPA conversion to 4.0 scale done according to this website: <https://gpa.eng.uci.edu/node/158>

Indian Institute of Technology, Roorkee

Oct. 2022 – May 2026

Bachelor of Technology in Data Science and Artificial Intelligence

Uttarakhand, India

CGPA : 8.952/10.0 (~ 3.73/4.0)*

Experience

AuraML | Research Intern (Hybrid)

April 2025 - September 2025

- Developed a scalable pipeline combining VLMs and graph diffusion models to generate and edit large 3D warehouse scenes from text prompts with efficiency and accuracy.

Proteus | Research Intern (Remote)

July 2024 - February 2025

- 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.

University of Michigan | Research Collaboration (Remote)

September 2023 - March 2025

- Worked on refining instance segmentation masks of MS-COCO dataset and analysed its impact by training and benchmarking models. I also wrote and presented a full paper accepted at ECCV 2024 with my amazing coauthors.

Publications

* denotes equal contribution.

Benchmarking Object Detectors with COCO: A New Path Forward [\[Website\]](#)[\[Preprint\]](#)[\[GitHub\]](#)

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

ECCV 2024

- 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 object detectors to validate annotations.

StegaVision: Enhancing Steganography with Attention Mechanism (Student Abstract) [\[Preprint\]](#)[\[GitHub\]](#)

Abhinav Kumar, Pratham Singla, Aayan Yadav

AAAI 2025

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

Provenance Detection for AI-Generated Images: Combining Perceptual Hashing, Homomorphic Encryption, and AI Detection Models [\[Preprint\]](#)[\[GitHub\]](#)

Under Review

Shree Singhi*, Aayan Yadav*, Aayush Gupta, Shahriar Ebrahimi, Parisa Hassanizadeh

- A content provenance system to detect AI generated images. I worked on training adversarially robust binary classifier for the task. I leveraged embedding space of large self supervised vision-language models.

Projects

SLAFCoM: A Study on Loss Functions for Adversarial Finetuning of Contrastive Models [\[GitHub\]](#)

April 2025

- Introduced a Clean Consistency Term in the loss function and experimented to improve adversarial finetuning.

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

November 2024

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

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 Prestigious national fellowship for students with high research aptitude.

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

NTSE Scholarship Awardee, 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 | Co-President

March 2023 – Present

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

Data Science Group, IIT Roorkee | Joint Seceretary

April 2023 – Present

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

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: kdesd@umich.edu

United States

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

Prof. Sanjeev Kumar | Email: sanjeev.kumar@ma.iitr.ac.in

India

HOD of Mehta Family School of Data Science and Artificial Intelligence, IIT Roorkee

Arjun Gupta | Email: cto@auraml.com

India

Co Founder & CTO at AuraML