Devanshu Rana

UG (II Year II Semester)
B.Tech. (Chemical Engineering)
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Indian Institute of Technology Roorkee

VERIFIED

Area of Interest

Generative AI, Machine Learning, Python Programming

Education

Year	Degree/Examination	Institution/Board	CGPA/ Percentage
2024	B.Tech. 2nd Year	Indian Institute of Technology, Roorkee	7.764
2022	Intermediate (Class XII)	Sainik School Ghorakhal, Nainital	83.80 %
2020	Matriculate (Class X)	Sainik School Ghorakhal, Nainital	90.40 %

Projects

Text to Image Generation | Artificial Intelligence and Electronics Society (ArIES) May 2024 - June 2024

- Developed and trained a **Conditional Generative Adversarial Network (CGAN)** for text-to-image synthesis using the **CUB_200_2011** bird dataset, including data preprocessing and hyperparameter optimization. Successfully generated bird images from textual descriptions, showcasing skills in **Deep Learning** and **Computer Vision.**

Study of Impact of Drop on Liquid Film for Immiscible Reactive System | Chemical Department, IIT Roorkee October 2023 - Present

- Performed **High-Speed Camera Analysis** of sodium alginate and calcium carbonate droplets impacting an acidic soybean oil film, observing various impact phenomena and gel formation.
- Analysed the results using **ImageJ** software and an energy conservation model, with the aim of optimising impact processes for applications in **Encapsulation** , printing, and cooling technologies.

Tech-Enhanced AI Interview Learning Platform | Techshila 2.0 March 2024 - April 2024

- Developed an AI-powered interview system using fine-tuned **Mistral 7B** language model, implementing **Advanced NLP** and **Speech Processing** techniques to generate contextual questions and analyse spoken responses.
- Engineered end-to-end pipeline including **Audio-to-Text Conversion** , **Speaking Pace Analysis** , and **Grammatical Error Detection** , enhancing the system's ability to provide **Real-Time Feedback** on language proficiency.

Neural Style Transfer | Artificial Intelligence and Electronics Society (ArIES) February 2024 - March 2024

- Developed a Neural Style Transfer model using **TensorFlow** and **VGG19** architecture, blending artistic styles with content from different images.
- Implemented loss functions and **gradient descent optimisation** to refine outputs, producing visually compelling results that harmoniously combined style and content.

Skills

Computer languages	Python, SQL, C++, Java, HTML, CSS, JavaScript
Software Packages	TensorFlow, PyTorch, Keras, Hugging Face Transformers, OpenAI GPT, Scikit-Learn, NumPy, Pandas, Matplotlib, Seaborn, Jupyter Notebook, Google Colab, Docker, Git, AWS

Positions of Responsibility & Extra Curriculars

Executive Member | Students' Technical Council (STC) June 2023 - Present

- Managed content creation and distribution across social media platforms, designing promotional materials, and generating engaging content to drive student interest and participation.
- Worked with different departments and student groups to promote events, ensuring clear and effective communication that matched the council's goals.

Head of Design | Chemical Engineering Students' Society (ChESS) June 2024 - Present

- Led the **Design Team** in creating all posters and promotional materials for society events, ensuring a consistent and high-quality visual identity.
- Actively participated in group discussions, providing creative inputs and collaborating with other members to successfully organise and execute events.

Executive Member | Thomso'23 June 2023 - April 2024

- Developed and implemented innovative promotional initiatives, resulting in a **20% increase** in event registrations compared to the previous year's festival.
- Assisted in the planning, organisation, and on-ground execution of multiple events during Thomso'23, ensuring smooth operations and high participant satisfaction.

Undergraduate Teaching Assistant (UGTA) : MAI-101 | Academic Reinforcement Program (ARP) September 2023 - November 2023

- Provided assistance to students in **MAI-101** by clarifying doubts, offering detailed explanations of course materials, and fostering a supportive learning environment.
- Provided supplementary resources to students, to help students better understand and master course content.