Vaisant K
UG (III Year II Semester)
B.Tech. (Mechanical Engineering)
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Registration No: 22117147/2025

Indian Institute of
Technology
Roorkee

VERIFIED

Area of Interest

Neural Networks, Gen AI, Image Processing

Education

Year	Degree/Examination	Institution/Board	CGPA/ Percentage
2024	B.Tech. 3rd Year	Indian Institute of Technology, Roorkee	7.094
2021	Intermediate (Class XII)	Kendriya Vidyalaya, Minambakkam, Chennai	95.60 %
2019	Matriculate (Class X)	Smt.Ramkuwar Devi Fomra Vivekananda Vidyalaya(CBSE)	93.40 %

Projects

Dynamic Analysis of a Spring Pendulum System | MIED IIT Roorkee   July 2023 - November 2024
- Analysed the fundamentals behind the spring pendulum systems
- Derived the equations using Lagrangian method and Simulation of system was done using MATLAB
- Actively monitored the process of research

Low Light Image Enhancement | VLG, IIT Roorkee   May 2024 - June 2024
- Implemented Zero Reference DCE Net, a deep convolutional neural network for low light image enhancement
- Achieved a MSE of 101.81 and PSNR of 28.07 dB

Autonomous Driven Vehicle(ADV) | Computer Science Department, IIT Roorkee   January 2024 - Present
- Ongoing project under the guidance of Prof. R.Balasubramanian, focused on self-driving technologies
- Simulated a car model with distance sensors and cameras in our institute's map in webots
- Currently in the process of applying R-CNN to train the vehicle for object detection and recognition tasks
- Future plans include implementing the trained model into a mini car with LIDAR sensors for real-world testing

Equipment Failure Prediction using Machine Learning | SAE, IIT Roorkee   November 2024 - January 2025
- Created a predictive model using machine learning techniques to forecast equipment failure based on sensor data and relevant parameters.
- Selected appropriate machine learning algorithms tailored to the dataset and prediction requirements.
- Designed a predictive model to handle large datasets efficiently in real-time or batch processing.

Using Physics Informed Neural Networks (PINNs) to solve Differential Equations | IIT Roorkee
August 2024 - December 2024
- Developed a Physics-Informed Neural Network (PINN) using PyTorch to solve the 1D wave equation
- Implemented data handling and numerical methods with NumPy and Matplotlib for visualization
- Designed a custom loss function leveraging PyTorchs autograd for enforcing physical constraints
- Trained the model using the Adam optimizer, fine-tuning hyperparameters for improvedaccuracy

Analysis of product marketing through social media | MIED, IIT Roorkee   July 2024 - November 2024
- Analyzed different social media influencers and built an optimized method to increase reach for products in social medias
- Worked on case studies on popular social media brands
- Experimented with our own brand Eesha Elixir by using the optimized method and improved the likes rate by 20%

Awards / Scholarships / Academic Achievements

- Represented IIT Roorkee in the Inter IIT Cultural Meet 6.0 in IIT Kharagpur held on December 2023 and Won Silver medal in Costume Designing event.

Skills

Computer languages	Python, C++
Software Packages	Pandas, Numpy, OpenCV, Tableau, Matplotlib, SQL, BigQuery, Scikit-learn, Git
Additional Courses	Google Advanced Data Analytics Course
Languages Known	English(SRW), Hindi(SRW), Tamil(SRW)

Positions of Responsibility & Extra Curriculars

Joint Secretary | Fine Arts , IITR   May 2024 - Present
- Active member of Fine Arts since September 2023 , lead many art projects and events to promote art.
- Contributed towards a wall painting for Thomso 2023 and JB Bhawan Day.
- Successfully managed and organized Darpan 2024 with a contribution of 3 2D artworks and monitored the installation of 3 3D artworks.
- Contributed and helped organize Art4Pride online competition.

Deputy Cell Secretary (JEE Cell) | NSS IITR   August 2023 - April 2024
- Managed a team of 12 members and successfully lead a mentorship program for JEE Aspirants.
- Mentored JEE Aspirants from all over the country.
- Successfully organized and conducted JEE mock tests online.
- Planned and built a feedback system to collect feedback from students across the country.

Events Executive | National Social Summit 2023   January 2023 - March 2023
- Organized and conducted a debate competition.
- Managed participants from various institutes.

Volunteer | Thomso'23   October 2023
- Volunteered as Co-Coordinator for Live Sketching Event.
- Worked with Thomso team in organizing and successfully conducted the event.

References

Dr. S Srikrishnan
Assistant Professor, CoEDMM
IIT Roorkee
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Dr. Arup Kumar Das
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