VIKASH SINGH

Indian Institute Of Technology Mandi

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Experience

DEFENCE RESEARCH AND DEVELOPMENT ORGANISATION (MINISTRY OF DEFENCE, INDIA). | Machine Learning engineer | Research Internship

Jan 2022 – July 2022 | Chandigarh, India

- Mentor - Dr. MK Kalra.
- Satellite Imagery Dataset Creation: Developed and implemented a satellite imagery dataset by accurately labeling objects, enabling efficient and effective analysis of complex spatial data.
- Deep Neural Network Model Development: Designed and trained a deep neural network model to accurately detect roads in satellite images, leveraging advanced machine learning techniques to automate and enhance image recognition and analysis.
- Optimization and Performance Improvement: Utilized auto-encoders to achieve an initial accuracy rate of 70%, subsequently enhancing the model through the addition of layers and weight adjustments to achieve a final accuracy rate of 83%, demonstrating a strong commitment to continuous improvement and optimization.

HATCH-MARINE CONSULTANTS. | Machine Learning Engineer | Project Internship

Dec 2021 – Feb 2022 | New Delhi, India

- Mentor - Dr. Karan Gupta.
- Predictive Modeling and Analysis: Utilized advanced machine learning models to predict the scour depth of a river in Taiwan, leveraging data-driven insights to inform strategic decision-making and optimize resource allocation.
- Model Optimization and Fine-Tuning: Demonstrated a commitment to continuous improvement and optimization by fine-tuning the machine learning models to meet specific project requirements, ensuring the highest level of accuracy and precision in predictive modeling and analysis.

INDIAN INSTITUTE OF TECHNOLOGY, MANDI | Introduction to Machine learning | Teaching Assistance

Feb 2020 – Dec 2020 | Mandi, India

- Worked with Dr. Deelip AD sir throughout the course.
- Teaching Assistantship: Served as a teaching assistant for Data Science II (Probability and Statistics) during the semester, providing expert guidance and support to students and faculty alike.
- Curriculum Development and Implementation: Collaborated with faculty members to develop and implement a rigorous and comprehensive curriculum for Data Science II, leveraging extensive knowledge of probability and statistics to ensure that students received the highest quality education and training.
- Student Engagement and Success: Demonstrated a strong commitment to student success by providing individualized support and guidance to students, fostering a collaborative and engaging learning environment that promoted academic excellence and achievement.

Projects

SIGN LANGUAGE DETECTION | Python3 | Machine Learning

2021

- Developed convolutional neural network to detect sign language gestures.
- The dataset created by hand gestures yielded an accuracy of 93.4

SPEECH EMOTION ANALYZER | Python3 | JavaScript | Machine Learning

2020

- Developed model is very well trained to distinguish between male and female voices and it distinguishes with 100% accuracy.
- The model is tuned to detect emotions with more than 70% accuracy. Accuracy can be increased by including more audio files for training.

A RECOMMENDATION SYSTEM FOR FILMS | Python3 | Machine Learning

2020

- The language python I used to generate a machine learning-based movie recommendation.
- Developed recommendation system uses a filtering procedure to send forth suggestions to users based on other users' interests and browsing history.
- If A and B enjoy "Home Alone" and B enjoys "Mean Girls", it can be recommended to A; they may enjoy it as well.
- Customers will be more engaged with the platform as a result of this.

LANDSLIDE WARNING SYSTEM | Python3 | Machine Learning

2020

- Data Science - III Project — Mentored by: Dr.Dileep A. D.
- Conducted survey and generated data of the land slides of hilly area. Analysed that data for prediction using Pattern Classification, Regression, Clustering by using parameters like weather, height, slope and

WEATHER FORECASTING SYSTEM | Python3 | Machine Learning | Deep Learning

2022

- Enviromental Impact Assesment Project — Mentored by: Dr. Tanushree Parsai.
- Collected the data of recent years using some research papers and articles.
- Performed Machine learning algorithms such as regression and probabilistic analysis to predict the weather.

Certifications

- Applied Machine Learning: Algorithms.
- Artificial Intelligence Foundation: Machine Learning.
- Tensorflow: Neural Networks and Working with Tables.
- Artificial Inytelligence Foundation: Neaural Network.
- Applied machine learning in python (University of Michigan) grade : 99.36%.
- Python data structure (University of Michigan) grade: 100%.
- Programming for everybody (University of Michigan) grade : 99.08%.
- Neural Networks and deep learning (DeepLearning.Ai) grade : 90%.
- Python Programming: A concise introduction (Wesleyan University) grade: 88.88%.
- Crash course on python (Google) grade: 91%.
- Google cloud machine learning and data science.

Achievements

- Secured Second place in Robo war, an event in Utkarsh'19 (tech fest in IIT Mandi).
- Secured 1st position in school city in inter school science competition.
- Secured 72nd position in NEST'19.
- Hold a certificate of outstanding performance in RBSE class 10th.
- Participated in the International Writing Competition for Students and Placed Third

Positions of Responsibility

- Member of Programming club and Robotics club in IIT Mandi.
- Planing and Management team member in Ranneeti 2019 (sports fest in Himalyas.)
- Event Head of Expecto'22 (A tech fest of IIT Mandi)
- Management Coordinator of Srijan'19 in IIT Mandi (A technical Fest of Civil Engineering).

Skills

PROGRAMMING

Proficient:
Python3 • C++ • CSS • HTML

Experienced:
LaTeX • JavaScript • c#
• Matlab

Familiar:
Java • Kotlin • SQL • R

LIBRARIES/FRAMEWORKS

Tensorflow • Keras • Pytorch
• OpenCV
• React • SciKit etc.

TOOLS/PLATFORMS

Git • Gulp • Webpack • Heroku
Wordpress • Docker

Education

INDIAN INSTITUTE OF TECHNOLOGY MANDI

Bachelor's in Major Civil engineering and Minor computer science and Intelligence systems

Jun 2019 - June 2023 | Mandi, Himachal Pradesh

Cum. GPA: 8.01 / 10

References

Dr. Karan Gupta, HOD-Civil Engineering and Research Head, Hatch-Marine consultants

Coursework

UNDERGRADUATE

- Deep Learning and Its applications
- Pattern Recognition
- computer Vision
- Data Science I,II,III
- Operating systems
- Foundation of Artificial Intelligence

E-LEARNING

- Operating Systems
- Data structure and Algorithms
- Introduction to Python
- Python Data structures
- Data Handling and Visualisation

Research work

PAPERS

- Extraction of Roads from satellite Images using Deep Neural Networks.
- Assesment Of The Prediction Equations Of General Scour At Bridge Using Probabilistic Framework: Application To CHOSHUI.
- Behaviour of Nanoparticles in Atmosphere Using Machine Learning Models.
- Satellite Driven LST And It's Association With Built-Up And Green Cover Over Urban Jaipur,Rajasthan (Using Deep Neural Networks)

Extra Curricular

- Member of national social services.
- Core Member of Hiking and trekking club.
- Core Member of Mountain biking club.

Honors

- 2019 NEST 72^{nd} AIR
- 2019 IISER 220^{th} AIR
- 2018 KVPY Fellow