

Arnav Ahuja

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Education

- **Birla Institute Of Technology and Science, Pilani, Rajasthan, India** 2018-2023
Bachelor of Technology Computer Science
Master of Science in Mathematics (Dual Degree)
Overall CGPA: 8.14/10
- **St Xavier's School, Jaipur** 2017-2018
All India Senior School Certificate Examination (Class XII)
Percentage: 95.6%

Research Experience & Internships

Website Agnostic Crawler User Action Automation

Team: Selection Monitoring

Amazon

June-December '22

- Analyzed web domain data for competitor e-commerce websites..
- Utilized AWS resources like Sagemaker, S3, Stepfunctions to create baseline models for web domain data.
- Constructed a Reinforcement Learning and Webpage Segmentation based approach for user action automation in the web crawler.

Identifying Disease Using Machine Learning

Guide: Prof. Sundaresan Raman, Department of Computer Science

BITS Pilani

Spring 2022

- Analysed single nucleotide polymorphism data for identifying the susceptibility to diabetic retinopathy.
- Implemented Lasso Regression and Random Forest algorithm for feature selection in SNPs.
- Used machine learning algorithms like kNN, SVM, Gradient Boosted DT for predicting the susceptibility.

Virtual Hover Pen for Devanagari Script

Guide: Prof. Mukesh Kumar Rohil, Department of Computer Science

BITS Pilani

Fall 2021

- Created a virtual hover pen application with support for multiple user features using openCV library
- Integrated support for hindi language recognition of text written with hover pen
- Trained an encoder decoder model with ResNet as encoder and LSTM decoder

Crop Disease Identification

Guide: Prof. Jennifer Ranjani, Department of Computer Science

BITS Pilani

2020

- Developed a new Inception Resnet deep learning architecture to identify diseases in the leaf of tomato plant
- Achieved an accuracy of 98.16% which is higher than the traditional resnet model (97.5%)
- Created a new dataset of real images using data augmentation which significantly increased the accuracy

Earthquake Forecasting

Guide: Prof. Sumanta Pasari, Department of Mathematics

BITS Pilani

Fall 2020

- Analyzed time series data of earthquakes in five different regions to extract the seismicity information
- Implemented a neural network model which forecasts earthquakes using seismicity indicators in the regions
- Achieved an accuracy of 90.4% for forecasting the probability of an upcoming earthquake in the Himalayas

Facial Recognition Based Attendance System

Guide: Dr. Viduthalai, IT Expert

TNHSR

Summer 2020

- Developed a facial-recognition based attendance system to help curb the spread of COVID-19
- Used openCV library (Haar Cascade Algorithm) for facial recognition
- Presented the results to the senior stakeholders in the company

Publications

- Use of spatio-temporal features for earthquake forecasting of imbalanced data.
International Conference on Intelligent Innovations in Engineering and Technology (ICIET). [LINK](#)
Arnav Ahuja, Aaditya Sharma, Sumanta Pasari
- Disease Identification in Tomato Leaf using pre-trained ResNet and Deformable Inception.
5th International Conference on Computational Intelligence in Data Science. [LINK](#)
Arnav Ahuja, Jennifer Ranjani, Aditya Tulsyan

- **Forecasting Earthquakes Using Neural Network Models.**
(Springer Nature) *Disaster Management in Complex Himalayan Terrains - Natural Hazard Management, Methodologies and Policy Implications.* [LINK](#)
Arnav Ahuja, Sumanta Pasari

Miscellaneous Projects

- Epidemiological Analysis of COVID-19** Spring 2020
- Analyzed COVID – 19 data with respect to the **SIR epidemic model of disease spread**
 - Estimated the defining characteristic parameters of the model by **minimizing squared error loss**
 - Calculated the **reproductive number to be close to 1.2**
- English to Hindi Language Transliteration** Summer 2020
- Trained an **Encoder-Decoder model** which transliterated English alphabets to Hindi language font
 - Deployed **Gated Recurrent Units with attention mechanism** to enhance the performance of the model
- Occlusion Analysis & Filter Visualization** Summer 2020
- Analyzed the filter in a CNN for detecting the important parts of an image
 - Performed **occlusion sensitivity analysis** on various images

Mentorship Experience

- Teaching Assistant** BITS F312 : Neural Networks & Fuzzy Logic
Fall 2022
Prof. Surekha Bhanot, BITS Pilani
- Guided a class of approximately 100 students and was responsible for their assignments
 - Supervised groups of 3-4 students in their projects

Technical Skills

Programming Languages	- C, C++, Java, Python, MATLAB, SQL
Data Science Libraries	- PyTorch, TensorFlow, Keras, Pandas, Numpy, openCV
Machine Learning	- CNNs, RNNs, GRUs, LSTMs, Encoder-Decoder Models
Platforms/Tools	- Jupyter Notebooks, Google Colab, Visual Studio, NetBeans, Eclipse, Ubuntu MATLAB, Unity, Blender

Extracurricular Activities

- **Member of Student's Academic Council** - Organized various talks and activities to augment the academic and research culture of the campus [2020-2022]
- **Class Head of 8th standard (NSS)** - Supervised all class 8th activities; prepared schedules for all students and volunteers [2019-2020]
- **Volunteer at National Service Scheme (NSS)** - Mentored underprivileged students and tutored them on their curriculum subjects [2018-2020]
- **Game Developer at Coding Club** - Developed several games on the unity platform as well as designed the characters on the blender platform [2018-2019]

Relevant Coursework

- *Computer Science* - Data Structures and Algorithms, Database Management Systems, Microprocessors and Interfacing, Object Oriented Programming, Logic in Computer Science, Digital Design, Computer Programming
- *Mathematics* - Operations Research, Graphs and Networks, Optimization, Applied Stochastic Processes, Discrete Mathematics

Online Courses	<ul style="list-style-type: none"> ◦ Neural Networks and Deep Learning (deeplearning.ai - Coursera) ◦ Improving Deep Neural Networks (deeplearning.ai-Coursera) ◦ Structuring Machine Learning Projects (deeplearning.ai-Coursera) ◦ Convolutional Neural Networks (deeplearning.ai-Coursera) ◦ Sequence Models (deeplearning.ai-Coursera) ◦ Foundations of Data Science (OneFourthLabs) ◦ Deep Learning (OneFourthLabs) ◦ Algorithmic Toolbox (University of California - Coursera)
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