

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: 8.29/10
- **St Xavier's School, Jaipur** 2017-2018
All India Senior School Certificate Examination (Class XII)
Percentage: 95.6%

Work Experience & Internships

Messaging Service Framework

Position: Graduate Developer | Team: Consumer Credit Risk

Barclays

August'23 - Present

- Contributed to the **curation of model-ready datasets** for multiple teams within Barclays
- Spearheaded the **design and implementation of a unified messaging service**, integrating diverse team services.
- Utilized **multiple AWS services to migrate team processes to the cloud**, enhancing operational efficiency

Western Australia Transforming Community Health

Guide: *Dr. Seshadri Vasan*, Director of Research at WA Health

WA Health

Jan-May'22

- Analyzed **~19000 attributes for 373 suburbs** in the Australian continent for improving community health
- Implemented **heirarchical cluterling and PCA based clustering** for attribute correlation
- Obtained a specific suburb from the data for in-depth analysis and evaluation of policy effectiveness

Website Agnostic Crawler User Action Automation

Position: Applied Scientist | 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.**
(IEEE) *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.**
(Springer) *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

Prof. Surekha Bhanot, BITS Pilani

Fall 2022

- Guided a class of approximately 100 students and was responsible for their assignments
- Supervised multiple 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]