

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, Rajasthan, India** 2017-2018
All India Senior School Certificate Examination (Class XII)
Percentage: 95.6%

Work Experience

Barclays Aug'23 - Present

Position: Graduate Developer — Team: Model Implementation Team

- Provisioned credit risk based **datasets to run quantitative models** for multiple teams within Barclays
- Spearheaded the development of a unified messaging service on AWS to **automate dataset delivery**
- Built and managed infrastructure to **integrate and run over 100 quantitative models for the bank**

Western Australia Department of Health Jan-May'23

Position: Research Intern

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

Amazon June-Dec'22

Position: Applied Scientist — Team: Selection Monitoring

- Developed **reinforcement learning based baseline models** with **30% accuracy** for identifying user actions
- Constructed **WebPage Segmentation** based approach with **84.2% accuracy** for finding user actions on web-pages
- Utilized a **graph based approach for exhaustive product selection** on competitor e-commerce websites

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

Academic Projects

Classical ML: Detecting Diabetic Retinopathy using ML Jan-May'22

- Analyzed **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.

Computer Vision: Crop Disease Identification Jan-Dec'20

- Devised 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

Deep Learning: Earthquake Forecasting

Aug-Dec'20

- Interpreted **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

Computer Vision: Facial Recognition Based Attendance System

May-July'20

- Designed a **facial-recognition based attendance system** to help curb the spread of COVID-19
- Used **openCV library (Haar Cascade Algorithm)** for facial recognition

Statistical Analysis: Epidemiological Analysis of COVID-19

Jan-May'20

- 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**

Deep Learning: English to Hindi Language Transliteration

May-June'20

- 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

Computer Vision: Occlusion Analysis & Filter Visualization

May-June'20

- 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

Prof. Surekha Bhanot, BITS Pilani

BITS F312 : Neural Networks & Fuzzy Logic

Aug-Dec'22

- 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, Shell Script

Data Science Libraries

- Boto3, PyTorch, TensorFlow, Keras, Pandas, Numpy, openCV

Machine Learning

- CNNs, RNNs, GRUs, LSTMs, Transformers, Reinforcement Learning

Platforms/Tools

- AWS (all services), Google Colab, Jupyter Notebook, MATLAB

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]