Arnav Ahuja

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Work Experience

Graduate Developer - Model Implementation Team *Aug 2023 - Current*
Barclays

- 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**

Undergraduate Research Intern *Jan 2023 - May 2023*
Western Australia Department of Health

- 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

Teaching Assistant, Neural Networks & Fuzzy Logic *Aug 2022 - Dec 2022*
Prof. Surekha Bhanot, BITS Pilani

- Facilitated learning for approximately 100 students, managing assignments and monitoring academic progress.
- **Supervised project groups of 3-4 students,** providing support and constructive feedback throughout their projects.

Applied Scientist - Selection Monitoring Team *Jun 2022 - Dec 2022*
Amazon

- 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

Education

Birla Institute Of Technology And Science - Pilani, Rajasthan, India *Jun 2018*

- Bachelor of Technology Computer Science | Master of Science in Mathematics (Dual Degree)
- **Overall CGPA**: 8.29/10

Skills

- **Programming Languages:** C, C++, Java, Python, MATLAB, SQL, Shell Script
- **Data Science Libraries:** Boto3, PyTorch, TensorFlow, Keras, Pandas, NumPy, OpenCV
- **Machine Learning Techniques:** Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Gated Recurrent Units (GRUs), Long Short-Term Memory networks (LSTMs), Transformers, Reinforcement Learning
- **Platforms/Tools:** AWS (all services), Google Colab, Jupyter Notebook, MATLAB

Publications

- **Ahuja, A.**, Sharma, A., & Pasari, S. (2022). ***Use of Spatio-Temporal Features for Earthquake Forecasting of Imbalanced Data.*** In Proceedings of the International Conference on Intelligent Innovations in Engineering and Technology (ICIIET). IEEE.
- **Ahuja, A.**, Ranjani, J., & Tulsyan, A. (2022). ***Disease Identification in Tomato Leaves Using Pre-trained ResNet and Deformable Inception.*** In Proceedings of the 5th International Conference on Computational Intelligence in Data Science. Springer.
- **Ahuja, A.**, & Pasari, S. (2022). ***Forecasting Earthquakes Using Neural Network Models***. In Disaster Management in Complex Himalayan Terrains: Natural Hazard Management, Methodologies and Policy Implications. Springer Nature.

Academic Projects

Detecting Diabetic Retinopathy

- Analyzed SNP data to assess susceptibility to the disease
- **Used Lasso Regression and Random Forest for feature selection** and **kNN, SVM, and Gradient Boosted Trees for prediction**

Crop Disease Identification

- Developed an Inception ResNet model for tomato leaf disease identification, achieving **98.16% accuracy**
- Created a new dataset of real images using **data augmentation**

Earthquake Forecasting

- Analyzed time series data to design a **neural network model for earthquake prediction**, achieving **90.4% accuracy** in the Himalayas

Facial Recognition Attendance System

- Designed a **facial recognition system using OpenCV** and the Haar Cascade Algorithm to reduce COVID-19 spread

Epidemiological Analysis of COVID-19

- Used the SIR epidemic model to analyze COVID-19 data, estimating the reproductive number, **using least squares as approximately 1.2**

Extracurricular Activities

- **Member, Student's Academic Council** (2020 - 2022)
  Organized talks and activities to enhance the academic and research culture on campus.
- **Volunteer, National Service Scheme (NSS)** (2018 - 2020)
  Mentored underprivileged students, providing tutoring in various curriculum subjects.
- **Game Developer, Coding Club** (2018 - 2019)
  Developed multiple games using the Unity platform and created character designs with Blender.