Arnav Ahuja

(+91) 9667005300 • arnavahuja21@gmail.com • arnavahuja.github.io/

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: 8.02/10
- **St Xavier's School, Jaipur** *2017-2018*
  All India Senior School Certificate Examination (Class XII)
  Percentage: 95.6%

Research Experience & Internships

Crop Disease Identification ***BITS Pilani***
Guide: Prof. Jennifer Ranjani, Department of Computer Science *2020-ongoing*

- Identified diseases in the leaf of a tomato plant by developing a new deep learning model architecture inspired from the resnet50 and inception model by completely changing a few layers of the resnet and replacing them with custom inception blocks
- Achieved an accuracy of 98.16% which is higher than the traditional resnet model (97.5%)
- Created a new dataset for real images which significantly increased the accuracy
- Currently implementing data augmentation techniques to further improve the accuracy

Earthquake Forecasting ***BITS Pilani***
Guide: Prof. Sumanta Pasari, Department of Mathematics *Fall 2020*

- Implemented a time series forecasting model which forecasts earthquakes using seismicity information in the five different regions including the Indian Himalayan Region
- Achieved an accuracy of 90.4% for predicting the probability of an upcoming earthquake of magnitude higher than threshold magnitude within 30 days.

Facial Recognition Based Attendance System ***TNHSR***
Guide: Dr. Viduthalai, IT Expert *Summer 2020*

- Developed a facial-recognition based attendance system using Computer Vision and facial recognition libraries to help curb the spread of COVID-19 by avoiding contact with infected surfaces
- Achieved a reduction in queue size as well

Publications

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

Miscellaneous Projects

Epidemiological Analysis of COVID-19 ***Spring 2020***

- Analyzed COVID – 19 data with respect to the SIR epidemic model of disease spread. Predicted the number of individuals who are susceptible to infection, are actively infected, or have recovered from infection at any given time.
- Estimated the parameters of the model, which define the characteristics of the epidemic, by minimizing squared error loss

English to Hindi Language Transliteration ***Summer 2020***

- Developed a Character Recognition System by training an Encoder-Decoder model(neural networks) which converted English alphabets to Hindi language font
- Deployed the model comprising of Gated Recurrent Units and used attention mechanism to enhance the performance

Technical Skills

Programming Languages	- C, C++, Java, Python, MATLAB, SQL
Data Science Libraries	- PyTorch, TensorFlow, Keras, Pandas, Numpy
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-present*]
- **Class Head of 8th standard (NSS)** - Supervised all class 8th activities; prepared schedules for all students and volunteers [*2019-2020*]
- **NGO Coordinator for Junoon** - Conducted sporting events for differently abled students [*2019-2020*]
- **HR Head (NSS)** - Managed all the volunteers and ensured all activities are conducted smoothly [*2018-2019*]
- **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*]
- **School Prefect at St Xavier's Senior Secondary School** - Executed disciplinary activities [*2016-2018*]

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* - Applied Stochastic Processes, Optimization, Operations Research, Graphs and Networks, Discrete Mathematics, Linear Algebra and Complex Analysis, Integral Calculus, Multi-variable Calculus Higher Order Differential Equations and their analysis, Mathematical Methods, Numerical Analysis, Topology

Online Courses

- **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)