ADITYA AHUJA

B.E. Computer Science, BITS Pilani
[Expected : Aug. 2021]

Codechef : adiah / adi_ahuja
Codeforces : adiah
Github : github.com/adiah80
Mobile : +91-9834530623
Webpage : [Link] | **LinkedIn** : [Link]
Email : ahuja.aditya1452@gmail.com

TECHNICAL PROFICIENCY

Fields : Algorithms, Data Structures, Deep Learning, Machine Learning, Computer Vision, Image Processing, Logic Programming
Languages : C++, Python, Prolog, MATLAB, LaTeX **Technologies** : PyTorch, Tensorflow, Keras, Linux, Git

WORK EXPERIENCE

Software Development Intern, Bank of Maharashtra (Central Office) — May 19 - Jul 19

- Developed a framework for automatic signature verification using Computer Vision and Image Processing Techniques.
- Built a Siamese Neural Network that converted signatures into high dimensional representations that are then classified.
- Achieved an accuracy of ~98% on the test set over 750 iterations, training over 75K signature sample triplets.
- Encapsulated the scripts into a python package for use from the bash terminal, using the weights trained previously.

COMPETITIONS

Google HashCode 2020 - Ranked: 86/3116 [INDIA] or 922/10724 [GLOBAL], Team-Handle: 1939. — Feb 20

Competitive Programming - Codechef — Jan 20

- January CookOff - Global rank : 24/3245 [Rank list]
- January Long Challenge - Global rank : 256/13594 [Rank list]
- December Long Challenge - Global rank : 130/10754 [Rank list]

CBSE Group Mathematics Olympiad [National Rank list] — Dec 14

- Secured an All India Rank 12 in the CBSE Group Mathematical Olympiad (equivalent to RMO) in class 10.
- Was among the 33 students from CBSE grades 9-11 to qualify for Indian National Mathematics Olympiad (INMO).

RESEARCH PROJECTS

Neuro-Symbolic Modeling for Bongard Problems [Advisor : Prof. Ashwin Srinivasan] — Jan 20 - Current

- Using the DeepProbLog framework to model solutions to the Bongard problems using Neuro Symbolic Modelling.
- As part of the APPCAIR Lab, BITS Goa and in collaboration with TCS Research - DataLab .

Detecting Schizophrenia from EEG Signals [Advisor : Prof. Amalin Prince] — Nov 19 - Current

- Developing Deep Convolutional Neural models for automated diagnosis of Schizophrenia using EEG signals.
- Pre-processesed raw medical EEG data using signal processing techniques to transform it into representative images.

Implementing STDP on a spiking Neural Net [Advisor : Prof. Basabdatta Sen. Bhattacharya] — Aug 19 - Dec 19

- Implementing reinforcement learning in a spiking neural network using Spiking-Time Dependent Plasticity (STDP).
- In collaboration with the Human Brain Project (HBP), and the SpiNNaker neuromorphic computing framework.

PERSONAL PROJECTS

Obtaining Word Embeddings using the GloVe algorithm [Link] — Dec 18 - Jan 19

- Implemented the GloVe algorithm on the Stanford Large Movie Review Dataset and obtained clustered word embeddings.
- Visualized the embeddings, each a 15-dimensional vector on a 2d plane using the t-SNE algorithm.

Visualizing Genomic Data [Link] — Mar 19 - Apr 19

- Used PCA to project high dimensional genomic data onto a 2D plot for population cluster identification.
- Demonstrated a correspondence between population groups and geographical origin using the plotted graphs.

Image Generation with Generative Adversarial Networks (GANs) [Link] — Mar 19 - May 19

- Implemented Vanilla and Deep-Convolutional GANs over a training set containing CIFAR 10 images.
- Trained Discriminator and Generator Neural Networks to discern and generate new images based on the training set.

MENTORSHIP EXPERIENCE

Teaching Assistant for Machine Learning [BITS F464] [Webpage] — Jan 19 - Current

- Responsible for conducting theoretical tutorial sessions and practice labs for 120+ undergraduate students.
- Responsible for mentoring and evaluating the course projects that are a formal component of the course.

Mentor for Deep Learning - Technology Incubator Programme (TIP) — Dec 18 - Jan 19

- Co-Lead a group of 50 undergrads on a semester-long project aimed at exploring medical EEG data.
- Covered Signal Processing as well as Deep Learning methods for modeling data into machine crunchable formats.

Mentor for Machine Learning - Quark Summer Technical Projects (QSTP) — Mar 19 - Apr 19

- Was responsible for mentoring a group of 200+ undergrads and helping them get started with ML and Data Science.
- Duties included designing and evaluating assignments to grade their performance and helping them with their doubts.

CERTIFICATES

- Algorithms Specialization - Stanford University [4 Courses] [Coursera] — Jun 19
- Deep Learning Specialization - deeplearning.ai [5 Courses] [Coursera] — Jul 18
- Machine Learning - Stanford University [Coursera] — Jun 18