ADITYA AHUJA

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

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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

Machine Learning Intern, European Centre for Medium-Range Weather Forecasts — May 20 - Aug 20
- Building Machine Learning models for Time-Series Anomaly Detection to optimise ECMWF's data services.
- Working under Prof. Peter Deuben, as part of ECMWF's summer research program - ESoWC.

Software Development Intern, Media.net — May 20 - Jun 20
- Working in the Ad-Experience team building models to predict and act on malicious bids for advertisements.
- Working on client and server side detection and obstruction of malacious activities. Manager : Mr. Akash Agrawal.

Undergraduate Researcher, TCS Research & APPCAIR Lab — Jan 20 - May 20
- Using the DeepProbLog framework to model solutions to the Bongard problems using Neuro Symbolic Modelling.
- Working under Prof. Ashwin Srinivasan at APPCAIR Lab and Dr. Lovekesh Vig at TCS Research.

Software Development Intern, Bank of Maharashtra (Central Office) — May 19 - Jul 19
- Developed a framework for automatic signature verification using Computer Vision Techniques - [Github].
- Built a Siamese Neural Network that converted signatures into high dimensional representations that are then classified.

Machine Learning Intern, Pixxel — May 19 - Jul 19
- Worked with Pixxel, a space-tech start-up on real world Machine Learning applications for their satellite data.
- Built use-case prototypes from existing satellite data vendors for Geological applications - [Feasibility Report]

COMPETITIONS

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

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

Emotion Recognition from Audio Signals [Github] [HTML] — Dec 18 - Jan 19
- Developed a Deep Learning pipeline for Emotion recognition using speech data, on the MELD Dataset.
- Used Mel-frequency cepstral coefficients (MFCCs) to form speech representations, and CNNs for classification.

Memotion Sentiment Analysis [Github] [HTML] — Dec 18 - Jan 19
- Integrated deep text and image processing models to build a Multimodal Sentiment Analysis system.
- Fine-tuned pretrained BERT and ResNext model and combined their representations using Late Fusion.

MENTORSHIP EXPERIENCE

Teaching Assistant for Machine Learning [BITS F464] [Webpage] — Jan 19 - May 19
- 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 Machine Learning - Quark Summer Technical Projects (QSTP) [Webpage] — 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