SAHIL YADAV

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EDUCATION

Birla Institute of Technology and Science, Pilani *2018 - 2023(Expected)*
M.Sc. (Hons.) Mathematics + B.E. (Hons.) Electrical & Electronics Engineering CGPA: 7.7/10

Blue Bells Model School, Gurgaon *2017 - 2018*
Class XII CBSE Percentage: 94.8%

Blue Bells Model School, Gurgaon *2015 - 2016*
Class X CBSE CGPA: 10/10

INTERNSHIPS

Google Summer of Code (GSoC) 2020 - *OpenAstronomy* Ongoing
Guide: Tjark Miener, Universidad Complutense de Madrid, Spain
· Project aims to enable ROOT Input in the CTLearn library on gamma-ray data from IACTs
· Reading data from MAGIC and VERITAS telescopes into the CTA Data ML format
· Implementing deep learning models to improve event reconstruction and classification

Maritime Research Center, Pune - *Machine Learning, Navigation* Summer 2020
Guide: Dr (Cdr) Arnab Das, Director MRC
· Using Deep Learning algorithms to predict path of vessels in the Indian Ocean Region with AIS data
· Perform Anomalous behaviour detection and Marine Protected Areas risk assessment
· Provide changes to traffic lanes by analysing marine mammals sightings

RESEARCH PROJECTS

Sky Watch Array Network (SWAN) - *Radio Interferometry* Ongoing
Guide: Prof. Avinash Deshpande, Raman Research Institute, Bangalore
· Project aims to conduct high angular resolution imaging of galactic sources at low radio frequencies
· Working on setting up and maintaining the tile and electronic system in the institute
· Acts as a potential SKA-precursor in India

DerainGAN: Image Deraining Using Wasserstein GAN - *Computer Vision* Winter 2019
Guide: Prof. Pratik Narang, BITS Pilani
· Project aims to clean images degraded by rain drops/streaks effectively
· Implementing a Wasserstein generative adversarial network using Pix2Pix as a motivation
· Using perceptual loss function to enhance performance of discriminator

Solar Flares & other Ionospheric Disturbances Detection - *SARA SuperSID* Fall 2019
·Applying Machine Learning methods to predict and classify solar flares and ionospheric disturbances
·Predictions are based on data provided by SWPC GOES X-Ray Flux
·Automated data collection from loop antenna using SID software and Python

Spam Classification on Different Languages - *Natural Language Processing* Spring 2019
· Implemented Naive-Bayes classifier and CountVectorizer on SMS Spam dataset
· Extended the algorithm to a mix of different languages as a step towards a universal classifier

RELEVANT COURSES

- **Computer Science:** Cryptography, Computer Programming

- **Electronics:** Digital Design*, Microprocessors & Interfacing**, Microelectronic Circuits**, Signals and Systems**, Control Systems**, Electromagnetic Theory*, Electrical Machines*, Electronic Devices*

- **Mathematics:** Probability and Statistics, Optimization, Linear Algebra, Differential Equations, Multivariable Calculus, Elementary Real Analysis, Discrete Mathematics, Abstract Algebra, Complex Analysis, Mathematical Methods, Operations Research, Graphs and Networks, Measure and Integration, Topology*, Ordinary Differential Equations*, Numerical Analysis*, Functional Analysis**, Differential Geometry**, Partial Differential Equations**
  * Ongoing, ** Next Semester

VOLUNTEER WORK

- **LIGO-India Exhibition:** Volunteered for a week at the National Science Center, New Delhi at the Vigyan Samagam 2020 to raise awareness in general public and students about the LIGO-India project in Maharashtra.

TECHNICAL STRENGTHS

Programming Languages	Python, C, C++
Libraries	TensorFlow, Keras, OpenCV, NumPy, Scikit-Learn, Pandas
Software Skills	MATLAB, Vim, LaTeX, AutoCAD
Platforms	Linux, Windows

SCHOLASTIC ACHIEVEMENTS

- Awarded **Merit-cum-Need(MCN) scholarship** by BITS Pilani for extraordinary academic performance.
- Ranked in **National Top 2%** (amongst 1,200,000 candidates) in JEE Mains Examination 2018
- **School Topper** in Computer Science, XII CBSE Board Examinations 2018

EXTRA-CURRICULAR

- **The Radio Astronomy Club, BITS Pilani:** Working on various projects like **Sky Watch Array Network (SWAN)** and **SARA SuperSID** to study radiation data from pulsars and solar flares
- **Media Relations Club, BITS Pilani:** Covering the institute's fests: BOSM, Oasis, APOGEE and communicating with journalists
- **Bedrock 2019, E-week:** Beat 10 other teams competing to manage a restaurant for an entire day in an event organised by the Center for Entrepreneurial Leadership, BITS Pilani
- **Tabla Player:** Learned Tabla for 2 years. Participated in the **World Cultural Festival 2016**
- **NCC Cadet:** Received A grade certificate for 2 years rigorous training and 10 days winter camp
- **Swadhyay Member** (A devotional movement based in Maharashtra, India)**:** Active member for 4 years and center coordinator