

## EDUCATION

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### Birla Institute of Technology and Science, Pilani

B.E. Electronics and Instrumentation Engineering, CGPA: 8.22/10.0

Goa, India

2018–Current

### Tata Chem DAV Public School

XII, Percentage: 96.60%

Babrara, India

2015–2017

## EXPERIENCE

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### Laboratory for Computational Social Systems

Undergraduate Researcher

IIIT-Delhi

Jan'21–Present

- Working under supervision of Prof Tanmoy Chakraborty and Prof Md. Shad Akhtar
- Working on multi-modal analysis of visual and textual data in memes
- Project aims at distinguishing memes that hinder societal harmony

### Bhaskaracharya Institute of Space Applications and Geoinformatics

Remote Research Intern

Gandhinagar

May'20–July'20

- Part of team of Dr. DK Jhala
- Modelled opening and closing prices of Stock and their fluctuations in real market
- Evaluated different machine learning models to achieve state-of-the-art performance with

### Student Welfare Division

Lead Backend Developer

BITS Goa

Feb'19–Present

- Revamped college website, hosted here
- Leading the back-end development team for website
- Added features for online MCN form filling, mess option filling: full list here

## OPEN SOURCE CONTRIBUTION

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### KD-Lib (over 130 Stars)

- Largest collection of various knowledge distillation, model compression and quantization algorithms in recent literature in a single pytorch library to support and fasten the research in the field. Visit the code base on GitHub [here](#) and the Arxiv-Preprint is also available [here](#) for reference

### MLPack - A Machine Learning Library in C++

- Contributing in free time since Oct 2019. Extending callbacks, implementing silhouette score metric, utility functions, etc. Link to the repo on github: [Here](#)

## PROJECTS

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### Emotion Detection using ML and Graph Network Analysis *sklearn, networkx*

- Under Prof JK Sahoo in collaboration with Cognitive Neuroscience Lab (BITS Pilani, Goa). Identify emotional response of brain using ML with graph network analysis

### **auto-grad** *numpy*

- Toy Deep learning library with numpy as only dependency. Includes automatic differentiation and implementation of various optimizers like SGD, Momentum, Adagrad and Adam. Includes tutorials also. Link to the repo.

### **Car Speed Detection** *pytorch*

- Part of commaai speed challenge, uses fine tuned VGG to detect speed of car from its dashcam. Achieves an RMSE of 7 kmph in validation set. Link to the repository on GitHub.

### **Neural Style Transfer** *pytorch*

- Inspired by Gatys et al, 2016 *Image Style Transfer Using Convolutional Neural Networks*, uses VGG16 with Gram Matrix loss to transfer style in image. Link to the repo on GitHub.

### **SleepSort - Automatic Sleep Stage Scoring** *pytorch*

- Sleep Stage Scoring from raw single channel EEG data, uniquely uses ConvNets in parallel to work in both time and frequency domain of data, and addresses medical problems associated with the change in EEG data. Completed as a part of BITS F315 Intro to Cognitive Neuroscience end semester project.

### **LyricMe** *pytorch*

- Implementation of Character Level RNN. Uses a single word input to generate complete lyrics of specified length. Link to the repo on github.

### **CopyCat - Lite Text Editor in C**

- A light weight text editor in C without any external dependencies. Supports syntax highlighting for several common languages. Link to the repository on GitHub.

## SKILLS

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- **Programming Languages:** C/C++, Python, Bash, SQL, MATLAB, Java
- **Frameworks:** pytorch, tensorflow, flask, django, reactJS
- **Other:** AutoCAD, Git, L<sup>A</sup>T<sub>E</sub>X, Minitab
- **Operating System:** Ubuntu, Windows
- **Languages:** English, Hindi, Urdu

## RELEVANT COURSES

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- **Mathematics:** Mathematics I (Calculus), Mathematics II (Linear Algebra and Complex Analysis), Mathematics III (Differential Equations), Probability and Statistics, Statistical Inference and Applications, Discrete Mathematics
- **ML/AI:** Machine Learning (Stanford - Online), CS231n Convolutional Neural Networks for Visual Recognition (Stanford - Online), Deep Learning Specialization (5 Courses) (Coursera, deeplearning.ai)
- **Other:** Signal and Systems, Control Systems, Intro to Cognitive Neuroscience, Computational Physics

## EXTRA-CURRICULAR

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- Teaching and Mentoring at **Abhigyaan** Sep 2018–May 2020  
*Taught underprivileged kids, mess workers, housekeeping staff, and housewives of supporting staff of college regularly in evening / night.*