

Mohd Khizir Siddiqui

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EDUCATION

Birla Institute of Technology and Science, Pilani
B.E. Electronics and Instrumentation Engineering, CGPA: 8.09/10.0

Goa, India
2018–Current

EXPERIENCE

Laboratory for Computational Social Systems

IIIT-Delhi

Undergraduate Researcher

Jan'21–Present

- Working under supervision of [Prof Tanmoy Chakraborty](#) and [Prof Md. Shad Akhtar](#)
- Working on multi-modal analysis of visual-linguistic data in form of online memes
- Leveraging unlabelled memes in wild to perform semi-supervised multi-modal learning

Bhaskaracharya Institute of Space Applications and Geo-Informatics

Gandhinagar

Summer Intern

May'20–July'20

- Worked under supervision of Dr. DK Jhala
- Modelled opening and closing prices of stock and their fluctuations in real market
- Evaluated and analysed linear regression and variants, MLP and ARIMA models on the dataset to obtain very low RMSE on prices of HDFC, Bharti Airtel and Britannia

Student Welfare Division

BITS Goa

Lead Back-end Developer

Feb'19–Present

- Revamped college website, now hosted at [here](#)
- Migrated from PHP to Python + Django, established a new accessible interface for the admin and students, shifted several paper tasks online, complete list of contribution [here](#)

OPEN SOURCE CONTRIBUTION

• KD-Lib (200+ Stars)

Built the largest collection of various knowledge distillation, model compression and quantization techniques proposed in recent literature, a single pytorch library to support and fasten the research in the field. Library on GitHub is [here](#) and a pre-print is also available at [arXiv](#)

• Other Contributions:

MLPack - A machine learning library in C++: [commits](#) \SWD BITS Goa : [commits](#)

RELEVANT COURSES

- **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 (Coursera, deeplearning.ai), Digital Image Processing
- **Other:** Signal and Systems, Control Systems, Cognitive Neuroscience, Computational Physics, Data Structure and Algorithms, Object Oriented Programming

PROJECTS

CoRank: A clustering-cum-graph ranking approach for extractive summarization (*Under Review*)

- Mohd Khizir Siddiqui, Amreen Ahmad, Om Pal and Tanvir Ahmad
Submitted to Special Issue of ACM Transactions on Internet Technology.
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Leather Identification using Microscopic Surface Images *pytorch, opencv*

- Under supervision of [Amalin Prince](#) in collaboration with the [CSRI - Central Leather Research Institute](#) (Chennai, India).
Involves classifying animal species from the microscopic images of leather surface. Achieved a 98% accuracy on the sample set using a transfer learning approach and a CNN based architecture.

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

- Under supervision of [JK Sahoo](#) in collaboration with the [Cognitive Neuroscience Lab](#) (BITS Pilani, Goa).
Identified emotional response of brain on several advertisement videos using machine learning over graph theoretical tools.

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 [commmai speed challenge](#), uses a fine tuned VGG to detect speed of car from its dashcam recordings. Achieves an RMSE of 7 kmph on 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* semester end 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.

SKILLS

- **Programming Languages:** C/C++, Python, Bash, MATLAB, Java
- **Frameworks:** pytorch, tensorflow, flask, django, reactJS
- **Other:** AutoCAD, Git, L^AT_EX, Minitab

EXTRA-CURRICULAR

- 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.