

Somesh Singh

SOFTWARE ENGINEER · RESEARCH INTERN

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Education

Birla Institute of Science and Technology, K. K. Birla Goa Campus

Goa, India

B.E. IN COMPUTER SCIENCE AND ENGINEERING

Aug 2018 - July 2022*

- Received Scholarship for exceptional performance in Practice School
- **Relevant Courses:** Data Structures & Algorithms, Object Oriented Programming, Database Systems
- **Teaching Assistant:** Computer Programming, Information Retrieval

City Montessori School

Lucknow, India

SENIOR SECONDARY SCHOOL

2008 - 2018

- ISC Grade (XII) : 96%
- ICSE Grade (X) : 92.20%
- Prefect 2014-2015

Skills

- **Programming:** C/C++, Java, Python, JavaScript, SQL, Julia, Shell, Assembly
- **Frameworks:** Tensorflow, Pytorch, Flask, Django
- **Interests:** Data Science, Machine Learning, Natural Language Processing, Competitive Programming

Publications

The 14th International Workshop on Semantic Evaluation, 2020

Spain

BPGC AT SEMEVAL-2020 TASK 11: PROPAGANDA DETECTION IN NEWS ARTICLES WITH MULTI-GRANULARITY KNOWLEDGE

May 2020

SHARING AND LINGUISTIC FEATURES BASED ENSEMBLE LEARNING

Co-authors : Rajaswa Patil, Swati Agarwal

Work Experience

MIDAS Labs, IIIT Delhi

Delhi, India

RESEARCH & DEVELOPMENT INTERN

May 2020 - Present

- Ongoing research on **gradient estimation** based **white-box adversarial attacks** on Neural Essay Assessors with customised policies in TensorFlow/Keras and Pytorch.
- Automated data collection and evaluation with web crawlers using Selenium, Java and Python
- Developed several automated attacks on state of the art essay raters like **Skipflow**, **Memory Networks**, **EASE** and **LSTM MoT**

My Smart Price Web Technologies

Hyderabad, India

DATA SCIENCE INTERN

May 2020 - July 2020

- Received a letter of recommendation from the founder for performance for a team project in **monitoring metrics** with data collection and analysis and individual project on building web crawlers.
- Collected over a million posts, location and hashtag data from social media websites including Instagram, Facebook, and Twitter and analysis using Java, Selenium and Python
- Built a **recommendation engine** for suggesting based on collected data and user trends.

Projects

FlaiReddit

Goa, India

PYTORCH WRAPPER FOR BLACK BOX ADVERSARIAL TESTING AND DEBUGGING OF NATURAL LANGUAGE PROCESSING MODELS

April 2020

Full stack machine learning application for detecting flairs of posts from r/India with GET-POST queries using flask with **end-to-end data collection, processing, classification and evaluation**, deployed with Heroku. It can crawl over a million posts in a few hours and train and deploy within seconds. [Github Repo](#) [Website](#)

DecepticoNLP

Goa, India

PYTORCH WRAPPER FOR BLACK BOX ADVERSARIAL TESTING AND DEBUGGING OF NATURAL LANGUAGE PROCESSING MODELS

March 2020 - Present

A library compatible with Pytorch for **attacking and evaluating** State of the art neural networks for natural language processing integrated with Travis CI and enables user to evaluate the robustness of their models attacked with state of the art techniques. [Github Repo](#)

News Propaganda Detector

Goa, India

AUTOMATED NEWS PROPAGANDA TAGGER AND CLASSIFIER BY AUGMENTING PRE-TRAINED TRANSFORMERS WITH LINGUISTIC

Sep. 2019 - Jan. 2020

FEATURES.

Labels fragments with propagandist text and classifies it into 14 major categories using contextual embeddings extracted from pre-trained transformer models to represent the text data at various granularities, and proposes a **multi-granularity knowledge sharing approach** with feature augmentation for better performance on minority classes with skewed data. [Github Repo](#)

Bayesian Assisted GANs

Goa, India

[UNDER REVIEW] USING APPROXIMATE BAYESIAN COMPUTATION TO ASSIST TRAINING OF GENERATIVE ADVERSARIAL NETWORKS

July 2020 - Present

An improvement over the existing GAN paradigm is proposed by designing a generative model with the ability to **incorporate weakly informative priors** about the target data introducing regularization to the existing GAN paradigm, bypassing of likelihood evaluation and model averaging to overcome existing problems in the training of GANs.

Opinion Mining in Hindi

Goa, India

[UNDER REVIEW] RESEARCH PROJECT

Feb 2020 - Present

Creating benchmark dataset for down stream tasks on data collected from social media related to opinion mining and extreme content in low resource Indian languages.

Sleep Apnea Detection

Goa, India

[UNDER REVIEW] RESEARCH PROJECT

May 2020 - Present

Assist diagnosis of sleep apnea in patient with Sensor Fusion using Backward Shortcut Connections and improving the performance with Attention Mechanism.

SHERLOCKED

Goa, India

LONG SHORT TERM MEMORY BASED TEXT GENERATOR TRAINED ON NOVELS BY SHERLOCK HOLMES

January 2020

Text generator that tries to imitate the writing style of different authors like Arthur Conan Doyle, JK Rowling and recreate text. The Model is trained on pytorch using Python. The model creates textual embeddings and LSTM layers. [Github Repo](#)

Teaching Experience, Talks & Volunteer Work

Computer Programming

Goa, India

TEACHING ASSISTANT

July 2019 - March 2020

Assisted the CS Department with the conduction and evaluation of labs and doubt sessions for approximately **1000 Students** from BITS Goa

IEEE CS Research Discussion

Goa, India

SPEAKER

Jun. 2020

Gave a talk on getting into Computer Science Research to over **150 students** from BITS Goa and BITS Hyderabad. [YouTube Link](#)

Quark, Center for Technical Education

Goa, India

INSTRUCTOR

Mentored over **500 students** from BITS Goa and assisted and evaluated as a part of Introductory courses in Machine learning, deep learning and natural language processing.