SOMESH KUMAR SINGH

Course : **B.E. (Hons.)**, Computer Science, 2022
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CGPA : 7.59

ACADEMIC DETAILS

COURSE	SPECIALIZATION	INSTITUTE/COLLEGE	BOARD/UNIVERSITY	SCORE	YEAR
CLASS XII	Computer Science	City Montessori School	ISC	96 %	2018
CLASS X	Computer Science	City Montessori School	ICSE	92.2 %	2016

Subjects / Electives	Data Structures & Algorithms, Object Oriented Programming, Database Systems, Computational Neuroscience, Natural Language Processing
Technical Proficiency	Computational Neuroscience, Competitive Programming, Natural Language Processing, C/C++ STL, PyTorch, Python3, Bayesian statistics, Web Development, Machine Learning, Tensorflow, Data Science, Julia, Deep Learning, Linux

SUMMER INTERNSHIP / WORK EXPERIENCE

Research & Development Intern, MIDAS Labs, IIIT Delhi — **May 2020 - Present**

- Researched gradient estimation based white-box adversarial attacks and black box attacks on Automatic Essay Scoring (AES) systems with customized policies using Tensorflow and Pytorch. Research Paper | Repository (Shared) | Repository (Own)
- Analyzing the effect of morphology on Transformers and how their embedding space is partitioned in correlation with morphology and vocabulary by investigating its knowledge of non-words vs real words. In languages including Basque, Dutch, English, French, Serbian, and Spanish.

Data Science Intern, My Smart Price Web Technologies — **May 2020 - Jun 2020**

- Worked on building a rule-based recommendation engine using Bayesian Modelling with Stan and collecting data from social media using Python, Java and Selenium - Instagram Location Scraper Repository
- Received a Letter of Recommendation and scholarship for an outstanding performance in the internship.

Teaching Assistant: Programming; Information Retrieval, CSIS Department, BITS Pilani — **Jan 2020 - Present**

- Teaching assistant for BITS F464, Machine Learning, Semester 2, 2020-2021, conducted labs and assignments for students
- Teaching assistant for CS F111, Computer Programming, Semester 2, 2019-2020, conducted labs and assignments for students
- Teaching assistant for CS F469, Information Retrieval, Semester 1, 2020-2021

PUBLICATIONS

News Propaganda Detection - Natural Language Processing — **Journal name: Association for Computational Linguistics | Publication date: Jul 31, 2020**

- Published along with Rajaswa Patil and Dr. Swati Agarwal at International Workshop on Semantic Evaluation 2020, the 5th highest-rated conference in computational linguistics.
- Achieved 21st and 18th Ranks in the tasks with a unique approach to share knowledge on various granularities amongst companies and universities like Hitachi and Berkeley. Leaderboard
- Camera Ready Version Submitted on 31 July, proceedings will be available on 12 December.

PROJECTS

DecepticoNLP - Adversarial Machine Learning — **Mar 2020 - Present**

- Lead developer; DecepticoNLP is a Python Library for Robustness Monitoring and Adversarial Debugging of NLP (Natural Language Processing) models.
- PyTorch wrapper for custom and benchmarks datasets and different metrics to enable researchers to effectively monitor the robustness of their models and train them adversarially. Repository.

TeamEleven - Machine Learning, Sport Analysis — **Nov 2020 - Dec 2020**

- NRR (Net Run Rate) Gaussian Noise Regularised Auto-Encoders for Player Embeddings in Cricket using PyTorch.
- We introduce a regularised autoencoder-based approach to generate on the fly player/team embeddings, which considers players' previous performance (form) to predict the outcomes of a match with a comparable accuracy (76%). We also predict the loss's margin in terms of Net Run Rate (NRR) instead of win/lose to get a more confident measure.

Reddit Post Classification WebApp - Applied Machine Learning — **Apr 2020 - Jun 2020**

- End to End Deployed (Heroku) WebApp, which collects Reddit posts from r/India shows analytics and classifies its flair.
- Github Repository: FlaiReddit MIDAS, Webapp Heroku-FlaiReddit, Quick self-explanatory Post
- Comparison of Time, Space and Performance is made for Naive Bayes classifiers and state of the art Transformers based models for optimal strategies given constraint on resources.

Web Portfolio - Web Development — **Apr 2020 - May 2020**

Developed my personal web portfolio and deployed using GitHub pages leveraging academic pages, Jekyll, Ajax, HTML, CSS, and Python to automatically generate blogs, projects and talks with CLI.

Symbolic Learning on Electrical Circuits - Symbolic Learning, Deep Learning — **Sep 2020 - Nov 2020**

Informal Project @ APPCAIR & TCS: Circuit Solver - Used Capsule Networks and SCAE based approaches to learn parts of electric circuit diagrams with an artificially generated dataset and transfered it on real world test data.

POSITION OF RESPONSIBILITY

Events & Initiatives Head - Center for Technical Education, BITS Goa **May 2020 - Present**
Organized Talks and Hackathons comprising of Machine Learning, Competitive coding, Astronomy, and Aerodynamics in BITS Goa and Hyderabad with over 1500 participants till date.

AWARDS AND RECOGNITIONS

Merit Holder - National Standard Examination of Chemistry | Indian Institute of Science, Bangalore **Nov 2017**

CERTIFICATIONS

CERTIFICATION	CERTIFYING AUTHORITY	DESCRIPTION
Neural Networks and Deep Learning	Coursera	Built and trained the Snake game environment with a self-learning Deep Q Network agent, Repository.
Sequence Models	Coursera	Built an HMM (Hidden Markov Model) based Text Generator trained on Long Stories of Sherlock Holmes using Recurrent Neural Networks as a part of the course.

VOLUNTEER EXPERIENCE

Center for Technical Education, BITS Goa - Role: Mentor for Introduction to Machine Learning and Deep Learning | Cause: Science and Technology
Assisted over 200 students by conducting evaluation and tutorial classes with projects as an Instructor / Mentor for the course Introduction to Machine Learning and Deep Learning. **Aug 2019 - Dec 2019**

LANGUAGES KNOWN

English, Hindi