

Somesh Singh

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EDUCATION

- **Birla Institute of Technology and Science** Goa, India
Bachelor of Engineering in Computer Science *Aug. 2018 - Present*
- **Tech Stack:** C/C++, Python, Java, Linux, Keras, Pytorch, HTML, CSS, JS, Django, Flask

WORK EXPERIENCE

- **MIDAS@IIITD — Multimodal Digital Media Analysis Lab** Delhi, India
Remote Research Intern *April 2020 - Present*
 - **Supervisor:** Dr. Rajiv Ratn Shah, Assistant Professor, Dept. of CSE, IIIT Delhi
 - **Tasks:** Working on black-box adversarial attacks on NLP systems. Designing universal systems for attacking common NLP State of the art algorithm
- **My Smart Price** Hyderabad, India
Remote Data Analytics Intern *May 2020 - Present*
 - **Supervisor:** Professor Kanchan Manna, Dept. of Computer Science, BITS Goa
 - **Tasks:** Working on financial data and building a knowledge based recommendation engine for product comparison and query based user recommendation.

PUBLICATIONS

- **BPGC at SemEval-2020 Task 11: Propaganda Detection in News Articles** Aug 2019 - May 2020
International Workshop on Semantic Evaluation 2020
 - **Co Authors:** Professor Swati Agarwal & Rajaswa Patil, BITS Goa
 - **Description:** Multi-Granularity Knowledge Sharing and Linguistic Features based Ensemble Learning for Propaganda Detection in News Articles

RESEARCH PROJECTS

- **Adversarial Machine Learning** May 2020 - Present
MIDAS@IIITD *Delhi, India*
 - **Supervisor:** Di Jin, Yaman Kumar
 - **Description:** Using white-box and black box based methods to attack NLP systems universally.
- **Sleep Apnea Detection** Apr 2020 - Present
BITS Pilani Goa Campus *Goa, India*
 - **Description:** Research on Sleep Apnea detection based on sonographic results.
- **Spiking Neural Networks** March 2020 - Present
BITS Pilani Goa Campus *BITS Pilani, Goa*
 - **Description:** Reading course on Spiking Neural Networks and Computational Neuro-science
- **Detection of Gender Bias in Indian Languages** Dec 2019 - Present
BITS Pilani Goa Campus *Goa, India*
 - **Description:** Research on gender de-biasing methods for low resource languages like Hindi NLP systems
- **An Impact Evaluation for Enhanced Educational Outcomes** Feb 2020 - March 2020
International Conference On Teaching and Rehabilitation Of The Deaf *IIT Roorkee*
 - **Supervisors:**
Professor Basavadatta Mitra, Dept. of Humanity and Social Sciences, BITS Goa,
Professor Arfaat Sofi, Dept. of Economics, BITS Goa
 - **Description:** Co Author, working on a Social Research paper to analyse the impact of various policies and the current state of educational institutions, curriculum, infrastructure among others on the educational outcome of the selected population in India

DEVELOPMENT PROJECTS

- **Reddit Flair Detector - Webapp** Apr 2020
Independent Project
 - **Description:** An end to end web-app for extraction of posts from the India sub-reddit and detect its flair, with an automated endpoint for POST and GET queries
- **DecepticoNLP** March 2020 - Present
Group Project Goa, India
 - **Description:** A wrapper class for PyTorch that generates adversarial inputs to NLP systems using black-box attacks for robust training.
- **SHERLOCKED - Text Generation using Deep Neural Networks** Jan 2019
Independent Project
 - **Description:** Word based text generation models based on different types of models like Stacked-LSTMs, Transformer Architectures, GANs and VAEs
- **Reinforcement Learning Snake Tutorial** May 2019
Independent Project
 - **Description:** A tutorial series on implementation of Reinforcement Learning Models to play the game snake from DNN Q Learning Systems to Genetic Algorithms.

LEADERSHIP & TEACHING

- **Teaching Assistant:** Teaching Assistant (FDCM) for CS F111, Introduction to Computer Programming, BITS Goa
- **Mentor:** Introduction to Machine Learning & Deep Learning — Center for Technical Education, BPGC
- **Mentor:** Introduction to Competitive Coding — Center for Technical Education, BPGC

TEAM WORK, MANAGEMENT

- **Events and Initiatives Head @CTE, BITS Goa:** Position of Responsibility for managing all the Events and new collaborations with clubs, departments and companies under Prof Bharat M. Deshpande, Dept. of Computer Science BITS Goa
- **Leader @Language Research Community, BITS Goa:** Leader of LRG, a community of researchers in Language Processing.
- **Organizer:** Organized three hackathons as the head, which consists of more than twenty competitions from different fields including Machine Learning, Competitive Coding, Robotics and Development Hackathons.

SOCIETIES

- **Purple Coder (Max 1834):** Codechef : someshsingh22
- **Algorithm Specialist (Max 1429):** Codeforces : someshsingh22
- **Member:** Society for Artificial Intelligence & Deep Learning, BITS Goa
- **Member:** AlgoManiax (A competitive coding club), BITS Goa

COURSE WORK

- **Completed:** Discrete Structures in Computer Science, Object Oriented Programming, Logic in Computer Science, Multivariate Calculus, Linear Algebra & Complex Analysis, Ordinary Differential Equations, Probability & Statistics, Computer Programming, Digital Design
- **Ongoing:** Data Structures and Algorithms, Database Management System, Microprocessors and Interfacing
- **Coursera:** Deep Learning Specialization, Machine Learning, Artificial Intelligence, Python

RESEARCH INTERESTS

- **Natural Language Processing and Speech Processing:** Semantic Evaluation, Bias in NLP, Speech Detection, Adversarial attacks for NLP and Speech, Computational Neuro-science, Psycho-linguistics
- **Data Structures and Algorithms:** Discrete Mathematics, Graph Theory, Fast Fourier Transformation, Dynamic Programming, Greedy Algorithms and Optimization

OTHER SCHOLASTIC ACHIEVEMENTS

- **NSEC - Homi Bhabha Centre for Science Education:** National Scholar (MAS) in National Standard Examination of Chemistry conducted by HBSCE (Homi Bhabha Centre for Science Education)