Shreyansh Singh

Email : shreyansh.singh.cse16@iitbhu.ac.in
Website : **https://shreyansh.tech**
Phone : +91-9654070844

IIT (BHU) Varanasi

Computer Science and Engineering
4th year Undergraduate
CPI : 9.59/10

Examination	University / Board	Institute	Year	CPI / %
B.Tech. (Ongoing)	IIT (BHU), Varanasi	IIT (BHU) , Varanasi	2019	9.59/10
12th	CBSE	Kendriya Vidyalaya, New Delhi	2016	96.6%
10th	CBSE	Kendriya Vidyalaya, New Delhi	2014	10/10

PUBLICATIONS

1. **IIT (BHU) Varanasi at MSR-SRST 2018: A Language Model Based Approach for Natural Language Generation**
   Shreyansh Singh, Ayush Sharma, Avi Chawla, Dr. A.K. Singh
   Proceedings of the 1st Workshop on Multilingual Surface Realisation (MSR), 56th Annual Meeting of the **Association for Computational Linguistics (ACL)**, July 2018, **Melbourne, Australia**

TECHNICAL EXPERIENCE

Student Trainee - Samsung Research Institute - Bangalore   *Summer 2019*
Project: *MAS5G: An architecture for simulating mobility in 5G networks*

· Was a part of the Networks team where my team focused majorly on 5G. Worked on implementing and simulating the architecture of a new 5G mobility scheme that my team had proposed earlier (now published in IEEE FiCloud, August 2019).

· The system, as a Proof-of-concept version was deployed locally and tested.

· Worked with technologies like Kubernetes, Cassandra and Node.js to develop the system, so that it could also scale well.

Research Intern - C3i Center, IIT Kanpur   *Winter 2018*
Project: *Linux Malware Detection*

· Worked with the Malware Analysis team to develop a system to classify Linux executables (ELFs) as Malware or benign using a number of Static and Dynamic analysis techniques.

· Helped to deploy the entire system on their internal network, which is now a part of their Malware Detection and Analysis framework.

Data Science Intern - Innoplexus AG, Pune   *Summer 2018*
Project: *PDF and Table Extraction from Sessions and Congress pages*

· Worked with the PDF extraction team on the task of extraction of segments of text from PDFs and labeling them as Title, Author, Affiliation, Abstract or Noise. Completely revamped the existing pipeline to make a considerably faster and a more accurate system.

· Worked with the team to experiment with various Image Processing techniques and a custom Faster-RCNN model for the Table detection and extraction task.

SCHOLASTIC ACHIEVEMENTS

· Won a student scholarship to attend **BlackHat Asia 2019**, a cybersecurity conference held in Singapore.

· Secured **All India Rank 576** in JEE Advanced 2016 among 0.2 million candidates.

· Obtained **99.99 percentile** in JEE Main 2016 among 1.5 million candidates.

· Secured **All India Rank 116** in Kishore Vaigyanik Protsahan Yojana (KVPY) 2015, a Govt. of India initiative.

· Awarded **NTSE scholarship** through National Talent Search Examination (NTSE) 2014, a Govt. of India initiative wherein 1000 meritorious students are selected at the class 10th (All India) level.

· *Certificate of Merit* in National Standard Examinations in Physics, Chemistry and Astronomy (NSEP, NSEC, NSEA) in 2015 and 2016 for being in the **top 1% (top 300)** of the country in each of them.

· Cleared Junior Maths Olympiad (JMO) in both 2015 and 2016.

KEY PROJECTS

Privacy-preserving Deep Learning for Medical Image Classification *Autumn'19*
B.Tech Project: Under the guidance of Prof. K.K Shukla

- Implemented a system to get deep learning model predictions on image data in a secure and privacy-preserving manner. We used Tensorflow as our framework of choice for training the models.
- Secure predictions involves the use of Secure Multiparty Computation and Differential Privacy is used to preserve privacy.
- The trained and encrypted model is deployed locally to serve predictions and can be queried by the client.

Network Intrusion Detection in an Adversarial Setting *Spring'19*
B.Tech Project: Under the guidance of Prof. K.K Shukla

- Worked on techniques to show how Machine Learning based Network Intrusion Detection systems can be fooled to misclassify network packets which indicate an attack and classify them as normal ones.
- Adversarial perturbations were added to the network packets using attack techniques like FGSM and JSMA.
- Accuracy scores for basic ML classifiers show reduction in accuracy on the perturbed data (the highest reduction being $\approx 30\%$ and the lowest $\approx 2.5\%$, indicating that the attack works quite well on ML classifers.

Business Management Application *Autumn'18*
Under the guidance of Dr. Ravindranath Chowdary

- Developed a web application for managing the activities required for running a business using the Spring MVC framework as a part of the DBMS course project.
- Features include user authentication, attendance management, inventory management, order procurement from the client, payment portal (using PayUMoney) and invoice generation.

Review Opinion Diversification *Autumn'17*
Under the guidance of Dr. Anil Kumar Singh

- Part of the organizing team of RevOpiD, a shared task organized at IJCNLP 2017, Taipei, Taiwan. The aim of the task was to produce a top-k ranking of product reviews which could sufficiently represent the gist of opinions expressed in all the reviews of that product.
- Implemented the official baseline for Subtask-B of the shared task. The work done can be found here.
- Also worked on techniques like Paragraph Vectors (Doc2Vec) and FB Research's Sentence embedding model InferSent with Spectral Clustering to solve the problem.

TECHNICAL SKILLS AND INTERESTS

- **C/C++, Python, JavaScript**, Java, HTML/CSS, Bash, SQL, LaTeX, Django, Spring, Node.js, MySQL, Docker, Git
- Information Security, Capture the Flag contests, Machine Learning and AI (including NLP and CV), Blockchain technology, Web Development

EXTRACURRICULARS

- **Event coordinator and problem setter** for the Capture the Flag event of Technex'19, the technical fest of IIT (BHU) Varanasi and Codefest'19, the departmental fest of CSE department.
- **20th in India** in the CSAW'18 CTF Qualification Round, the largest CTF in the world at undergraduate level, organised by OSIRIS Lab, NYU Tandon School of Engineering.
- **Tech Head** for Codefest'18, the annual festival of Computer Engineering Society, IIT (BHU) Varanasi.
- **1st** position in IIT (BHU) Varanasi and **17th in the world** in the Cybersecurity based event Capture the Flag in Codefest'18.
- Bagged **4th position overall** and the **1st position in Novelty** at the Inter IIT Tech Meet 2017, held at IIT Kanpur in the web development based event "Dashboard".