

Priyansh Singh

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Research Interests:

Information Security, Privacy Applications in IoT, Security concerns in Machine Learning

Publications:

1. Gupta, S., Singh, P., Shrotriya, N. & Baweja, T. "Linear Feedback Shift Register Next Bit Prediction Through Deep Learning" (Has been accepted and would be published in the next issue of Journal of Informatics Electrical and Electronics Engineering)
 - a. The article was awarded Best Paper Award at International Conference on Artificial Intelligence (ICAI-2021), hosted by AI Foundation during May 22-23, 2021. [\[Link\]](#)
2. Singh, P., Tapaswi, S., & Gupta, S. (2020). Malware detection in PDF and office documents: A survey. Information Security Journal: A Global Perspective, 29(3), 134-153.
3. Singh, P. & Tapaswi, S., "D-MODEDF: Detection of Malicious Office Documents Employing Domain Features" (Under-review after revisions in an International Peer-Reviewed Journal)

Research Experience:

1. Working with **Scientist Sanchit Gupta, Scientific Analysis Group (SAG), Defence Research & Development Organization (DRDO), India**
 - a. Trying to discover more attacks on S-Boxes of standard block cipher algorithms
 - b. Proving the existence of backdoors in standard block cipher algorithms
2. Master's Thesis with **Prof. Shashikala Tapaswi at Indian Institute of Information Technology and Management (IIITM), Gwalior, India**
 - a. Static analysis on thousands of documents to domain specific indicator of malice.
 - b. Classical ML techniques used to generalise features
 - c. Developed a detector paradigm which resulted in very high accuracy and F-Scores.

Work Experience:

1. **Junior Research Engineer, Indian Institute of Information Technology, Allahabad, India.**
October 2021 – Present
 - a. Currently working on the design components for IoT Security Framework, a project in collaboration with IIT Kanpur, India.
2. **Assistant Professor, Computer Science and Engineering at ABES Engineering College, India.**
July 2019 – September 2021
 - a. Worked as part of the technical training team on content development as well as transitioning to an online education platform.
 - b. Co-developed a course titled 'Problem Solving with Python' course and successfully delivered it to over 200 students of computer science and non-computer science background.
 - c. Taught Computer System Security to a 100 students, a course in conjunction with by Indian Institute of Technology, Kanpur.
 - d. Mentored a class of 68 students for their mini projects in various disciplines of Computer Science and Engineering.

3. **Co-founder and external consultant at ulaunch.in**, a media platform for the youth.
April 2020 – Present
 - a. Developed the core web infrastructure for the platform.
 - b. Lead various creative projects and developed media content surrounding the topic of United Nation Sustainable Development Goals.
4. **Student Industrial Trainee with Mr Sanchit Gupta (Scientist - E) at SAG, DRDO, India.**
May 2018 – July 2018.
 - a. Analysed the implementation of attacks using documents.
 - b. Created samples using specific vulnerabilities to test deployed systems.
5. **Intern at R-Systems International Ltd, India.**
May 2018 – July 2018
 - a. Was involved in the research and design of a Multicasting Streaming Service based on RTSP and RTP using the tool FFMPEG.

Education

1. **Indian Institute of Information Technology (IIIT), Gwalior, India** – (2017 – 2019)
Master of Technology (M.Tech) in Information Security
Scored 8.48/10 GPA – (rank 1 out of 20)
 - a. Selected for the master's course based on Graduate Aptitude Test in Engineering (GATE), March 2017. Scored amongst the top 3% of 96,878 applicants.
 - b. Hands on experience on malware analysis was gained while working on the project Detection of Malicious OOXML Documents Using Domain Specific Features.(May 2019)
2. **Guru Gobind Singh Indraprastha University (GGSIPU), India** – (2012-16)
Bachelor of Technology (B.Tech) in Computer Science and Engineering
Scored 74.3% (top 25% of the university amongst 7600 students)
 - a. Implementation of Memory Networks for Inference Based QA Resolution. (April 2016)
 - b. Information Retrieval and Hidden Markov Model on Medline dataset. (December 2015)
 - c. Conference Management System: Developed on LAMP stack the website employed Naive Bayes classification to predict and automate the transaction process of a conference. (April 2015)
 - d. Active member of IEEE Student Branch and IEEE-HKN Student Chapter. Started the IEEE Computer Science Chapter at BVCOE, GGSIPU, India

Awards and Activities:

1. Secured 8.0 overall band in International English Language Testing System (IELTS), February 2021.
2. In the **UGC National Eligibility Test (NET)**, conducted to test the eligibility of an applicant for being Assistant Professor, I was amongst the top 2% applicants of the 42,913 that appeared in June 2019.
3. In the **Graduate Aptitude Test in Engineering (GATE)**, March 2017 scored amongst the top 3% of 96,878 applicants.
4. Recipient of **All India Council for Technical Education, Government of India, Scholarship** for students pursuing MTech (August 2017 — July 2019)
5. Participated in various online seminars for delivery and teaching online:
 - Conducted an online workshop on 'Basics of Python' between 26th March 2021 and 3rd April 2021 for undergraduate students at the Institute of Home Economics, University of Delhi, Delhi.
 - Attended “International Research Workshop on Advances in Deep Learning and Applications” hosted by Indian Institute of Information Technology, Sri City, Chittoor during February 22-26, 2021. [\[Link\]](#)

- “Advanced Concepts in Google Classroom & Google Meet” hosted by Department of Microbiology, Delhi University. [\[Link\]](#) (Jan 2021)
 - “Open Source Tools for Research” hosted by Ramanujan College, Delhi University. [\[Link\]](#) (June 2020)
 - Microsoft Innovative Educator program. [\[Link\]](#) (May 2020)
6. Completed Cybersecurity IT Fundamentals Specialization, authorised by IBM and issued by Coursera (May 2020) [\[Link\]](#)