



RAVI RANJAN SINGH



ACADEMIC DETAILS

Year	Degree / Board	Institute	GPA / Marks(%)
---	M.Tech in Cyber Security	Indian Institute of Technology Delhi	8.54
2020	Bachelor of Technology in Information Technology	Bundelkhand Institute of Engineering and Technology Jhansi UP	74.46
2015	Central Board of Secondary Education	DAV Public Senior Secondary School Bina Sonebhadra UP	94.20
2013	Central Board of Secondary Education	ST Francis School Anpara Sonebhadra UP	8.6

IIT DELHI THESIS

Title: Adversarial Machine Learning attack on IOT Network NIDS

Supervisor: Dr. Vireshwar Kumar

Description:For my Major project, I am conducting research to discover a novel adversarial machine learning (ML) attack on Kitsune NIDS in an IoT network. In preparation for this, my Minor project involved setting up the Kitsune NIDS pipeline and implementing the Lüier Mihou attack, which is a transferable gray box attack, on the system.

WORK EXPERIENCE

- **Optum Global Solutions(UHG), Cyber Security Analyst** (July, 2020 - December, 2021)
 - Initial troubleshooting and monitoring of critical alert related to 11 technologies and Handled the **administrative access on Palo Alto firewall and the Bluecoat Proxy**
 - Represented the team during **P1 and P2 critical warroom**, received **Bravo Award (Cash award for Appreciation)**.
 - Network Technology and Application worked on :** PaloAlto Firewall , BlueCoat Proxy,Opsbridge, Splunk.

PROJECTS

- **Enriching the XV6-x86 Operating System with New Functionality (Prof. Smruti Ranjan Sarangi):** (Feb,2023)
 - Implemented systemcalls like ps(list of all process),sys_add, Trace ON/OFF, Toggle etc.
 - Implemented interprocess communication using unicast and multicast , Distributive Algorithm to calculate sum of array using unicast IPC and variance and mean using Multicast IPC.
 - Implemented EDF (Earliest Deadline First) and Rate Monotonic(RM) Scheduling algorithm using the system call.
- **Mitigating Buffer Overflow Attacks in the XV6-x86 Operating System :** (April, 2023)
 - Implemented Buffer Overflow attack on the XV6-x86 OS.
 - Implemented the ASLR(Address space Layout Randomization) in XV6 OS to prevent most of buffer overflow attack.
- **Fingerprint Template Protection using Minutiae-based bit-string(Prof. A.K. Bhateja) :** (Mar,2023)
 - Implemented the PGTQ method to generate the bit-string from fringerprint Minutiae.
 - Fingerprint Matching is implemented using bitstring.
- **Front Defense Mechanism against Website Fingerprinting (Prof. Vireshwar Kumar) :** (April,2023)
 - Implemented front defense mechanism to obfuscate trace front and defend against website fingerprinting attacks.
 - Conducted performance comparison of the Front defense mechanism against various website fingerprinting attacks, as well as evaluated its effectiveness in comparison to existing defenses such as WTF-PAD.
- **Other Project :**
 - **Online Signature verification,Padding oracle attack,Fingerprint Recognition System**

SCHOLASTIC ACHIEVEMENTS

- **All India Rank 746** in the GATE CSE 2022 Exam.
- Earned **Infosys Certified Software Programmer** through Infyqtq examination.
- Earned **5 star Problem solving batch on Hacker Rank** , also silver and bronze medal in weekly contest([profile](#))

TECHNICAL SKILLS

- **Programming Languages :** C/C++ , Python(Basic) , OOPS
- **Software and Skills :** Jupyter, Visual studio code, Machine Learning, Git , SQL,Burpsuite , Wireshark.

POSITIONS OF RESPONSIBILITY

- Teaching Assistant in **Digital Logic and System Design** Under **Prof. Preeti Ranjan Panda** (Aug,2022 - Dec,2022)
- Teaching Assistant in **Introduction to Computer and Programming** Under **Prof. Rohan Paul** and **Prof. Abhijnan Chakraborty** (Mar,2023 - June,2023)



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IIT COURSE

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COURSES DONE

Advanced Data Structures, Cryptography & Computer Sec., Resource Management In Computer Systems, Networks & System Security, Minor Project