

Shrawan Kumar

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EDUCATION

Year	Degree/Certificate	Institute	CPI/%
2022-2024	M.Tech (CSE / Cybersecurity Spec.)	Indian Institute of Technology, Kanpur	7.71/10
2018-2022	B.E. (Computer Science & Engg.)	SLIET Longowal	9.44/10
2016-2018	Senior Secondary (XII)	Bihar State Board (BSEB)	71.40%
2016	Secondary (X)	Bihar State Board (BSEB)	79.80%

RESEARCH EXPERIENCE

Decentralized Social Media Platform (M.Tech Thesis) (July'23 - Present)

- Developing a decentralized social media app using Self-Sovereign Identity (SSI), Non-Fungible Tokens (NFTs), InterPlanetary File System (IPFS), and Blockchain to revolutionize digital content creation, ownership, and consumption.
- Designing various algorithms for feed recommendation, validation of reported contents, users' reputations etc.
- Researching on how to make transactions gasless and how to handle copyright issues.
- Tech-Stack:** Solidity, Ethereum, Polygon, Truffle, Hardhat, Metamask, Ganache, MERN Stack, VS Code

PROJECTS

Breaking the Cryptosystems (Jan'23 - Apr'23)

- Analyzed the security of various cryptosystems: Substitution cipher, Permutation Cipher, DES, AES, RSA, and ECC.
- Exploited different techniques like frequency analysis, differential cryptanalysis, and square attack.

Computer System Security Labs (Aug'22 - Nov'22)

- Exploited different web-application/server side vulnerabilities such as SQL injection, CSRF and XSS.
- Performed Network analysis using tools like Nmap and Wireshark.

XOR PUF Response Predictor (Aug'22 - Nov'22)

- Built a linear model to accurately predict the responses of 3 level XOR-PUF (Physically Unclonable Function), leveraging a sufficient set of challenge-response pairs (CRPs) for effective learning.
- Conducted thorough hyperparameter tuning via grid search, resulting in finely optimized model parameters.

Todo Application (Aug'23 - Oct'23)

- Developed a responsive Todo Web application with comprehensive user authentication and authorization functionalities.
- Implemented RESTful APIs to enable seamless communication between the frontend and backend server.
- Tech-Stack:** MERN Stack, Bootstrap, VS Code

Pass Shield (Apr'23 - May'23)

- Developed a secure password manager application for storing and managing passwords in safer and convenient way.
- Used **Advanced Encryption Algorithm (AES)** to encrypt data before storing them to database.
- Implemented a dual-layer security approach for accessing stored passwords, ensuring protection even if login credentials are compromised.

TECHNICAL SKILLS & RELEVANT COURSES

- Programming Languages:** C++, C, Python
- Web Skills:** HTML, CSS, Bootstrap, Javascript, NodeJs, React, MERN Stack, Solidity
- Libraries/Tools:** Nmap, Wireshark, Burpsuite, DVWA, Ubuntu, Kali Linux, Git, Ethereum, Hardhat, Docker
- M.Tech Courses:** Computer System Security, Modern Cryptology, Blockchain Technology & Applications, Introduction to Machine Learning
- B.E. Courses:** Data Structures & Algorithms, Operating System, DBMS, Computer Networks

POSITIONS OF RESPONSIBILITY

- Teaching Assistant:** Fundamentals of Computing, Algorithms, Compilers | IIT Kanpur (Nov'22 - Present)
- The organizing team member for the Introductory Workshop on C Language | SLIET Longowal (Sept '19)

CERTIFICATIONS

Google Cybersecurity Certificate Infosys Certified Software Programmer Udemy Web Developer Bootcamp

EXTRA-CURRICULAR ACTIVITIES

- Subject Matter Expert (CSE) at Chegg.
- Active Writer on Quora with 100k+ content views.
- Hobbies:** Cricket, Plantation, Cooking.