Madhav Verma

Linkedin: https://linkedin.com/in/madhav-verma-51214b179
Github: https://github.com/MrKoshens/

Email : madhavvermakeshav@gmail.com
Mobile : +91-7644877833
Personal Website

Education

- **Indian Statistical Institute, Kolkata** — Jul 2024 - Jun 2026
  Masters of Technology; Cryptology and Security
- **Birsa Institute of Technology, Sindri, Dhanbad** — Dec 2020 - May 2024
  Bachelor of Technology (Computer Science and Engineering); CGPA: 8.27

Skills Profile & Research Interests

- **Languages**: C, C++, Python, Bash, SQL, LaTeX
- **Tools**: MATLAB, Data Structures & Algorithms, Linux, Git, Qiskit, OS, PyCrypto, MySQL
- **Research Interests**: Cryptography, Post-Quantum Cryptography, Secure Multiparty Computation, Zero-Knowledge Proofs, Algorithms

Publications

- **Shrinkable Cryptographic Technique using Involutory Function for Image Encryption.** Mousumi Karmakar, Annu Priya, Keshav Sinha, Madhav Verma. International Conference on Advanced Network Technologies and Intelligent Computing (ANTIC-2022): Springer
- **The Detection of SQL Injection on Blockchain-Based Database.** Sinha, K., & Verma, M. (2021). In Revolutionary Applications of Blockchain-Enabled Privacy and Access Control (pp. 234-262): IGI Global
- **Fortifying Data Security in the Evolving Digital Landscape Challenges and Solutions.** N. Srivastava, H. Sharma, A. Maliyal, M. Verma, K. Sinha, Handbook of Research on Innovative Approaches to Information Technology in Library and Information Science, 2024 : IGI Global (Scopus)

Experience

- **Research Intern** — UPES, Dehradun, India (Remote) — (Jun 2023 - Sept 2023)
  - Co-authored the book chapter "Fortifying Data Security in the Evolving Digital Landscape: Challenges and Solutions," in the Handbook of Research on Innovative Approaches to Information Technology in Library and Information Science, IGI Global, 2024
  - Led in-depth research in areas like cryptography, cloud security, network security, and data protection, with expertise in secure multiparty computation, homomorphic encryption, and zero-knowledge proofs.
  - Boosted research productivity by 20% by synthesizing insights from multiple sources.
- **Research Assistant** — BIT Mesra, Ranchi, Jharkhand, India — (Jun 2022 - Jan 2023)
  - Co-authored the paper titled "Shrinkable Cryptographic Technique using Involutory Function for Image Encryption," presented at the International Conference on Advanced Network Technologies and Intelligent Computing.
  - Developed MATLAB code for the proposed image encryption technique, which utilizes Involutory Functions and Pseudorandom Number Generators.
  - Verified the correctness of the encryption algorithm through rigorous testing and parameter evaluation.
  - Conducted research on various encryption parameters and their impact on the security and efficiency of the technique.
  - Performed extensive evaluations using NIST statistical tests, confirming the robustness and security of the encryption method.

Academic Projects

- **Secure Image Compression: Employing EZW Algorithm with Symmetric Key Cryptography using Fast Fibonacci Transform**: Implemented EZW algorithm for efficient image compression. Developed symmetric key cryptography using Fast Fibonacci Transform for Xor based encryption. Integrated both techniques to enhance multimedia security and performance.
- **Efficient Image Compression Using Quadtree Decomposition, Quantization and Discrete Wavelet Transform**: Employed Quadtree decomposition for hierarchical image partitioning. Implemented thresholding and logarithmic transformation for image enhancement. Utilized Huffman encoding and quantization for efficient data compression.
- **Interactive NLP-based QA Bot Using TF-IDF and Cosine Similarity**: This chatbot uses NLP to respond to user queries by analyzing and matching questions with relevant answers from a preprocessed text corpus using TF-IDF vectorization and cosine similarity.

Conferences, Seminars, and Achievements

- **Indocrypt 2024** : (Attending) Chennai, India
- **SCOTA 2021 (March-2021)**: Virtual International Conference on Soft Computing, Optimization Theory, and Applications. Organized and sponsored by the Department of Mathematics, B.I.T Mesra, Ranchi, India.
- **Indian Statistical Institute (M.Tech CrS Examination)** : All India Rank 6
- **JEST (Theoretical Computer Science)**: All India Rank 62
- **GATE 2024 (Computer Science)** : GATE Score 551