

Lalit Negi, M.Tech

Member Research Staff at Bharat Electronics Limited

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RESEARCH INTEREST

My research interests lie in information security, focusing on both pre-quantum and post-quantum cryptographic solutions. I work on secure communication protocols, and authentication mechanisms while exploring post-quantum cryptography (PQC) and hybrid cryptographic models for long-term security. I am also open to machine learning, using it to enhance security systems and make cryptographic solutions more efficient and scalable. My goal is to bridge research with real-world applications, ensuring that advanced security technologies are practical, accessible, and impactful.

EXPERIENCE

- **Central Research Laboratory, Bharat Electronics Limited** *India, Ghaziabad*
Member Research Staff *2022 – Present*
Domain: Simulation Algorithms, Secure Communication Protocol Development.
- **Netaji Subhas University of Technology** *India, New Delhi*
Teaching Assistant *2020 – 2022*
Coursework: Cryptography, Software Engineering

PUBLICATIONS

- [1] **Lalit Negi** and Lokesh Negi. "Secure Satellite Image Encryption using Arnold CatMap Scrambling with Elliptic Curve-Based Block Encryption". In: International Conference on Emerging Trends in Multidisciplinary Research (ICETMR 2025).
- [2] **Lalit Negi** and Devender Kumar. "A Bilinear Mapping Based Ring Signature Scheme with Batch Verification for Applications in VANETs". In: Wireless Personal Communications (2024), pp. 1–25.
- [3] **Lalit Negi** and Devender Kumar. "ECC Based Certificateless Aggregate Signature Scheme for Healthcare Wireless Sensor Networks". In: Journal of Reliable Intelligent Environments (2024).
- [4] Lokesh Negi and **Lalit Negi**. "Overview of Security Approaches Using Metamorphic Cryptography". In: Proceedings of Third International Conference on Computing, Communications, and Cyber-Security: IC4S 2021. Springer. 2022, pp. 847–858.
- [5] **Lalit Negi** and Lokesh Negi. "Hybrid approach for Data Security using Coverless Image Steganography with AES". In: 2021 6th International Conference on Communication and Electronics Systems (ICCES). IEEE. 2021, pp. 1077–1083.
- [6] **Lalit Negi** and Lokesh Negi. "Image steganography using steg with AES and LSB". In: 2021 IEEE 7th international conference on computing, engineering and design (ICCED). IEEE. 2021, pp. 1–6.
- [7] Lokesh Negi and **Lalit Negi**. "Hindi Text Encryption using Double Transposition and Elgamal". In: 2021 4th International Conference on Recent Developments in Control, Automation & Power Engineering (RD-CAPE). IEEE. 2021, pp. 178–183

PERSONAL PROJECTS

- **Quantum Machine Learning for Pneumonia Detection in Infants: Analyzing Model Performance and Scalability**
 - Theme: The project explores the use of Quantum Machine Learning (QML) to enhance pneumonia detection in infants. It evaluates the performance and scalability of Quantum Random Forest (QRF) models, analyzing how dataset size and qubit count impact accuracy and efficiency. The study aims to bridge the gap between quantum computing and real-world medical diagnostics.
 - Technologies: Python, PennyLane
- **Device Scan for Restricted Environments: Firewall Status and Network Security Logging**

- Theme: The project focuses on enhancing security in restricted environments by scanning system and evaluating firewall status. Ensure system integrity by monitoring security configurations, detecting vulnerabilities, and maintaining comprehensive security logs for compliance and threat analysis.
- Technologies: Python, PyQt, PSUtil

EDUCATION

- **Netaji Subhas University of Technology** 2020 – 2022
Master of Technology (M.Tech.) in Information Technology
 - Thesis Title: Design and Analysis of Certificateless Schemes for Healthcare Environment
 - Advisor: Dr. Devender Kumar Yadav
 - Aggregate: 81.0% (GPA 8.1/10.0)
- **Govind Ballabh Pant University of Agriculture and Technology** 2017 – 2020
Bachelor of Technology (B.Tech.) in Computer Engineering
 - Project Title: Steg! - An Android Application for Metamorphic Cryptography
 - Advisor: Dr. Sunita Jalal
 - Aggregate: 72.4% (GPA: 7.2/10.0)

TECHNOLOGIES

Languages: C++, C, Python, SQL

Technologies: Avispa, IBM Composer, Qiskit, Qt

REFERENCES

1. **Sheetal Devi**
Senior Member Research Staff, CRL-BEL, Ministry of Defence, India
Email: sheetaldevi@bel.co.in
Relationship: Reporting Manager
2. **Shivani Arya**
Senior Member Research Staff, CRL-BEL, Ministry of Defence, India
Email: shivaniarya@bel.co.in
Relationship: Manager
3. **Dr. Devender Kumar Yadav**
Associate Professor, NSUT, New Delhi, India
Email: dk_iitm@yahoo.co.in
Relationship: Master's Advisor