Lalit Negi, M.Tech

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BIOGRAPHY

I am an application developer, currently working with Unity (C#) to design and develop VR-based training simulators for defence professionals. My work includes building immersive equipment training simulators and Digital Twin, enabling personnel to understand operational procedures, handling, and tactical usage in a safe and controlled virtual environment. I have authored/co-authored 6+ research papers published in IEEE, Springer, and TechRXiv.

Alongside my professional work, my research interests lie in Information security and Machine Learning.I am seeking roles where I can integrate immersive application development, machine learning, and security research to build secure, scalable, and future-ready technology systems.

EXPERIENCE

Central Research Laboratory, Bharat Electronics Limited *India, Ghaziabad*
Member Research Staff *2022 – Present*

Augmented and Virtual Reality Lab *Jan 2024- Present*

- Designed and Developed VR-based applications using the **Unity C#**.
- Developed a **VR-based training simulator** for radar assembly and disassembly, enabling step-by-step procedural training in an immersive and safe virtual environment.
- Designed a virtual Tactical Theatre Command system using **ArcGIS**, visualizing real-world deployment of defence resources, operational assets, and live tracks to support situational awareness and command-level planning.
- Currently working on an **SR-based display system** to create a **Digital twin** of radar systems for predictive maintenance, condition monitoring, and fault analysis.
- Participated in the demonstration of the **Tactical Theatre Command System** to the **Honourable Defence Minister of India**, showcasing real-time visualization, operational planning, and decision-support capabilities.

Decision Support System Lab *July 2022 - Dec 2023*

- Contributed to the development of the **first indigenously developed universal train driving simulator** through simulation algorithm design and secure communication protocol development.
- Developed simulation applications such as **Simulation Engine**, **Training and Evaluation Assessment Module**, and **Malfunction Handler** in **C++** using **Qt** to model metro train logic, control, and operational behavior.
- Built GUI-based simulators for metro and weapon systems using **Qmake** build systems.
- Worked on simulation modules involving real-time system behavior, control logic validation, and protocol-level security considerations.
- Prepared technical documentation including **Software Requirements Specification (SRS)** and **Software Requirement Description (SRD)** to support project delivery and audits.

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
  - 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

- Aggregate: 72.4% (GPA: 7.2/10.0)

PERSONAL SKILLS

Technical Skills	◦ Languages: C#, Python, C+ ◦ Tools: Canvas, Latex, Github ◦ Areas: Virtual Reality, Machine Learning, Climate Change
Communication Skills	◦ Assisted in conducting laboratory sessions and tutorials, supporting students in understanding course concepts and practical implementations. ◦ Guided students with assignments, mini-projects, and problem-solving exercises. ◦ Helped in preparing teaching materials such as lecture slides, lab manuals, and tutorial sheets. ◦ Mentoring Interns in the Integrated Domain of Machine Learning and Virtual Reality.
Organizational Skills	◦ Served as an organizer for a five-day technical workshop sponsored by All India Council for Technical Education, coordinating planning, scheduling, and execution of technical sessions. ◦ Assisted in the preparation of workshop materials, registrations, and participant communications. ◦ Acted as an organizing member for the inauguration event of a DPSU Bhawan, supporting event planning and on-site coordination. ◦ Coordinated ceremonial arrangements, guest management, and technical arrangements for the inauguration event.

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 (RDCAPE). IEEE. 2021, pp. 178–183

REFERENCES

1. **Sheetal Devi**
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