

AKA SAI LALITH KUMAR

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EDUCATION

- **Bachelor of Technology, Shiv Nadar University** Delhi NCR
Major: Electronics and Communication Engineering; GPA: 8.31 *Jul 2019 - Jul 2023*
Minor: Computer Science and Engineering
Courses: Data Structures, Artificial Intelligence, Cryptography, Operating Systems, Software Engineering

RESEARCH PUBLICATIONS

- **Ransomware Criminal Smart Contract** Copenhagen, Denmark
2024 IEEE International Conference on Blockchain (Blockchain) *Aug 2024*
Authors: Aka Sai Lalith Kumar and Sweta Mishra

EXPERIENCE

- **Industry Solutions Delivery, Microsoft** Hyderabad
Consultant *Aug 2023 - Present*
 - **MTN EVA 3.0:** Led security efforts as Security Lead for a team of 35 consultants, conducting comprehensive code reviews, threat modeling, and security testing to ensure robust project protection and compliance.
 - **LSEG Voyager Program:** Designed and implemented secure configurations for 40+ cloud services using Azure policies, developed CI/CD pipelines for streamlined deployments, and spearheaded the standardization of cryptographic protocols to enhance cloud security and efficiency.
- **Applied Cryptography Lab, Shiv Nadar University** Delhi NCR
Undergraduate Researcher, Advisor: Dr. Sweta Mishra *Mar 2021 - Jun 2023*
 - **Ransomware Criminal Smart Contract:** Proposed a cryptographic protocol using Smart Contracts, demonstrating the feasibility of ransomware attackers adopting this technology. Modeled the protocol as a Discrete Time Markov Chain and verified it using Probabilistic Checking.
 - **Collaborative Cyber Crime:** Designed and verified a formal mathematical model to evaluate the efficacy of collaborative cyber crime.
 - **Random Number Generator:** Created an experimental, NIST test suite passing Pseudo Random Number Generator using Collatz conjecture's hailstone patterns.
- **MyEra** Remote
Software Development Intern *Dec 2021 - Feb 2022*
 - **Backend Architecture:** Made significant changes to the Backend architecture, wrote new documentation and optimized API performance by 10%.
 - **Admin Page:** Implemented API's for getting user insights and displayed them on Django's admin page.
 - **Twitter API:** Created a crawler to pull the latest trending topics from different sources like Twitter API and integrated it with the backend.
- **Orangewood Labs (Y Combinator W18)** Delhi NCR
Software Engineering Intern *Apr - Jul 2021*
 - **3D data:** Created linear algebra libraries for visualizing and processing 3D point cloud data applications.
 - **Spray painting automation:** Engineered an algorithm to automate and process point cloud data, optimizing the robot arm's path for efficient spray paint distribution.
 - **Optimization:** Handled massive datasets and accelerated the run time from 20 minutes to 1 minute per point cloud using Support Vector Machine, wrote a white paper summarizing the results.

TEACHING EXPERIENCE

- **Teaching Assistant** Delhi NCR, India
EED308, Embedded Systems Hardware *Spring 2023*
- **Course Grader and Capstone Advisor** Delhi NCR, India
CSD451, Applied Cryptography *Fall 2022*

PROJECTS

- **Target Automated Architecture:** Implemented a tool to draw solution architecture diagrams with project-specific style using input fed from an Excel file. Encapsulated the core graphics module into a Gen AI based web application to make it interactive and ease the usage. **[C#, Dotnet ASP.NET core webapi, react, Azure Open Ai]**
- **Format Preserving Encryption:** Engineered a Python implementation of the NIST standard FF3-1 algorithm for format-preserving encryption from scratch, enhancing its performance through optimization. Developed tests and packaged the solution for future utilization. **[Python, PyCrypto, Sockets]**
- **Noised based Random Number Generation:** Designed a two-layer algorithm leveraging signal noise to improve bit generation rates by 25%, overcoming limitations of traditional methods for secure randomness extraction. **[Python, PyTorch, GSP Toolbox]**
- **Image Edge Detection Algorithm:** Created an image edge detection algorithm using graph signal processing that outperformed standard LBP and LDP visual descriptors by 20%. Optimized the solution for usage in embedded systems. **[C++, Matlab, GSP Toolbox, OpenCV]**

COMMUNITY INVOLVEMENT

- **IEEE Student Chapter Secretary** Delhi NCR, India
Conducted online and offline technical training impacting over 100 students *Jan 2022 - Feb 2023*
- **Volunteer, Rural Organization for Social Empowerment(ROSE)** Hyderabad, India
STEM education for children from underprivileged backgrounds *May 2022 - Jul 2022*
- **Co-Lead of Hack Data 4.0** Delhi NCR, India
Organized the biggest Hackton of SNU with 50 participants *Nov 2019 - Feb 2020*

AWARDS & HONOURS

- **Innovation Maestro, London Stock Exchange Group** Hyderabad, India
Awarded for creatively solving critical requirements by Microsoft LT *Aug 2024*
- **Rise Award, Microsoft** Hyderabad, India
Awarded for well rounded contribution to Microsoft's Mission *Jun 2024*
- **Dean's list, Shiv Nadar University** Delhi NCR, India
Awarded for exemplary academic efforts *2022 Spring, 2023 Monsoon*

SKILLS SUMMARY

- **Programming Languages:** C#, Python, C/C++, Terraform, Powershell, Assembly
- **Tools & Frameworks:** Git, L^AT_EX, ASP.NET, PyTorch, Point Cloud library, OpenCV, django