Lehar Sai Sankalp Dasari

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EDUCATION

Virginia Tech, Blacksburg, VA **2023-Present**

Major: B.S. in Computer Science | **Minor**: Cybersecurity **Expected Graduation: Dec 2026**

GPA: 3.51/4.0 | **In Major GPA:** 3.61/4.0 | **Dean's List:** Spring 2024, Fall 2025 | **President's List:** Spring 2025

Relevant Coursework: Data Structures and Algorithms, Discrete Mathematics, Computer Organization I and II, Software Design and Data Structures, Applied Combinatorics, Graph Theory, Multivariable Calculus, Linear Algebra

EXPERIENCE

AI/ML Lead **Jun 2025-Present**

Virginia Tech IDPro: CarbonQapture Blacksburg, VA

- Spearheading AI/ML research on CO_2 capture using MOFs, integrating supervised learning and generative design with Python and Scikit-learn to synthesize 10+ novel, high-performance materials.
- Transitioning from neural networks to interpretable models **(linear/logistic regression)** to identify key MOF features.
- Applying **Bayesian Information Criterion (BIC)** to select optimal models, targeting 15% higher accuracy over neural network baseline.

R&D Team- Sensing Sub Team **Sep 2024 – Present**

GraVT Design Team Blacksburg, VA

- Developed real-time rocket tracking system using **Image Detection** and **Machine Learning with OpenCV and TensorFlow.**
- Led the transition from hardware-based altimeters to computer vision, decreasing component costs by **$2000 per semester** while maintaining tracking accuracy
- Accelerated object detection runtime by **30%** through refactoring TensorFlow-based models into optimized C/C++ code, improving responsiveness and precision, enabling more accurate real-time data processing.

Software Engineering Intern **Jun 2024 – Aug 2024**

Prospect Infosystem Pvt. Ltd. Hyderabad, India

- Built full-stack web applications using **Java (Spring Boot)** for **RESTful** APIs for backend development and Angular for frontend Development, with **Postman** for API testing.
- Implemented error logging via Splunk to proactively trace and resolve backend faults in Apache Kafka message pipelines.
- Contributed to an Agile and scrum environment, following **OOP** and version-controlled distributed system workflows.

PROJECTS AND HACKATHONS

DNAVault | Python, NumPy, GitHub, Git, React **Jun 2025**

Personal Project

- Designed a hybrid encryption system combining **AES-128** with **Kyber -512 (Post-quantum Key Encapsulation Mechanism)** to secure genomic DNA data, which is immune to **Shor's algorithm** and withstands quantum attacks in polynomial time.
- Implemented a **two-level** encryption approach by encrypting AES round keys with Kyber for post-quantum resilience, Brute-forcing the AES-128 encryption requires 2^{128} **operations (~**10^{18} years classically, ~2^{64} operations with the right Grover's algorithm), making the system unbreakable under current and future threat models.
- Transformed DNA sequences into **4×4 binary matrices** compatible with AES, enabling symmetric encryption of biological data.

CarbonQapture | Python, Pandas, PyTorch, NumPy, Scikit-learn, React, Git, GitHub **Apr 2025**

Hackathon- Bitcamp 2025 Winner | Best Hack Promoting Public Health by Bloomberg College Park, MD

- Built a **Quantum-AI** framework using Python to simulate and design new Metal-Organic Frameworks for CO_2 capture, achieving **98.3% accuracy** from the Neural Network.
- Trained on **324,000+** MOF structures, the neural network, found **8000+ suitable** for CO_2 capture and ranked them based on effectiveness.
- Weighed **50+ properties** per MOF to calculate scores and **generate** 10 novel high-performing MOF candidates with all their properties **to generate a CIF file** that can be used to visualize the new structure.
- Presented model performance and system design to judges, securing Bloomberg's Best Hack promoting Public Health award.

FinPoint: AI Powered Credit Card Fraud Detection | Python, NumPy, Pandas, Sklearn **Feb 2025**

Hackathon- Hackviolet 2025 Blacksburg, VA

- Built a real-time fraud detection system using **XGBoost** (Extreme Gradient Boosting) trained on transaction data to identify anomalies such as geolocation shifts, time-based inconsistencies, and spending volatility.
- Achieved **99.95% accuracy, 98–99% precision, and 97–98% recall**, outperforming baseline models such as regression models.
- Weighed and processed **30+** transaction features to detect and flag fraudulent behavior in real-time.

SKILLS

Languages: Java, C, C++, Python, SQL, JavaScript, Typescript

Frameworks and Libraries: Angular, Spring Boot, React.js, PyTorch, NumPy, Pandas, Scikit-learn, TensorFlow, OpenCV

Tools: Splunk, Apache Kafka, AWS, Docker, Git, GitHub, Postman

Operating Systems: Windows, Linux