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**

Dean's List: Fall 2023 – 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

- Leading AI/ML research to optimize CO_2 capture using MOFs by combining **supervised learning** with **generative design** to synthesize novel high-performing structures.
- Transitioning from neural networks to interpretable models **(linear/logistic regression)** to identify key MOF features.
- Applying **Bayesian Information Criterion (BIC)** to select optimal models and mitigate overfitting during model refinement.

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

GraVT Design Team Blacksburg, VA

- Developed real-time rocket tracking system using **Image Detection** and **Machine Learning with OpenCV and TensorFlow.**
- Eliminated hardware dependency and rocket weight by replacing altimeters with **Computer Vision**-based tracking.
- Porting ML models to lower-level languages for improved runtime; researching object detection optimization for high-velocity tracking.

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 and Angular for frontend, with **Postman** for API testing.
- Handled backend errors using **Splunk** data logging, integrating **Apache Kafka** to build Producer-Consumer message streams in real time
- Collaborated in Agile environment, following **OOP** and version-controlled workflows.

PROJECTS AND HACKATHONS

DNAVault | Python, NumPy, GitHub, Git **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, Sklearn, 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.
- Delivered technical demos to judges, showcasing **ML models**, system design, and public health impact.

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, Python, SQL, JavaScript, Typescript

Frameworks and Libraries: Angular, Spring Boot, PyTorch, NumPy, Pandas, Sklearn, TensorFlow, OpenCV

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

Operating Systems: Windows, Linux