Siddhant Kulkarni

kulkarni.siddhant.03@gmail.com +91 8329074058 siddddk.github.io siddddk

Education

B.E. Computer Science with a Minor in Data Science, Oct 2021 – Aug 2025
Birla Institute of Technology and Science, Pilani
CGPA: 9.23
Institute **Merit Scholarship** Awardee - tuition fee waiver for excellent academic performance (**top 3%**)
Relevant Coursework: *Operating Systems, Computer Networks, Network Programming, Compiler Construction, Database Systems, Object Oriented Programming, Machine Learning, Foundations of Data Science, Probability and Statistics, Linear Algebra*

Professional Experience

Atlassian, *Software Engineer Intern* Jun 2024 – Jul 2024
- Developed a **Java Spring Boot RESTful API** to retrieve repository data and **Software Bill of Materials** (SBOM), enabling insights into **end-of-life dependencies**, **licensing**, and **compliance** issues
- Implemented **React**-based interfaces for dynamic SBOM visualization

Jio Platforms, *Summer Intern* May 2023 – Jul 2023
- Part of **Jio Engage** worked on developing models to create **face filters** to **boost user engagement**
- Implemented various **semantic segmentation** models for hair segmentation using **PyTorch** and **Keras**
- Integrated the hair segmentation model with a **face detection** pipeline to create a **segmentation mask** of hair, achieving a **98% pixel accuracy** and a **91% mean IOU**

Projects

Efficient Parquet Reader, *e6data* Aug 2024 – present
- Developing a **custom columnar Parquet reader** aimed at **optimizing read performanc**e
- Exploring **SIMD vectorization** for **decoders** and **efficient I/O patterns** to improve data reading

Improving Adversarial Attacks using Membership Inference Aug 2023 – present
- Explored various **membership inference attacks** how they can be leveraged to enhance **adversarial attacks** against various **machine learning models** under the guidance of *Dr. Hemant Rathore*
- **Proposed a novel attack** method leveraging membership information to improve adversarial attack effectiveness, achieving a **17% increase in fooling rate** with **15% less data**
- **Paper accepted** for **publication** and **presentation** at IEEE Consumer Communications and Networking Conference (**IEEE CCNC 2025**)

Upgradable Smart Contracts, Nov 2023 – present
Data, Systems and High Performance Computing Lab
- Working under *Dr. Arnab K. Paul* on the **mutability** of **Ethereum smart contracts** post-deployment while ensuring **trust** using the **EIP-2535 Diamond Standard**
- Utilized **abstract syntax trees** (**ASTs**) to **convert standard smart contracts** into **diamond pattern contracts**
- Set up a proof-of-stake Ethereum testnet, monitoring **gas** and **system metrics** with **Prometheus** and **Grafana**

Comparing Linear Decision Trees and ReLU Neural Networks Jan 2024 – Mar 2024
- **Compared** various **tree-based models** and **ReLU neural networks**, showing **theoretical equivalence** with ReLU neural networks in binary classification
- **Analyzed model performance** on **synthetic** and **real-world datasets**, assessing **noise**, **complexity**, and **dataset size**
- **Paper accepted** for **presentation** and **publication** at IEEE Consumer Communications and Networking Conference (**IEEE CCNC 2025**)

Awards

Vimarsh 5G Hackathon Winner,
Bureau of Police Research and Development, Ministry of Home Affairs, Department of Telecom and TCoE-India
- **Awarded first place** in a **national hackathon**, securing a prize of **Rs. 1,50,000**
- Developed a **machine learning-based intrusion detection system** tailored for law enforcement agencies
- Integrated explainability techniques like **LIME** and **SHAP** to ensure **regulatory compliance** and **transparency**

Extracurriculars

Competitive Programming, *Specialist on Codeforces*