Siddhant Kulkarni

✉ kulkarni.siddhant.03@gmail.com 📞 +91 8329074058 🔗 sidddk.github.io ⭕ sidddk

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 Courses: **Machine Learning***, **Foundations of Data Science**, **Probability and Statistics**, **Linear Algebra,**
Computer Networks*, Network Programming, **Operating Systems,** Principles of Programming Languages (* ongoing)

Professional Experience

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**

Research Experience

Data, Systems and High Performance Computing Lab   Nov 2023 – present
- Working under the guidance of *Dr. Arnab K. Paul* ⧉ on the **mutability of Ethereum smart contracts** post-deployment using the **EIP-2535 Diamond Standard** while ensuring the preservation of trust within the system
- Compared **performance** of **mutable** and **immutable** smart contracts for **gas** and **system** metrics
- Setup a private multi-client **proof-of-stake** Ethereum testnet and monitored metrics using **Prometheus** and **Grafana**

Improving Adversarial Attacks using Membership Inference   Aug 2023 – present
- Exploring various **membership inference attacks** how they can be leveraged to enhance **adversarial attacks** under the guidance of *Dr. Hemant Rathore* ⧉
- Investigated and proposed **countermeasures**, assessing **feasibility** and **performance**

Teaching Experience

Birla Institute of Technology and Science, Pilani, *Undergraduate Teaching Assistant*
- Developed and managed **Verilog** and **x86 assembly** programming labs for CS F241: **Microprocessors and Interfacing** (Spring 2024) under *Dr. Gargi Sanket Prabhu* ⧉
- Facilitated **Prolog** programming labs, conducted tutorials and doubt sessions for CS F214: **Logic in Computer Science** (Fall 2023) under *Dr. A Baskar* ⧉

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** ⧉ focused on addressing the needs of law enforcement agencies
- Developed a winning solution for the problem statement '**Secure Routing Framework for a 5G Private Network**', won a prize of **Rs. 1,50,000**

Projects

Downscaling of Climate Data using SRGANs
- Developed **high resolution** climate predictions by downscaling **CMIP6** climate data using **pix2pix,** evaluated performance and compared against established methods

Formal Verification for Rust Ported Codebases
- Explored **formal verification** methods for **memory safety** and **functional correctness** in ported **C** and **Rust** codebases.
- Utilized **KLEE** and **Kani** Rust verifier to verify various properties of C and Rust code, respectively

Extracurriculars

Competitive Programming, *Specialist on Codeforces* ⧉

Nirmaan Organization, *Core Member* ⧉
- Part of Project Shiksha, an initiative focused on preparing students from neighbouring underprivileged areas for the JNVST scholarship examination