

Divye Kalra

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Visiting Researcher at IITB Trust Lab



A final-year undergraduate student from BITS Pilani, India, double majoring in Mathematics and Electrical & Electronics.

Research interests include Cryptography, Secure Multi-Party Computation and Cloud Security

Personal Webpage : <https://divyekalra1.github.io/portfolio/>

EDUCATION

B.E. Electrical and Electronics Engineering, BITS Pilani, Hyderabad Campus

Aug 2019 - Present

M.Sc. Mathematics, BITS Pilani, Hyderabad Campus

Aug 2019 - Present

Delhi Public School, Vasant Kunj, New Delhi, India

Grad. May 2019

PUBLICATIONS AND PATENTS

[First Inventor] A Device and Method for a Lightweight Stream Cipher

Indian Patent Published in the *Official Journal of the Patent Office* | Issue Number 49/2023 | Application Number : 202311039798

[Co-author] Efficient and lightweight data encryption scheme for embedded systems using 3D-LFS chaotic map and NFSR

Published in *e-Prime - Advances in Electrical Engineering, Electronics and Energy* | <https://doi.org/10.1016/j.prime.2023.100273>

With Prof. Manish Kumar

[First Author] Machine-Learning based prediction of Vanadium Redox Flow Battery stack temperature rise under different charge-discharge conditions

Under Review in *Journal of Energy Storage* | Pre-Print

With Prof. Ankur Bhattacharjee

RESEARCH AND TECHNICAL EXPERIENCE

Information Security | Implementing a Cryptographic Agents Scheme for CASE

January 2024 - Present

Undergraduate Thesis supervised by Dr. Manoj Prabhakaran

Mumbai, India

IITB Trust Lab, Indian Institute of Technology Bombay

Hardware Security | Provable hardware-embedded security and privacy

July 2023 - December 2023

Undergraduate Thesis supervised by Prof. Dali Kaafar

Sydney, Australia

Cyber Security Hub, Macquarie University

Socket Programming | Multiple User Chatroom Application

June 2022

BITS Pilani, Hyderabad Campus

Hyderabad, India

- Technologies used : socket and select library of python3
- Future plans involve the end-to-end encryption of these communication channels

Full Stack Web Application | CartIn Online Supermarket

October 2022 - December 2022

BITS Pilani, Hyderabad Campus

Hyderabad, India

- Add to Cart, Payment and Search Functionality
- Separate Authentication and CRUD functionality for Users, Vendors and Admins
- Front-end implemented with HTML, Tailwind CSS and VueJS
- Back-end implemented with Java SpringBoot, PostgreSQL and JDBC

Python Utility Development | ETL Application

May 2021 - July 2021

Erasmith Technologies Pvt. Ltd.

New Delhi, India

- A console based ETL Application designed and developed for Erasmith Technologies Pvt. Ltd.

API Development | Delhi CCTV App

July 2021

Erasmith Technologies Pvt. Ltd.

New Delhi, India

- The DelhiCCTV App is a project to assist users, engineers and relevant people involved in the process of servicing and installation of the CCTV systems in New Delhi with easily registering and managing complaints
- Framework used : FastAPI

Multiple-Client-One-Server Application | Operating Systems Course Project

May 2023

BITS Pilani, Hyderabad Campus

Hyderabad, India

- Client-server application for message passing and logging
- Applications running in a single system and exchanging data using stateless communication.

SKILLS

Programming

C • C++ • Python • HTML • CSS • SQL • MATLAB • Java

Frameworks/Libraries

p5.js • FastAPI • Django • Matplotlib • SpringBoot

Softwares/Tools

Git & Github • Jekyll • Solidworks & Onshape • LaTeX • Nmap • Wireshark