

# Divye Kalra

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Visiting Researcher at Macquarie University



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] Frodo-160 : Design and Hardware Implementation of a Lightweight Stream Cipher for Embedded Systems**

Indian Patent Published in the *Official Journal of the Patent Office* | Issue Number 49/2023 | Application Number : 202311073626

**[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

**Cyber Security | Provable hardware-embedded security and privacy**

July 2023 - Present

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