Divye Kalra

Visiting Researcher at Macquarie University

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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

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