SUNNY KUMAR

Gaya, Bihar

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TECHNICAL SKILLS

Programming Languages: Java, JavaScript
Databases: MySQL, MongoDB
Frameworks & Libraries: React.Js, Tailwind CSS, Bootstrap, HTML5, CSS3
Developer Tools: Git, GitHub, VS Code, Postman, Docker

PROJECTS

Elliptic Curve Cryptography on FPGA

Technologies: Verilog HDL, ECC, Finite Field Arithmetic, FPGA Architecture
<u>Tools:</u> Xilinx Vivado, Python, Git/GitHub   **2025**

- Designed and implemented Elliptic Curve Cryptography (ECC) on Spartan-7 FPGA using Verilog HDL for secure hardware-based encryption.
- Optimized core ECC operations such as point addition and scalar multiplication to reduce latency and improve hardware efficiency.
- Performed synthesis, simulation, and verification using Xilinx Vivado, ensuring correctness and performance of the cryptographic design.

SAR (Synthetic Aperture Radar) Imaging Using AI and ML

Technologies: Python, TensorFlow, PyTorch, OpenCV   **2025**

- Developed AI/ML models including CNNs for SAR image processing to enhance target detection and classification accuracy.
- Built optimized data preprocessing pipelines for noise reduction, feature extraction, and handling large-scale radar datasets.
- Applied explainable AI techniques to analyze model predictions and improve transparency in SAR-based remote sensing systems.

Musify Music Streaming Web Application

Technologies: Spring Boot, React.js, MongoDB, JWT, Tailwind CSS
<u>Tools:</u> Cloudinary, Axios, Postman, Git/GitHub   **2025**

- Built a full-stack music streaming platform with Spring Boot backend and React.js frontend, supporting song, album, and playlist management.
- Implemented secure authentication and role-based authorization using Spring Security and JWT for admin and user access control.
- Designed a responsive UI with Tailwind CSS and integrated Cloudinary for media storage, enabling real-time uploads and playback.

EDUCATION

Indian Institute of Information Technology, Kalyani   **2022 − 2026**
B.Tech - Computer Science and Engineering - **CGPA - 6.76**   *Kalyani, West Bengal*

ACHIEVEMENTS

- Solved **350+** Data Structures and Algorithms problems across multiple coding platforms.
- Solved **100+** Data Structures and Algorithms problems on LeetCode.
- Solved **125+** Data Structure and Algorithms problem on GFG.
- Achieved **2 rating** on **CodeChef** through consistent competitive programming practice.
- Strong grasp of Object-Oriented Programming (OOP) concepts in **Java**.
- GiAN & HBNCRIIA, IIIT Kalyani - IIIT Kalyani, Volunteer   **2023 - 2024**