SUNNY KUMAR

Gaya, Bihar

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ABOUT

Computer Science and Engineering final-year undergraduate at Indian Institute of Information Technology, Kalyani, with a strong focus on full-stack web development and backend engineering. Experienced in building scalable, secure, and user-centric web applications using Java, Spring Boot, React.js, MongoDB, and RESTful APIs. Hands-on experience in implementing authentication and authorization using JWT, designing modular backend architectures, and developing responsive frontend interfaces with React.js and modern CSS frameworks. Strong foundation in Data Structures and Algorithms, with extensive problem-solving experience across competitive coding platforms. Additionally, interested in exploring Artificial Intelligence and Machine Learning concepts and their integration with web applications to build intelligent, data-driven solutions. Actively seeking opportunities as a Full-Stack or Backend Developer to create impactful real-world software systems.

TECHNICAL SKILLS

Languages: Java, C, Python, JavaScript, MongoDB, MySQL
Frameworks / Libraries: React.js, HTML5, CSS3
Developer Tools: Git, GitHub, VS Code, Postman, Docker
Platforms / OS: Linux, Windows
Cloud Platforms: AWS, Firebase

PROJECTS

Elliptic Curve Cryptography On FPGA ⬀

Technologies: Verilog HDL —ECC(Cryptographic algorithm) —Finite Field Arithmetic —FPGA Architecture –
Tools: Vivado Simulator— Python— Git / GitHub— Xilinx Vivado Design

- Designed and implemented Elliptic Curve Cryptography (ECC) algorithm on FPGA (Spartan-7, xc7s50csga324-1) using Verilog HDL.
- Utilized Xilinx Vivado Design Suite for FPGA synthesis, simulation, and hardware implementation
- Optimized ECC operations (point addition, scalar multiplication) for low latency and hardware efficiency.
- Focused on secure, hardware-based cryptography

SAR (Synthetic Aperture Radar) Imaging Using AI and ML ⬀

(Python , Django, React.js,), Google Maps API, JWT, TailwindCSS　　　　**2025**

- Implemented AI/ML models (CNN, RNN) for SAR image processing, improving target detection and classification accuracy.
- Designed and optimized data preprocessing pipelines for noise reduction, feature extraction, and large-scale radar data handling.
- Utilized Python, TensorFlow, PyTorch, and OpenCV to develop and validate SAR imaging solutions for remote sensing applications.
- Explored explainable AI techniques to interpret ML model predictions, ensuring reliability and transparency in SAR imaging applications.

Musify Music Play Web App ⬀

Technologies: Spring Boot, React.js, MongoDB, Tailwind CSS, JWT
Tools: Axios (HTTP client), Cloudinary Service (Media storage), Lucide-React, Git/GitHub, Postman: **2025**

- Developed a full-stack music streaming web application with Spring Boot backend and React.js frontend, providing a seamless music play experience.
- Implemented secure user authentication and authorization using Spring Security and JWT, supporting multiple roles: admin and standard users.
- Designed and implemented RESTful APIs for songs, albums, and playlists with MongoDB as the database, ensuring efficient data retrieval and management.
- Integrated file storage for songs and images using Cloudinary, enabling bulk upload and real-time previews.
- Built a responsive and dynamic user interface using React.js and TailwindCSS with features like search, play/pause, skip, and volume control.
- Used Axios for API calls and state management with React Context API to handle global music player states and user sessions.

EDUCATION

Indian Institute of Information Technology, Kalyani   **2022 − 2026**

*B.Tech - Computer Science and Engineering - **CGPA** - 6.76*   *Kalyani, West Bengal*

Mirza Ghalib College   **2020 − 2021**

*BSEB - PCM with CS - **Percentage** - 79.8%*   *Gaya, Bihar*

ACHIEVEMENTS

- Solved **100+** Data Structures and Algorithms problems on LeetCode.
- Solved **300+** DSA problems across multiple platforms (Codeforces, Geeks For Geeks, etc.).
- Strong grasp of Object-Oriented Programming (OOP) concepts in **Java**.
- GiAN & HBNCRIIA, IIIT Kalyani - IIIT Kalyani, Volunteer   **2023 - 2024**