

# SOHINI BANERJEE

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## SUMMARY

Web designer and developer with expertise in HTML, CSS, JavaScript, and React, specializing in interactive web page development. Demonstrated success in front-end and back-end development, API integration, and SQL database management, enhancing overall website functionality. Strong analytical and problem-solving skills, with a solid foundation in artificial intelligence and machine learning. Committed to leveraging technical skills in Python and Java to drive innovative solutions and support team objectives.

## EXPERIENCE

Web Designer and Developer, 07/2025 – 08/2025

Hackfinity – Chennai, India

- Developed interactive web pages utilizing HTML, CSS, JavaScript, and React.
- Collaborated with co-developers to troubleshoot and enhance existing websites.
- Provided freelance-related services to support team members effectively.

## PROJECTS

### GENESIS - Evolutionary Code Synthesis AI

- Engineered a Genetic Programming system in Python that autonomously "invents" algorithms by evolving Abstract Syntax Trees (AST).
- Implemented complex evolutionary logic including Adaptive Mutation and Bloat Control, achieving 100% convergence on logic tasks while optimizing code efficiency.
- Designed a dynamic analytics dashboard using Matplotlib to visualize fitness trends and population diversity in real-time.

### ML-IDS - Network Intrusion Detection System

- Developed a high-precision security engine using Random Forest and SVM to detect network attacks (DoS, Probe) from raw traffic logs.
- Built a robust data pipeline using Scikit-Learn and Pandas, utilizing SMOTE for class balancing and feature selection to achieve >99% accuracy.
- Optimized classification performance to minimize false positives, creating a reliable model for real-time anomaly detection.

### PRISM PROTOCOL - Decentralized Biometric Identity System

- Architected a hardware-agnostic deepfake detection platform using a polyglot microservices architecture (FastAPI for CV inference, Spring Boot for blockchain security) to process 30FPS video streams via WebSockets.
- Developed a novel liveness detection engine using OpenCV and MediaPipe that correlates biological signals (rPPG) and corneal reflections with active screen illumination to defeat pre-recorded AI attacks.
- Integrated Web3j and Solidity to engineer a secure "Proof of Personhood" protocol, issuing non-transferable Soulbound Tokens (ERC-5192) on Polygon to provide Sybil resistance for decentralized applications.

## SKILLS

- Web development and design
- Team collaboration
- Critical thinking and problem solving
- JavaScript and Python programming
- HTML and CSS proficiency
- Machine learning and deep learning
- Front-end and back-end development
- SQL database management
- API integration
- Technical documentation
- Creative problem solving
- Artificial intelligence fundamentals
- Mathematical reasoning
- Java programming
- Object-oriented programming
- Full-stack development

## EDUCATION

**Bachelor of Technology:** Computer Science and Engineering, 07/2024 – Present

**Vellore Institute of Technology** – Chennai, TN

- Coursework in AI and Machine Learning
- Member of Linux Club, 2024 to present
- Member of SEDS Antariksh Club, 2024 to present
- Member of Open Source Programming Club, 2025 to Present
- Programme Representative, CSE (AIML), 2024 to Present
- GPA: 8.59, CGPA

**Certificate of Higher Education:** Physics, Chemistry, Mathematics, Computer Science, 03/2022 – 03/2024

**Delhi Public School** – South Kolkata  
Score: 91.2%

## SOCIAL NETWORKS

- [www.linkedin.com/in/sohini-banerjee-12882731b](https://www.linkedin.com/in/sohini-banerjee-12882731b)
- <https://github.com/sosush>
- <https://sohinibanerjee.vercel.app>