# AMANDEEP SINGH BATRA

Indore, Madhya Pradesh

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## Education

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| **Birla Institute of Technology, Mesra** | **Nov 2022 – Present** |
| *B.Tech in Computer Science and Engineering \| CGPA: 8.30* | *Ranchi, Jharkhand* |
| **Gyan Sagar Academy** | **2019 – 2022** |
| *Class X: 89% \| Class XII: 87%* | *Ujjain, Madhya Pradesh* |

## Skills

**Programming:** C, Java, Python
**Web Development:** React.js, Node.js, Express.js, MongoDB, Tailwind CSS, EJS
**Core CS:** Data Structures & Algorithms, OOP, OS, DBMS, SQL, Compiler Design
**Machine Learning:** TensorFlow, PyTorch, Scikit-learn, Neural Networks, Time-Series Analysis
**Tools:** Git, GitHub, Postman, Linux (basic), **n8n (workflow automation)**, REST APIs
**Soft Skills:** Leadership, Cross-functional Collaboration, Event Management

## Experience

**Research Intern – Illinois Institute of Technology**     **May 2025 – July 2025**
*Chicago, IL*     *On-Site \| International Program*

- Worked on **AI-driven cybersecurity research** focused on dynamic decision-making for intelligent endpoint protection.
- Developed an **Intelligent Endpoint Protection and Insight System (IEPIS)** for real-time cyber threat mitigation.
- Implemented ML/DL models on **large-scale threat datasets**, improving detection accuracy and inference latency.
- Designed a **self-learning security framework** capable of adapting to evolving attack patterns.
- **Publication:** Co-authored a paper accepted at **IEEE TrustCom 2025**.

## Projects

**Hospital Management System (SaaS Platform)** \| *React, Node.js, Express, MongoDB*     **GitHub**

- Built a **full-stack SaaS-based hospital management system** with a **React frontend** using hooks and reusable components.
- Designed a dedicated **admin dashboard** for user management, analytics, appointments, and role-based access control.
- Implemented **dynamic middleware** and JWT-based authentication to secure APIs and protect sensitive medical data.
- Used **MongoDB** for scalable data storage, handling **1000+ user logins** with optimized queries.
- Created a seamless multi-role experience (admin, doctor, patient), simulating a **production-ready SaaS product**.

**Pre-Impact Fall Detection System** \| *Deep Learning, Time-Series, Python*

- Developed a **pre-impact fall detection system** using **human gait analysis** on K-Fall and SisFall datasets.
- Achieved a **lead time of 430 ± 150 ms**, one of the **best reported results in the gait analysis community**.
- Evaluated models on **FARSEEING / real-world sensor data** to ensure robustness under realistic conditions.
- Achieved **98.21% accuracy on K-Fall** and **88% accuracy on SisFall** using a hybrid deep learning model.
- Designed and implemented a **custom fall-labeling algorithm** to segment ADL, fall initialization, impact, and aftermath phases.
- Automated dataset processing with adaptive sampling-rate detection and signal standard-deviation–based labeling.

## Achievements

- Solved **300+ DSA problems** on LeetCode and GeeksforGeeks.
- Runner-up in multiple hackathons for scalable and innovative solutions.
- Completed certifications in Web Development and Data Structures & Algorithms.

## Positions of Responsibility

**Associate – Dristi NGO, BIT Mesra**     **May 2023 – Present**

- Conducted skill development workshops and socio-economic awareness sessions.
- Mentored rural students aged 5–18, supporting holistic education initiatives.