

ADITYA RANJAN SWAIN

Full-Stack Developer | Front-End Engineer | MERN Stack | React.js | Node.js

swainaditya85@gmail.com | +91 78468 87605 | linkedin.com/in/aditya-ranjan-swain | github.com/Aditya1791 | Bhubaneswar, India

PROFESSIONAL SUMMARY

Final-year B.Tech Computer Science & Engineering student at Trident Academy of Technology (CGPA: 6.8/10, graduating May 2026) with strong practical experience building full-stack web applications using the MERN stack and Python/Flask. I have independently designed and shipped three production-grade projects — a real-time collaborative workspace, an AI-integrated proctoring platform, and a role-based examination portal — each covering real-world problems in authentication, live data, and user management. I am comfortable across the full stack: building responsive and interactive React frontends, designing RESTful APIs with Node.js and Express, integrating third-party services like Stripe and Socket.io, and managing both MongoDB and MySQL databases. I write clean, readable code, take ownership of projects end-to-end, and am looking for a Full-Stack or Front-End Developer role where I can contribute meaningfully from day one.

TECHNICAL SKILLS

Frontend: React.js, JavaScript (ES6+), HTML5, CSS3, Bootstrap 5, Responsive Web Design, Redux Toolkit, JSX, Component-Based Architecture

Backend: Node.js, Express.js, Python, Flask, RESTful API Development, Socket.io, WebSockets, Flask-WTF, Flask-Session, JWT Authentication

Databases: MongoDB (Mongoose ODM, Geospatial Indexing), MySQL, Firebase Realtime Database, Firebase Authentication

AI / ML Integration: DeepFace (Facial Recognition), OpenCV, Dlib (68-Point Shape Predictor), Docker, Docker Compose

Developer Tools: Git, GitHub, VS Code, Postman, Stripe API, Google Maps API, Leaflet.js, Chart.js, Recharts

Core Concepts: Full-Stack Web Development, MVC Architecture, Role-Based Access Control (RBAC), Real-Time Communication, Optimistic UI Updates, Third-Party API Integration, Agile Development, Cross-Browser Compatibility, Responsive UI Design

PROJECTS

Smart AI-Based Proctoring System | *Python · Flask · MySQL · DeepFace · OpenCV · Dlib · Bootstrap · Stripe · Docker*

- Designed and built a full-stack AI-powered online examination platform with secure role-based access for Professors and Students, handling everything from biometric login and exam creation through to live AI monitoring, suspicious activity logging, and payment processing.
- Integrated DeepFace for biometric authentication, verifying each student's identity against their registered facial profile in real time before granting access to any exam — preventing impersonation at the entry point.
- Built a live AI proctoring engine using OpenCV and Dlib's 68-point facial landmark model to continuously track gaze direction, detect multiple faces, and flag unexplained absences from the camera, auto-generating timestamped suspicious activity logs throughout each session.
- Supported three exam formats within the same platform: MCQ exams with CSV-based question upload, negative marking, and an optional calculator; subjective long-form exams; and practical coding exams with a built-in compiler supporting 15+ languages including C, C++, Java, Python, and Node.js.
- Integrated the Stripe API for secure exam credit purchases, letting Professors top up hosting credits through a polished billing interface — adding a real monetisation layer to the platform.
- Containerised the entire application using Docker and Docker Compose, ensuring clean, reproducible deployments across different environments with MySQL as the primary relational database and Flask-Session managing secure server-side sessions.

Collaborative Enterprise Project Management Workspace | *React.js · Node.js · Express.js · MongoDB · Socket.io · Redux Toolkit · JWT*

- Built a multi-user real-time project management platform — similar to Trello — featuring drag-and-drop kanban boards, multiple workspace dashboards, and live state synchronisation so every connected user always sees the same up-to-date board without refreshing.
- Implemented real-time drag-and-drop using @hello-pangea/dnd on the frontend, with Socket.io broadcasting every task position update server-side the moment it happens — when User A moves a card, it shifts on User B's screen instantly.
- Built optimistic UI updates so the board responds immediately to user actions before the server confirms the database write. If the API call fails for any reason, the card smoothly rolls back to its original position — keeping the interface fast and trustworthy.
- Developed a background audit trail that records every workspace action — who moved which task, from what column to which, and exactly when — persisted in a structured MongoDB schema and viewable as a full activity history log.
- Implemented role-based workspace permissions using JWT middleware on the Express backend, giving workspace owners control over member roles, access levels, and workspace-level settings across multiple independent workspaces.

Advanced Remote Examination & Assessment Portal | *React.js · Redux Toolkit · Node.js · Express.js · MongoDB · Chart.js · JWT*

- Developed a full-stack online examination system with three separate role-based portals — Admin, Teacher, and Student — each with its own purpose-built React dashboard and strictly scoped API access enforced at the Express middleware level.
- Built a rich exam creation interface for Teachers using a React-based rich text editor, supporting dynamic question banks, configurable multiple-choice options, automated grading logic, and per-exam time limits.
- Implemented frontend proctoring logic that detects and timestamps browser blur events, tab switches, and focus changes while a student has an active exam open — storing a structured log array in MongoDB for Teacher review post-submission.
- Designed a relational-style MongoDB schema linking exam papers, dynamically generated questions, individual student answer submissions, and automated grade calculations — supporting accurate result generation and efficient querying at scale.
- Built a Teacher analytics dashboard using Chart.js to visualise class performance summaries, pass/fail ratios, score distributions, and average exam durations — giving instructors clear, data-driven insights without any manual data processing.

EDUCATION

B.Tech in Computer Science & Engineering

2022 – May 2026

Trident Academy of Technology, Bhubaneswar | CGPA: 6.8 / 10 | Relevant Coursework: Data Structures & Algorithms, DBMS, Web Technologies, Operating Systems

Class XII — PCM & Computer Science (CBSE)

2020 – 2022

Sainik School Bhubaneswar | Physics, Chemistry, Mathematics, Computer Science

Class X — PCM, Biology & Computer Science (CBSE)

2018 – 2020

Sainik School Bhubaneswar | Physics, Chemistry, Mathematics, Biology, Computer Science

CERTIFICATIONS

Full-Stack Web Development — MERN Stack — Self-Directed / GitHub Portfolio

2024 – 2025

AI/ML Training Program — CTTC MSME, Bhubaneswar

2025

ACHIEVEMENTS & ACTIVITIES

- Independently built and deployed three production-grade full-stack web applications — covering real-time collaboration, AI-integrated proctoring, and role-based exam management — all while completing a full-time B.Tech degree.

- Developed a real-world AI proctoring platform integrating biometric facial verification, live video analysis via OpenCV, code compilation for 15+ languages, and Stripe payments — a level of scope and depth uncommon in student-built projects.
- Active GitHub contributor with multiple public repositories covering MERN stack, Python/Flask, and AI-integrated web development projects.
- Maintained consistent academic performance throughout the B.Tech programme at Trident Academy of Technology, Bhubaneswar.