

Abhirup Bhattacharyya

Software Development Engineer · Back-End Developer

Tech Stack: TypeScript | C++ | WASM | Node.js | JavaScript | Nest.js | Redis | BullMQ | Vitest | AWS | PostgreSQL | React | Git | Github CI/CD

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[My Website](#) | [My GitHub](#) | [My LinkedIn](#)

Summary

Master of Computer Applications graduate with hands-on experience in back-end and systems-oriented development. Built production software including scheduling systems for healthcare workflows, browser extensions, and Software Development Kit for an AI music detection back-end. Strong foundation in algorithms, computer networks, and distributed system fundamentals. Interested in computer graphics and low-level systems, with a focus on building efficient, reliable software.

Work Experience

Back End Intern

PerlThoughts | *Remote* | July 2025 - August 2025 | [Certificate](#)

- Designed and implemented a TypeScript + Nest.js API enabling patients to book doctor appointments via a front-end.
- Designed the API with minimal endpoints, strong validation, and consistent query and mutation semantics between front-end and back-end.
- Implemented an automated rescheduling algorithm to handle doctor schedule changes and emergencies, reducing manual clinic staff intervention.

Open-Source Contributions

AI Generated Music Detection API SDK

TypeScript, Vitest, PNPM workspaces, NPM | *December 2025 - January 2026* | [GitHub](#)

Made two pull requests in which I:

- Developed a Software Development Kit for a REST API, handling client initialization, network errors, retries, and response validation.
- Implemented runtime-safe functions with assertions to ensure received data conforms to expected JSON schemas.
- Wrote unit tests using vitest; identified and reported a bug in the Jobs API.

- Designed the SDK to be JavaScript runtime-agnostic, supporting browsers and multiple JS runtimes.
- Documented exported functions using JSDoc.

Hackathons and Competitions

IGDC BYOG 2025 Game Jam

C++, WASM, Raylib, Emscripten | *October 9-12, 2025* | [Submission Link](#)

- Built a top-down survival game called Cavesweeper during a 72-hour jam
- Implemented procedural map generation using random noise and cellular automata
- Implemented spawning, AI pathfinding, and tile-based collision logic
- Designed an escape-spawn balancing algorithm to ensure fair and consistent gameplay progression.

Projects

Taant Tantra - Full-stack E-commerce App

React Router, TypeScript, Express.js, REST API, Supabase, PostgreSQL, Vite, Razorpay API, Shiprocket, Figma | *December 2025 - Ongoing* | [GitHub](#)

- Developing a complete solution for a small business selling clothes.
- Designed the store homepage and admin dashboard using Figma.
- Used React Router for the front-end server with SSR.
- Integrated Shiprocket API to evaluate shipping feasibility and select optimal rates.
- Integrated Razorpay for payments, refunds, invoice generation, and webhook-driven payment automation.

Algorithm Visualizer

C++, WASM, JavaScript, WebGL | [Deployed App](#) | [GitHub](#)

- Built and deployed an interactive algorithm visualizer using C++, WebAssembly, and JavaScript.
- Supports building trees and graphs, and DFS or BFS traversal algorithms
- Renders nodes and edges on an HTML canvas, stepping through algorithms and highlighting execution states.

Shopify Inventory Management App

TypeScript, Node.js, Nest.js, Redis, BullMQ, GraphQL, PostgreSQL, JWT | [GitHub](#)

- Developed an app which automates processes for managing Shopify stores
- Implemented background processing using Redis and BullMQ for sync and mutation workflows.
- Designed cron-based jobs to ensure consistency between Redis cache, PostgreSQL, and Shopify APIs.
- Built a credits-based billing system integrated with Shopify Payments.
- Implemented role-based authorization and JWT-based authentication.

Productivity Timer Chrome Extension (React)

React, TypeScript, Chrome API, Vite | [Chrome Extension](#) | [GitHub](#)

- Built and deployed a Pomodoro-style productivity timer as a Chrome extension using React
- Managed accurate timer lifecycle using useEffect and useRef, handling pause/resume and background execution
- Persisted user settings and session state using Chrome Storage API

Golf Tournament App

JavaScript, Fetch API, Node.js, Express.js, EJS, Tailwind CSS | [GitHub](#)

- Developed an app which was used in a golf tournament of 72 players using Stableford scoring system to calculate scores
- The app helped judges and the admin facilitate the tournament and let players update their strokes and have judges verify the scores
- Allowed players to calculate their handicap during registration.
- Designed a role-based system for players, judges, and administrators to manage tournament scoring.
- Handled race conditions in cases where the admin and a player were editing the same value during the match

Education

Master of Computer Applications

Galgotia's College of Engineering and Technology | Greater Noida, Uttar Pradesh | November 2022 - July 2024 | CGPA: 8.08

Bachelor of Computer Applications

Greater Noida Institute of Management | Greater Noida, Uttar Pradesh | August 2019 - June 2022 | Percentage: 65.47%

Certificates

- JavaScript | HackerRank | July 2025 | [Certificate](#)
- Node.js Developer | Udemy | June 2023 | Certificate ID: 0010f74970a9