Abhirup **Bhattacharyya**

SOFTWARE DEVELOPMENT ENGINEER · BACK-END DEVELOPER

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TypeScript | C++ | Node.js | JavaScript | Nest.js | Redis | BullMQ | AWS | PostgreSQL | React

Summary

Master of Computer Applications graduate with hands-on experience as a Back-End Intern, where I developed an elastic rescheduling algorithm for stream and wave scheduling systems in healthcare services. Strong foundation in back-end development, computer networks, and algorithms. Currently strengthening my problem solving skills and knowledge of Data Structures and Algorithms.

Interested in computer graphics, developing effective problem-solving approaches for complex tasks, and exploring new technologies and tools. Active contributor to tech communities with a focus on knowledge sharing and collaboration..

Work Experience

PerlThoughts *Tamil Nadu, India*

BACK END INTERN *July 2025 - August 2025*

- Designed and implemented an API using TypeScript and Nest.js which lets patients book appointments with doctors.
- The API was designed to have as less endpoints as possible, and making sure the endpoints had strong validation rules, be flexible, and have consistent naming conventions for queries and mutable request bodies.
- Implemented an algorithm which reschedules appointments if the doctor decides to change his working schedule for a particular date or day or has an emergency. The algorithm was designed to automate a lot of the process done by a clinic staff.

Competitions

IGDC BYOG 2025 Game Jam *Submission Link*

C++, RAYLIB, EMSCRIPTEN *9 Oct. 2025 - 12 Oct. 2025*

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

Projects

Algorithm Visualizer *GitHub Repository Link*

C++, WASM, JAVASCRIPT, WEBGL *Sep. 2025 - Ongoing*

- Developing an interactive algorithm visualizer using C++, Web Assembly, JavaScript.
- Currently only Trees and graphs can be built and DFS or BFS search algorithms can be run.
- Visualizer shows each node and edge by drawing shapes on the HTML canvas. The app steps through the algorithm and highlights specific nodes for visualizing.
- The final goal is to visualize more complex algorithms like convex hull for travelling salesman problem and similar problems, have seamless interactivity with larger trees and graph structures in the 2D space using a quadtree or R-tree.

Shopify Inventory Management App *GitHub Repository Link*

TYPESCRIPT, NODE.JS, NEST.JS, REDIS, BULLMQ, GRAPHQL, POSTGRESQL, JWT *Jan. 2025 - June. 2025*

- Developed an app which automates processes for managing Shopify stores.
- Handled Sync and mutation operations by creating background jobs using message queues.
- Cron jobs are ran during restarts and intervals to sync the data between redis cache data and the Postgres database, and also for periodically syncing some data from Shopify server.
- Implemented a credits based system where store admins can buy credits through the shopify payments gateway.
- Used Redis to cache frequently requested data.
- Implemented role based authorization and JWT based authentication.

Pomodoro App *Chrome Extension Github*

REACT, TYPESCRIPT, CHROME API, VITE *June 2025 - July 2025*

- Deployed the app to chrome extension store.
- Used chrome's API and storage to maintain state, handle various events in the popup menu and have a persistent storage.
- The app can take all the parameters required for a pomodoro timer and the user can update the settings during a session.

Golf Tournament App   *GitHub Repository Link*

JavaScript, Fetch API, Node.js, Express.js, EJS, Tailwind CSS   *Jan. 2025 - Jul. 2025*

- Developed an app which was used in a golf tournament of 72 players. It uses stableford scoring system to calculate the scores.
- The App helped the judges, and the admin facilitate the tournament and let the players update their strokes, have the judges verify the scores.
- It let the players calculate their handicap during the registration.
- There are four endpoints, a score table, admin page, login and registration and the players endpoint
- Handled race conditions in cases where the admin and a player were editing the same value during the match.
- Score table used fetch API to update the scores in fixed intervals.
- Made an easy to use, clean UI using tailwind.

Education

Galgotia's College of Engineering and Technology   *Greater Noida, Uttar Pradesh*

Master of Computer Applications   *Nov. 2022 - Jul. 2024*

- 8.08 CGPA

Greater Noida Institute of Management   *Greater Noida, Uttar Pradesh*

Bachelor of Computer Applications   *August. 2019 - June. 2022*

- 65.47%

Git Collaborations

2D Community Game   *Github Repository Link*

C++ Developer   *Jul. 2024 - Aug. 2024*

- Contributed to a github community repository
- Implemented procedural map generation using cellular automata.
- Implemented Tile placement logic.

Certificates

July 2025 **JavaScript**, HackerRank   *946b9a753cb1*
June 2023 **Node.js Developer**, Udemy   *0010f74970a9*