



Sayak Bhattacharyya

Software Developer · Full-Stack Web, Systems & IoT Research

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SUMMARY

Software developer and **M.Tech CS scholar** at **Techno Main Salt Lake** (8.00 CGPA; 9.13 B.Tech distinction). I build fast, clean web applications with **React**, **TypeScript**, and **Node.js**, solve algorithmic problems in **Java**, and research self-healing error handling in distributed IoT systems. Focused on building reliable software that feels great to use.

RESEARCH & ACADEMIC PAPERS

Framework for Error Handling Technique in IoT Based Context Aware Systems 2024 – 2026

Master's Thesis Research (BTP) · Techno Main Salt Lake, Kolkata

IoT Architecture · Anomaly Detection · Temporal Modeling · Adaptive Self-Healing · RL

- Researched sensor failure modes in noisy environments and developed an adaptive framework (CAAEHF) to detect anomalies in real time.
- Combined temporal modeling with reinforcement learning to filter sensor noise and prevent faulty data from cascading downstream.

Meta Analysis: Association Between Air Pollution & Risk of Pulmonary Diseases 2023 – 2024

B.Tech Capstone Research · Techno International Batanagar (MAKAUT)

Epidemiology · Meta-Regression · Environmental Health · Statistical Modeling

- Conducted a meta-analysis on how particulate pollutants (PM2.5, PM10, NO2, SO2) elevate risk for asthma and COPD across published clinical studies.
- Wrote automated data-cleaning pipelines and fitted random-effects meta-regression models to quantify health risks across diverse populations.

FEATURED TECHNICAL PROJECTS

Sayak.os — Web Desktop OS & Window Manager [sayakos.pages.dev](#)

React · TypeScript · CSS Grid · Web Shell · Cloudflare Pages

- Engineered a browser-based desktop OS with draggable windows, customizable themes, start menu, virtual filesystem, and native arcade games.
- Maintains smooth **60 FPS** window dragging and canvas rendering with zero external UI libraries, keeping total bundle size under **45 KB**.

ShortMyURL — High-Speed URL Shortener & QR Hub [shortmyurl.vercel.app](#)

React · Next.js · QR Synthesis · Vercel

- Developed a fast link utility generating branded short URLs, real-time click tracking, and scannable vector QR codes.
- Engineered **sub-100ms** redirection latency and achieved a **98+ Lighthouse score** via client caching and atomic state updates.

Life Dashboard — Habit, Expense & Journal OS [github.com/.../life-dashboard](#)

React · TypeScript · LocalStorage · Modular State · Data Analytics

- Built an all-in-one personal productivity OS combining habit streak tracking, expense accounting, workout logging, and private daily journaling.
- Implemented zero-latency offline persistence, managing **1,000+ local transaction entries** with instant **sub-10ms** query responses.

EDUCATION

M.Tech, Computer Science & Eng
Techno Main Salt Lake, Kolkata

Sep 2024 – Jun 2026

CGPA: 8.00 / 10

Distributed Systems, Cloud Computing, Advanced DBMS, Computer Networks

B.Tech, Computer Science & Eng
Techno International Batanagar (MAKAUT)

Sep 2020 – Jun 2024

DGPA: 9.13 / 10

Graduated with Distinction. Data Structures, Operating Systems, Full-Stack Web, DBMS

Higher Secondary (Science PCM)
Sekandarpur Rai K.P. Pal Bahadur H.S.

2018 – 2020

Score: 87.4% (437/500)

WBCHSE · Physics, Chemistry, Mathematics

Secondary Education (Class X)
Sekandarpur Rai K.P. Pal Bahadur H.S.

Passed 2018

Score: 87.4% (612/700)

WBBSE Board · Distinction in Mathematics & Science

TECHNICAL SKILLS

LANGUAGES

Java (DSA) JavaScript (ES6+) TypeScript Python

SQL HTML5 / CSS3

FRAMEWORKS & WEB

React.js Node.js Express.js Astro

DATABASES & SYSTEMS

DBMS MySQL PostgreSQL MongoDB

Operating Systems Computer Networks

DEV TOOLS & RESEARCH

Git / GitHub Cloudflare Pages VS Code Postman

Linux / Bash Statistical Analytics

SOFT SKILLS

- Practical Problem Solving & Debugging
- Clear & Direct Technical Communication
- Collaborative Teamwork & Mentoring
- Rapid Prototyping & Code Ownership

LANGUAGES

Bengali
Native

English
Proficient

Hindi
Proficient

INTERESTS

Street Photography · Playing Guitar · Creating Music