





Tushar Banik

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EDUCATION

Indian Institute of Technology Guwahati, India

Bachelor of Technology in Biosciences and Bioengineering

2021 - Present

GPA: 7.7/10.0 (Current)

EXPERIENCE

GoQuant

Backend Intern – C++/Python

February 2025 – March 2025

Remote

- Developed **Python** tests for **OKX**, **HTX** endpoints validating order/market-data flows under load with **error handling**
- Implemented HTX gateway in **C++** by mapping generic **interfaces** to proprietary protocol, optimizing for sub-ms **latency**
- Authored gateway **documentation** covering setup, **credentials** and **protocol** differences to ease onboarding/maintenance

Google Summer of Code (GSOC) - International Catrobat Association

Student Developer

May 2024 - August 2024

Remote

- Developed ReZero, a rogue-lite action-platformer, featuring over **50+** unique scenes and more than **10** intricate puzzles.
- Designed game **mechanics**, integrated new functionalities, ensured smooth **gameplay** with over **30+** custom interactions.
- Optimized game size by **50%** through efficient **compression** of **assets**, optimizing background, character, and **sound** files.

Code for Govtech (C4GT) - Sunbird UCI

Software Development Intern

July 2023 - September 2023

Remote

- Refactored the uci-web **turborepo**, fixing **50+** **ESLint** and **Prettier** issues, and setting up **Husky** for **100%** pre-commit hook coverage.
- Introduced unit tests with **Jest/Cypress**, achieving **40%** test coverage and made the UI **configurable** with **theme**, and **sidebar** options.
- Implemented **voice-to-text** recognition, **dark theme**, added a full-screen **loader** and **Lerna** for **real-time** updates during development.

PROJECTS

PacketSentry – Network Flow Classifier

Go | Networking | ML

May 2025

github/PacketSentry

- Built a **Go-based** classifier to process **live traffic** from interfaces (e.g., **eth0**) and offline **PCAP** files, parsing **IP/port** flows.
- Extracted **14** flow features (byte counts, packet rates, timing intervals) and used a **logistic regression** model for real-time **classification**.
- Supported **AES-256 encrypted** .csv.enc report generation and integrated interactive **HTML charts** for secure, insightful **visualization**.

Apex – High-Performance C++ Trading Engine

C++ | Trading | Systems Programming

January 2025

github/Apex

- Developed a modular **C++ engine** with REST API client and **WebSocket** server to process **real-time market** data and orders.
- Implemented **order management**, **logging**, **CI scripts**; optimized **memory** and **network I/O** with **smart pointers**, pools, **HTTP/2**
- Used **Boost** with **thread pools** and fine-grained **locks**; achieved **185 ms** order, **183 ms** market data and **0.1 ms** WebSocket latencies.

Project Hub - Unified Collaboration Platform

Next.js | Typescript | Devops

June 2023

projecthub-demo

- Engineered a full-stack collaboration platform using **Next.js**, **Tailwind CSS**, MongoDB, NextAuth, **OpenAI API**, **Docker**, and Jest.
- Enabled project sharing with submission **workflows**, discussion **forums**, contact **forms**, testimonials, and an **admin panel** for approvals.
- Developed a user **dashboard** featuring **profiles**, settings, **analytics**, and ability to browse and follow other users' projects.

ACHIEVEMENTS

Google Summer of Code

Selected among **1100** from **25k+** applicants worldwide.

2024

Code for Govtech

Shortlisted as one of the top **100** contributors **nationwide** for working on Digital Public Goods.

2023

Codepeak

Top contributor, secured **3rd** rank among **1500** contributors

2022

Chemistry Olympiad

Secured **9th** rank among **3k+** participants in the State Chemistry Olympiad.

2018

TECHNICAL SKILLS

Languages: C/C++, JavaScript, TypeScript, Go, R, Python*

Frameworks: Django, Express.js, React.js, Next.js, React Native

DevOps: Docker, Prometheus, Grafana, Terraform, Kubernetes*

Databases: MySQL, MongoDB, PostgreSQL, Firebase

Technologies: Websosckets, WebRTC, Flutter, Turborepo, CMS

Miscellaneous: Git/GitHub, Unity3D, Linux, Figma, Jest

RELEVANT COURSEWORK

Computer Science: Introduction To Computing, Database Management System, Operating System, Computer Networks

POSITIONS OF RESPONSIBILITY

Open Source Head, Coding Club IIT Guwahati

April 2023 - April 2024

Led and mentored a team of **30+** developers, driving **open-source contributions** and spearheading **5+** impactful campus projects.

Hackstack Mentor

June 2023

Guided **1000+** students from **colleges** across **India** in a beginner web development workshop.

Open Source Contributor

March 2022 - Present

Contributed **250+** PRs across **25+** repositories, driving significant impact in **open-source projects**.