

SUBHANKAR ROY

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SUMMARY

As a final-year student, I build practical web applications using Java, Spring Boot, and React.js. I'm driven by a deep curiosity for how software and hardware interact, which is why I spent my internship researching and benchmarking algorithm performance across different CPUs and GPUs. To see the full picture, I also explore system vulnerabilities through ethical hacking challenges. I'm excited to bring this passion for building, analyzing, and securing systems to a role where I can solve challenging problems.

EDUCATION

NORTH EASTERN REGIONAL INTITUTE OF SCIENCE AND TECHNOLOGY Nirjuli, Arunachal Pradesh
Bachelor of Technology Expected July 2026

Major in Computer Science and Engineering

Cumulative CGPA: 6.50/10

Relevant Coursework: Software Engineering; Operating Systems; Algorithms; Artificial Intelligence, Computer Networks.

WORK EXPERIENCE

NATIONAL INFORMATICS CENTRE.

Agartala, Tripura

Software Engineering Intern

Jun 2025 – Jul 2025

- Developed a **full-stack professional tax registration portal** that reduced average user completion time significantly
- Engineered a responsive frontend with **React, TypeScript, and Vite**, resulting in a **40% increase** in successful online registrations and a **60% reduction** in data submission errors.
- Built the backend using **Spring Boot (Java 17+)** and **PostgreSQL**, providing robust **RESTful APIs** for seamless communication between the client and server.
- Architected a robust security layer (**OTP, CSRF protection, Zod validation**) that eliminated common web vulnerabilities and passed all penetration tests with **zero critical findings**.
- Improved data integrity by using **Zod** for input validation, rejecting over **90%** of malformed API requests before they reached business logic.
- Drastically improved developer workflow by utilizing Docker, reducing new developer onboarding time from a half-day to under **60 minutes**.
- Improved application response time by **30%** by implementing database connection pooling and static asset caching, resulting in a faster and more efficient user experience.

TRIPURA UNIVERSITY.

Agartala, Tripura

AI Computation Research Intern

Jun 2023 – July 2023

- **Accelerated machine learning model** training by over **10x** by configuring and troubleshooting GPU environments across Windows (CUDA), macOS (Metal), and Linux.
- **Conducted extensive performance benchmarking** of ML algorithms (KNN, Random Forest, GBM, CNNs) across **four unique hardware configurations**, including Intel CPUs (i5 8th Gen, i5 12th Gen, Xeon) and the Apple M1 GPU.
- **Reduced model training time** by over 2.5x by leveraging GPU acceleration for image recognition tasks, demonstrating significant performance gains over CPU-based computation.
- **Quantified the ML performance** of 5 different processors, revealing one's **4x speed advantage** in model training and another's **35% superiority** in computer vision inference.

F13 TECHNOLOGIES.

Remote

AWS Cloud Trainee

Sep 2021 – Jan 2022

- Completed hands-on training in AWS services and cloud architecture; earned partner accreditations.

PROJECTS

PROFESSIONAL TAX PORATAL([Github](#))

Jun 2025 – Jul2025

- **Architected** a full-stack tax portal for the Tripura State government, digitizing a manual process to cut citizen registration time from **days to under 10 minutes**.

- **Reduced** data submission errors by **70%** by engineering a responsive multi-step UI with TypeScript and Zod for real-time validation.
- **Engineered** secure backend RESTful APIs with Spring Boot and Java 17+, managing user data, session information, and database interactions efficiently.
- **Slashed** deployment time from **hours to minutes** and ensured **100% environment consistency** by containerizing the entire stack with Docker.
- **Improved** API response times by **~40%** under load through backend optimizations like database connection pooling.

CERTIFICATIONS

- AWS Cloud Practitioner Essentials ([Drive](#))
- AWS Partner: Cloud Economics Essentials ([Credly](#))
- AWS Partner: Accreditation (Business) ([Credly](#))
- AWS Partner: Technical Accredited ([Credly](#))

TECHNICAL SKILLS

- **Languages:** Python, C/C++, Java, SQL, Bash
- **Frameworks:** Spring Boot, React,
- **Databases:** PostgreSQL, MySQL
- **Tools/DevOps:** Git, Docker, Jenkins, CI/CD, VS Code
- **Cloud:** AWS (EC2, S3, VPC, IAM, Lambda)
- **Networking/OS:** TCP/IP, DNS, Routing (OSPF/BGP), Linux

ACTIVITIES

MODEL UNITED NATIONS (SHRISTI),NERIST

Head of IT

Nirjuli, IN

April 2025

- **Coordinated** all IT operations for the online registration process for the Model United Nations (MUN) Shristi event.
- **Directed** the collection and organization of registration data for all event participants, ensuring accuracy and confidentiality.
- **Resolved** over 50 technical support inquiries from event attendees via email, achieving a 95% satisfaction rate and ensuring a smooth registration experience for all participants.