# Prithwijit Ghosh

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Software engineering graduate with expertise in web development and artificial intelligence. Skilled in JavaScript frameworks (Node.js, Next.js), Python, and machine learning technologies. Specializes in designing scalable solutions and developing AI-powered projects that enhance user engagement and system performance. Committed to creating innovative, technically advanced applications that solve complex challenges.

#### EDUCATION

## Techno India University

Kolkata, WB

Bachelor of Technology in Computer Science with AI

Aug. 2021 - 2025

#### PROJECTS

#### NextRead | React, Node.js, MongoDB, AWS

September 2024 – Present

- Architected and deployed a scalable MERN stack application serving 10k+ monthly active users
- Engineered an ML-based recommendation engine using collaborative filtering, driving 40% increase in user retention
- Built RESTful APIs integrating Google Books and OpenLibrary, processing 100k+ daily requests with 99.9% uptime
- Implemented real-time messaging using Socket.io and Redis pub/sub, handling 1000+ concurrent users with †100ms latency

## **Luna** | Python, CUDA, OpenCV

August 2024

- Developed a CUDA-accelerated image processing pipeline for analyzing Permanently Shadowed Regions (PSR) in lunar imagery
- Engineered custom denoising algorithms achieving 60% SNR improvement in ultra-low-light conditions
- Created automated mapping system processing 2TB+ of Chandrayaan-2 OHRC data with 4x performance improvement
- Open-sourced comprehensive lunar pole mapping toolset, adopted by 3 research institutions

#### **Epiphany** | Next. js, Go, Clerk, Convex

June 2023

- Built microservices architecture handling 5k+ concurrent users with 500ms response time
- Implemented ML-driven study path optimization resulting in 15% improved student performance metrics
- Designed scalable database schema in Convex supporting 100k+ student records with efficient querying
- Developed GPT-powered chatbot handling 1000+ daily queries with 92% resolution rate

#### Meetopia | Next.js 14, Stream SDK

June 2023

- Engineered WebRTC-based video conferencing solution supporting 50+ participants per room with HD quality
- $\bullet$  Implemented end-to-end encryption and SOC2 compliant authentication using Clerk
- Built responsive UI with Tailwind CSS, achieving 98% cross-browser compatibility
- Optimized media streaming reducing bandwidth usage by 40% while maintaining video quality

#### Honors & Awards

## AI Unite Hackathon - Winners

Kolkata, West Bengal

Team: The Last of Us | Project: "Epiphany" - AI-powered academic dashboard

June 2024

# Smart India Hackathon - Runner-Up

Kolkata, West Bengal

Team: quantumFrost | Project: "Myrtle" - Image Recognition Model using AI/ML Techniques

 $October\ 2023$ 

#### TECHNICAL SKILLS

Languages: Java, Python, C++, SQL, Go

Frameworks Big Data: React, Next.js, YOLO, Hadoop, Spark, Kafka, MongoDB, Kubernetes

Tools: Git, Docker, GCP, AWS, VS Code, IntelliJ, Eclipse

Libraries: pandas, NumPv, Matplotlib