

ARGHADEEP BISWAS

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Education

Indian Institute of Technology, Kharagpur

Dec. 2021 – present

M.TECH Dual Degree 5 Year, Major: Chemical Engineering

CGPA - 8.57/10

Skills and Technologies

Programming Languages: C | C++ | Javascript | TypeScript | Python | HTML | CSS

FrameWorks & Libraries: NextJS | NodeJS | ExpressJS | MongoDB | MySQL | PostgreSQL

AI & Agentic Systems: CrewAI | LangGraph | LangChain | OpenAI API | RAG | Prompt Engineering | N8N

Experience

Software Intern, Tokyo Electric Power Company(Agile Energy X), Japan

May 2025 – Aug 2025

Objective: AI AGENT to search relevant information for TEPCO's business

- Designed a **knowledge base** system, analyzing **400+** METI policy documents across various energy committees
- Engineered a full-stack pipeline to **scrape**, **store** (AWS S3), and **index** (Titan + Pinecone) METI archives.
- Deployed an interactive **Streamlit** app with Japanese–English support, retrieval controls, and source-cited answers
- Built and deployed “**AgileBOT**”, a document-aware chatbot powered by **Supabase** and **PostgreSQL** to deliver automated customer support on the company website.

Undergraduate Research Internship, Ulm University, Germany

May 2024 - July 2024

Milestone: Research done in collaboration with Mercedes Benz Innovation Centre, Ulm

- Engineered an automated **CO₂ hydrogenation** system with sensor-based control of flow, pressure, and temperature.
- Developed Python scripts to streamline detector data analysis (TCD, FID), making conversion tracking more accurate
- Optimized reaction conditions to maximize CO₂ conversion at 240 °C through data-driven evaluation

Projects

X-Physical Infrastructure Network(X-PIN) | Tateiwa Kenji & Tokyo Bitcoin Base

July 2025 – Present

- Architected a Bitcoin Lightning–powered **DePIN** marketplace with **BTCPay Server** integration, enabling tokenized rental of mining rigs with real-time payments.
- Developed a decentralized **energy grid simulator**, modeling P2P renewable energy trading with dynamic pricing and Lightning micropayments.
- Future work: Engineering a blockchain-based device management system using **Peaq IDs**, automating token rewards (HEAT/COR) and Lightning invoice generation from sensor data.

ShibaKraft - A Website Portfolio Builder | Prof. Koustuv Ray

Jan 2025 – Present

- Developed a **no-code portfolio builder** enabling users to create, customize, and publish professional portfolios with dynamic sections for experience, projects, education, and skills.
- Leveraged a modern full-stack architecture with Next.js + Shadcn UI for a modular frontend and Supabase for backend.
- Engineered secure end-to-end **CRUD** workflows with **Clerk** authentication and dynamic routing, generating unique, **shareable portfolio URLs** for each user.

Replicode | ChaiCode.com

Mar 2025 - Present

- Built full-stack Q&A platform Replicode with Next.js and Appwrite, enabling real-time voting, reputation management, and file-supported markdown editing.
- Designed scalable backend with Appwrite collections and automated middleware, streamlining Q&A workflows
- Implemented Zustand state management for authentication, comment threading, and user reputation tracking.

Bio-Reactor Model for Gluconic Acid Fermentation | Prof. Sandip Kumar Lahiri

Jun 2023 – Aug 2023

- Developed an ANN using the **Levenberg-Marquardt** algorithm to predict gluconic acid yield with an **R² of 0.9974**
- Tuned model parameters, adjusted hidden layers, and optimized using **genetic algorithm** to enhance performance
- Enhanced model performance by methodically choosing **test** and **validation** data, resulting in high accuracy.

Training/Certification

KRISHAI Technologies - Agentic AI

Jan 2025 – Mar 2025

- Mastered Agentic AI principles by building and deploying autonomous, event-driven multi-agent systems using LangGraph and LangChain, focusing on workflows with memory, reasoning, and tool integration.

Ligency Team - Udemy

May 2025 – Present

- Developed a portfolio of 8 autonomous agents using frameworks like CrewAI, LangGraph, and AutoGen, culminating in a capstone project of a 4-agent financial trading floor with autonomous trading capabilities.