Dhritabrata Mitra

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SKILLS

Frontend: Next.js, React.js, TypeScript, JavaScript (ES6+), Redux, Zustand, HTML5, CSS3, Tailwind CSS, Material UI, GraphQL (Apollo Client)

Backend: Java, Spring Boot, Spring MVC, Hibernate, Microservices, Kafka, Python, Node.js, Express, FastAPI, RESTful APIs, GraphQL APIs (Spring GraphQL, Apollo Server)

Databases: PostgreSQL (NeonDB, Drizzle ORM), MySQL (SQL), MongoDB (NoSQL), Redis

Cloud/DevOps: AWS (EC2, S3, CodeDeploy, CloudWatch), Docker, Kubernetes, Jenkins, CI/CD, Linux, Cloudinary

Testing & Quality: JUnit, Jest, React Testing Library, Selenium, Test-Driven Development (TDD)

Tools: Git, Maven, Webpack, Babel, Postman, Figma, Confluence, Bitbucket, GitHub, dotenv

Security & Auth: JWT, OAuth2 (GCP), Better Auth

AI/Realtime: OpenAI APIs, Stream Video/Chat SDKs, WebRTC, WebSockets (Socket.IO), TensorFlow, Keras

WORK EXPERIENCE

Cognizant Technology Solutions

Software Engineer   Sept 2020 – Jun 2023

Project: Capital One
- Engineered secure, high-performance distributed banking systems using React.js, Java (Spring Boot, Spring MVC, Microservices, Hibernate), Tailwind CSS, TypeScript, and PostgreSQL, serving 2M+ users and ensuring compliance with financial regulations.
- Built a Redis-backed rate-limiting microservice with JWT/OAuth2 authentication (10 req/min per user), preventing DoS and brute-force attacks, enhancing system reliability.
- Deployed Java Spring Boot services on AWS EC2 with AWS CodeDeploy, storing build artifacts in S3 and monitoring system health via CloudWatch, cutting release times by 50% and reducing deployment failures.
- Integrated Apache Kafka for real-time communication between Transaction, Notification, and Payment microservices, improving data reliability and reducing latency across distributed systems.
- Implemented CI/CD pipelines using Jenkins integrated with AWS CodeDeploy and IAM-based access controls, enabling secure, automated deployments that reduced manual errors by 30%.
- Containerized applications with Docker and orchestrated services using Kubernetes, enabling consistent deployments, automated scaling, and zero-downtime releases across distributed systems, which cut infrastructure costs by 20% and accelerated feature delivery cycles.
- Mentored 5 interns and conducted peer code reviews, establishing coding standards and supporting 10+ successful production deployments.

Project: Walmart
- Engineered a single-page e-commerce platform using React.js, Java (Spring Boot, Microservices, Spring MVC, Hibernate), TypeScript, JQuery, and PostgreSQL, serving 3M+ monthly users and contributing to $15B+ in annual revenue.
- Enhanced advanced filtering, sorting, and pagination features, streamlining product discovery and contributing to a 10% lift in average session duration and a 20% increase in customer engagement on category pages.
- Lowered production issues by 35% by writing unit tests (Jest, React Testing Library, and JUnit), and performing end-to-end testing (Selenium) following Test-Driven Development (TDD) practices.

- Built and optimized RESTful and GraphQL APIs to connect frontend and backend systems more efficiently, making data loading faster and reducing page errors.
- Resolved production and integration issues across frontend and backend systems by performing root cause analysis, reducing downtime from 12 hours per quarter to under 30 minutes, and cutting average production incidents from 250 to 20 per month.
- Reduced frontend load times by 35% and boosted checkout conversions by 20% by implementing lazy loading and Webpack code splitting.

Software Engineer Intern   Jan 2020 – Apr 2020
- Resolved 10+ critical bugs and developed 5+ new features for Walmart's website, improving application performance and reducing crash rates within 4 months.
- Collaborated with a 6-member Agile team under SDLC processes, participating in daily stand-ups, sprint planning, and code reviews to deliver features ahead of schedule.

TECHNICAL PROJECTS

Meet AI | Demo | Live Site | GitHub
- Built a SaaS platform with OpenAI LLM integration for real-time verbal Q&A, providing training and eliminating delays in problem-solving by delivering instant, accurate answers during meetings.
- Developed video conferencing features (calls, screen sharing, recording) using Stream SDKs/WebRTC, enhancing productivity.
- Architected a scalable backend with tRPC, Drizzle ORM, and NeonDB, powering type-safe APIs, faster queries, and advanced search/filtering, improving navigation efficiency.
- Designed a subscription-based payment system using Polar API, enabling users to manage premium plans, track usage, and handle recurring payments.
- Tech Stack: Next.js, React.js, TypeScript, Tailwind CSS, Radix UI, Lucide React, React Hook Form, Zod, TanStack React Query, Embla Carousel, Sonner, tRPC, Drizzle ORM, NeonDB, dotenv, Better Auth, Stream Video/Chat SDKs, and OpenAI APIs.

ChatAway - Real-time Chat App | Demo | Live Site | GitHub
- Built a real-time chat app (Socket.IO/WebSockets), addressing delays in teamwork by providing immediate messaging and media sharing.
- Implemented secure authentication with OAuth2 (GCP) and JWT, protecting sensitive features and improving trust.
- Integrated Zustand for global state (auth, sockets, themes), creating a consistent user experience across sessions.
- Tech Stack: React.js, Node.js, Express, MongoDB, Cloudinary, Tailwind CSS, Render, and DaisyUI.

Plant Disease Detection | Demo | GitHub
- Built a full-stack AI app (React.js and FastAPI) that identifies plant diseases (Early/Late Blight, Healthy), helping farmers prevent crop loss.
- Achieved 95% accuracy with an AI-powered TensorFlow/Keras model, improving agricultural decision-making and yield reliability.
- Integrated prediction API with a clean UI, delivering instant results with confidence scores to end users.
- Tech Stack: Python, FastAPI, TensorFlow, Keras, React.js, JavaScript, and CSS3.

EDUCATION

Master of Science, Computer Science, 3.85/4 GPA　　　　　　　　Aug 2023 - Apr 2025
Michigan Technological University

Bachelor of Technology, Computer Science, 3.39/4 GPA　　　　　Jul 2016 - May 2020
University of Engineering and Management

LEADERSHIP & INVOLVEMENT

- **Research Assistant** at Michigan Technological University　　　　　Jun 2025 – Present
- **Graduate Student Assistant** at Michigan Technological University　Aug 2024 – Dec 2024
- **Student Supervisor** at WADS Dining Services　　　　　　　　　Jan 2024 – Jun 2024
- Member of the **Indian Student Organization** of Michigan Tech　　Aug 2023 – Apr 2025
- **Volunteer** in Cognizant Outreach events.　　　　　　　　　　　Sept 2020 – Jun 2023