**Dhritabrata Mitra**
dmitra2@mtu.edu | (810) 531-3212 | LinkedIn | GitHub | Portfolio

## SKILLS

JavaScript | TypeScript | C++ | Python | React.js | Next.js | HTML | CSS | RTL | NoSQL | Webpack | ES6 | Slack | Tailwind CSS | Node.js | Express | FastAPI | React Testing Library (RTL) | Babel | NPM | Git | Figma | SCSS | RESTful APIs | Jest | Redux | Zustand | React Context API | Software Development Life Cycle (SDLC) | MUI | AWS (EC2) | Cloudinary | Azure | MySQL | SQL | Jenkins | GitLab | Jira | Bitbucket | Confluence | MongoDB | Agile | Scrum | Data Structures | Algorithms | JSON

## WORK EXPERIENCE

**Frontend Developer, Cognizant Technology Solutions** Sept 2020 – Jun 2023

- Developed a single-page e-commerce application with a responsive design using React, TypeScript, JavaScript, and Node.js, contributing to $15 billion in annual revenue.
- Collaborated with senior engineers and cross-functional teams to implement full-stack product features and improve system reliability.
- Handled production support and ongoing maintenance of frontend and backend code for websites and applications, fixing critical bugs and UI issues through root cause analysis, which reduced user complaints from 2,000 to 500 per month and improved overall system stability.
- Implemented rate limiting and throttling in RESTful APIs, which improved performance and protected services from excessive traffic by limiting each user to 10 requests per minute. As a result, it effectively blocked denial-of-service (DoS) attacks, API scraping, and brute-force attempts, protecting sensitive data and ensuring regulatory compliance.
- Implemented real-time product search with pagination using asynchronous code with Promises and async/await, allowing users to see results instantly and load more items without page refresh. This reduced server load and bandwidth usage, lowering costs and ensuring stable performance and scalability.
- Optimized application performance by implementing lazy loading and code splitting in a React-based single-page application, reducing initial load time significantly and allowing users to access content faster.
- Built reusable UI components with Material UI, enhancing consistency across the app and reducing development time by 30%.
- Set up Redux for global state management, making it easier to share data across components. This helped other developers write cleaner and modular code, improving team productivity and reducing development time.
- Wrote unit tests and practiced Test-Driven Development (TDD) using Jest and React Testing Library, leading to 40% fewer production issues.
- Managed tasks through the JIRA ticketing system for a live production app, addressing support requests and enhancing user-facing features.
- Configured and managed CI/CD pipelines with Git for version control, Jenkins, and GitLab to automate build, test, and deployment processes, ensuring fast and reliable production releases.
- Actively participated in Agile sprints and Scrum ceremonies such as planning, sizing, daily stand-ups, demos, and retrospectives, helping the team prioritize features and resolve blockers efficiently.

**Frontend Developer Intern, Cognizant Technology Solutions** Jan 2020 – Apr 2020

- Fixed 10+ critical bugs and added 5+ features, increasing user engagement by 50% and improving platform performance by reducing average response time from 800ms to 320ms, which made the system more stable and responsive and helped reduce user drop-offs and support issues.

## EDUCATION

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

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

## TECHNICAL PROJECTS

**ChatAway - Real-time Chat App | Video Demo**

- Built a real-time chat app using Socket.IO and WebSockets to support text and image messaging.
- Developed dynamic forms to capture user input and submit data securely to the backend using REST APIs.
- Used MongoDB to manage and store user/message data, establishing efficient data access.
- Implemented OAuth2 authentication and JWT-based protected routes for secure access control.
- Designed user and message schemas to manage application data efficiently.
- Styled the application using daisyUI with Tailwind CSS 4 for responsive design.
- Managed user state with Zustand and integrated Cloudinary to manage image uploads.
- Tech Stack: React.js, Node.js, Express, MongoDB, Tailwind CSS, and DaisyUI

**Plant Disease Detection | Video Demo | GitHub Link**

- Built a full-stack web application that detects plant diseases (Early Blight, Late Blight, Healthy) from user-uploaded images.
- Trained a CNN model using TensorFlow and Keras in Google Colab on a Kaggle dataset, achieving 95% accuracy through preprocessing, training, and evaluation.
- Developed a FastAPI backend in Python to load the model and process classification requests via API endpoints.
- Created a React.js frontend that lets users upload images and view prediction results with confidence scores, styled with custom CSS.
- Tech Stack: Python, FastAPI, TensorFlow, React.js, JavaScript, and CSS.

**Candy Crush Game | Video Demo | GitHub Link**

- Designed and developed a game where players crush matching candies when they appear next to each other.
- Implemented dynamic scoring logic that updates in real time as candies are crushed, and the final score is shown to the user.
- Used an 8x8 grid structure to arrange the candies.
- Tech Stack: React.js

## LEADERSHIP & INVOLVEMENT

- **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 Technological University. — Aug 2023 – Apr 2025
- **Volunteer** in Cognizant Outreach events. — Sept 2020 – Jun 2023