Dhritabrata Mitra
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EDUCATION

Michigan Technological University, Houghton, Michigan   April 2025
Master's Degree in Computer Science, 3.85/4 GPA

University of Engineering and Management, Kolkata, India   Jul 2016 - May 2020
B.Tech, Computer Science, 3.39/4 GPA

TECHNICAL SKILLS

Languages: JavaScript, TypeScript, C++, and Python
Frontend: React.js, HTML, CSS, SCSS, MUI, RTL, and Tailwind CSS
Backend: Node.js, Express, RESTful APIs, and FastAPI
Testing Frameworks: React Testing Library (RTL) and Jest
State Management: Redux, Zustand, and React Context API
Build Tools: Webpack and Babel
DevOps/Tools: Git, Jenkins, GitLab, Jira, Bitbucket, and Confluence
Cloud: AWS (EC2) and Cloudinary
Database: MongoDB and MySQL

WORK EXPERIENCE

Cognizant Technology Solutions, Full Stack Developer   Sept 2020 – Jun 2023

- Designed and implemented a **scalable single-page** e-commerce **web application** with responsive design using **React, JavaScript,** and **TypeScript,** meeting stakeholder requirements and contributing to **$50,000** in profit.
- Participated in **Agile** development practices like **sprint planning** and **daily stand-ups** to help deliver features and improvements on time.
- Built reusable **ES6+** components with **SCSS** and **Material UI**, resulting in improved development speed and consistent UI design.
- Resolved 30+ frontend and backend bugs through root cause analysis, improving system accuracy by 50% and reducing user complaints by 30%.
- Automated build, test, and deployment processes as a part of the **software development life cycle** using **Jenkins** and **GitLab CI/CD**, reducing manual errors and increasing deployment speed by **40%**.
- Connected to an **AWS cloud server** to write and test React code, making development easier and faster in a cloud setup.
- Integrated **RESTful APIs** to enhance store selection during checkout, lowering address processing time by **20%**.
- Improved application performance and reliability by conducting thorough testing, code reviews, and performance tuning, which reduced page load times and increased system stability by **40%**.
- Followed **test-driven development (TDD)** principles to write unit tests using **React Testing Library** and **Jest**, ensuring cross-browser compatibility and correct functionality across **25+** production sites.
- Utilized **Git** for version control, including branching, merging, and deploying to development environments.
- Used **Redux** for **global state management** to resolve data flow issues, enhancing application stability and user experience.
- **Mentored, guided,** and **trained** 23 entry-level engineers, all successfully deployed to other teams.
- Performed **code review** of 6 engineers and provided feedback that helped launch 15+ changes to the live production site.

INTERNSHIP EXPERIENCE

Cognizant Technology Solutions, Full Stack Developer Intern   Jan 2020 – April 2020
Fixed **10+** critical bugs and added **5+** features, increasing user engagement by **50%** and improving platform performance and customer satisfaction.

TECHNICAL PROJECTS

ChatAway - Real-time Chat App | Video Demo

- Created a **real-time chat application** using **Socket.IO (built on WebSockets),** where users can send text messages and images to friends and family.
- Implemented **dynamic forms** to capture user input and securely submit data to the backend using **REST API**.
- Used **NoSQL database** (MongoDB) to store user information.
- Handled **form validation**, **error feedback**, and **API communication** to ensure a smooth user experience.
- Users can upload a profile picture and change the application's theme.
- Implemented secure user authentication by integrating the **Google OAuth** third-party API for sign-in and sign-up functionality.
- Designed **user** and **message schemas** to manage data effectively in the application.
- Styled the application using **daisyUI** with **Tailwind CSS 4** to make it responsive and modern.
- Used **Zustand** state management library to keep track of the user currently logged in.
- Used a **cloud-based solution** called **Cloudinary** to manage images shared among users.
- Worked with **Postman** for API testing.
- Generated and verified **JWT** to establish a trusted user identity and enforce access control across protected endpoints.
- **Tech Stack:** React.js, Node.js, Express, MongoDB, Tailwind CSS, and DaisyUI

Plant Disease Detection | Video Demo | GitHub Link

- Built a **responsive** web application to detect plant diseases (Early Blight, Late Blight, Healthy) from user uploaded images.
- Implemented end-to-end **ML pipeline services** in Google Colab, encompassing **data preprocessing**, **CNN model** training, and **performance evaluation** on a labeled Kaggle dataset, achieving **95%** classification accuracy.
- Developed a **FastAPI** backend to load the trained model and handle image classification requests.
- Presented the **classification results** and **confidence levels** clearly to the user.
- **Tech Stack:** Python, JavaScript, React.js, FastAPI, and CSS.

Candy Crush Game | Video Demo | GitHub Link

- Designed and developed a game where players can **crush matching candies** when they are next to each other.
- Implemented **dynamic scoring logic** that updates in real-time when players crush the candies, and the final score is shown to the user.
- Utilized an **8x8 grid** structure to arrange the candies.
- Candies were **arranged differently** each time the users started a new game.
- **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