Pranta Nir Barua

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Education

Michigan State University — East Lansing, MI
Bachelor of Science in Computer Science, Minor in Business — *Aug. 2021 – May 2025*

Michigan State University — East Lansing, MI
Bachelor of Science in Data Science — *Aug. 2021 – May 2025*

Experience

C++ & Python Instructor (Game Coding & AI/ML) — June 2025 – Present
iD Tech Academy at Stanford University — *Stanford, CA*

- Designed and taught structured lesson plans in C++ (Raylib) and Python (AI/ML), emphasizing SWE principles like modular design, debugging, and iterative testing, ensuring students built solid engineering foundations
- Led and mentored a diverse team of teenagers by fostering a collaborative, hands-on environment where students tackled coding challenges, practiced peer code reviews, and developed problem-solving resilience.

Full Stack App Developer — May 2023 – May 2025
Michigan State University — *East Lansing, MI*

- Developed and launched a mobile app on iOS and Android using React.js, Node.js, and Firebase to create a points-based check-in system and resource hub, increasing student engagement by 40% for over 11,000 users
- Integrated MSU's Okta single sign-on by exchanging auth tokens and enforced Firestore security rules to ensure restricted access and minimum privilege, resulting in zero security breaches.
- Organized and facilitated orientation events by coordinating with university departments to support new students, leading to a 90% positive feedback rate

Teaching Assistant — September 2022 - May 2024
Michigan State University — *East Lansing, MI*

- Led weekly lab sessions and help rooms for 50 students, teaching Python fundamentals and debugging techniques through hands-on coding exercises, improving student performance and lab scores
- Collaborated in weekly team meetings with colleagues and professors to share best practices and strategize curriculum enhancements, leading to more effective student engagement and learning

Professorial Assistant in Research — September 2021 - September 2022
Michigan State University — *East Lansing, MI*

- Developed a web-based system using HTML, CSS, and JavaScript to display and compare hurricane predictions from the National Hurricane Center and machine learning models, improving forecast visualization and analysis

Projects

Agentic Collaborator | *Python, Flask, React, PostgreSQL, LangChain* — September 2024 - December 2024

- Built an AI-powered email analysis tool for Microsoft Outlook using OpenAI API to automate sentiment analysis and consensus-building, reducing manual review time for employees.
- Designed a web dashboard to visualize AI-generated insights and maintain an audit trail for policy-related emails.
- Built an agentic collaborator system where multiple AI agents coordinated through a dynamic graph-tree architecture to process and synthesize complex policy communications.
- Coordinated with the client Ally Financial to determine product goals and led technical decisions on architecture.

GraphRoots | *Python, Flask, React, Google Cloud SQL* — January 2025 – May 2025

- Designed an interactive graph-based visualization tool to analyze relationships between companies and employees.
- Built modular and well-documented algorithms to visualize and automate connections in data providing Grassroots Midwest with reusable tools for relationship analysis and comparison.
- Collaborated with clients in Grassroots Midwest company to define software use cases and requirements through iterative feedback sessions, ensuring alignment with strategic goals and improving final solution quality.

Technical Skills

Languages: Python, C++, C, Java, SQL, JavaScript, HTML/CSS, R
Frameworks & Backend : React, Node.js, Flask, LangChain, Material-UI, FastAPI, MongoDB, PostgreSql
Developer Tools: Git, Docker, Firebase, Google Cloud Platform, Azure, VS Code, Okta SSO, Tableau, PowerBI
Project Management & Collaboration: Agile, Scrum, CI/CD, Jira, Trello, Microsoft Teams, Zoom