

Fred Amarte

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EDUCATION

Master of Science in Software Engineering

Concentration in DevOps & Cloud Computing • Northeastern University • Boston, MA • (Expected May 2026) • 3.75 GPA

EXPERIENCE

Associate Software Engineer | Amplify

Feb 2022 - Feb 2023, Brooklyn, NY

- Engineered a scalable simulation tool that mimicked real-time user interactions, identifying significant vulnerabilities in data retention within frontend components during high-load testing with over **1.2k concurrent requests per second**.
- Developed a **React** client portal with an **analytics dashboard** and established a **design system** with **CSS** for a consistent user experience, utilizing **TypeScript** for streamlined development and reduced errors in UI components' functionality.
- Collaborated with engineers across cross-functional teams to implement new API endpoints using **Node.js** and **GraphQL**.
- Authored technical documentation using **Gitbook Markdown** for performance testing tools and debugging workflows, reducing onboarding time for new team members by two weeks on average.

Software Test Engineer Co-op | Amplify

May 2021 - Aug 2021, Brooklyn, NY

- Increased test coverage by 70% by writing comprehensive automation, integration, and unit tests using **Jest** and **WebdriverIO**.
- Reduced manual QA efforts by **90%** using **Selenium** and **Python**, improving test accuracy across multiple environments.
- Saved **100+ hours** by automating end-to-end (E2E) browser tests in CI/CD pipelines using **Jenkins** and **Docker**.
- Ensured software accessibility compliance by integrating **WCAG guidelines** into test plans, resulting in an **80%** improvement in accessibility and usability scores within 3-month period using Axe-core and Lighthouse tools.
- Partnered with product managers to translate user needs into impactful frontend features, ensuring design decisions aligned with business goals.

PROJECTS

TariffWars - <https://fredamarte.com/projects/tariff-wars>

Interactive dashboard visualizing global tariff impacts across 40+ countries and 30+ commodities with AI insights and market analysis.

- Integrated OpenAI API to generate real-time AI-driven market summaries, predictions and commodity/regional analysis, empowering users with digestible data-driven insights.
- Implemented **multi-layer caching**, reducing API response times for frequently accessed tariff and AI analysis data by 70%, resulting in 40% lower server load and **saving \$20/month on average** in AI token credit costs.
- Designed and implemented TypeScript interfaces, ensuring type safety and clear data contracts between frontend and backend.
- Developed an automated data refresh **microservice** using **Golang** to process and update tariff data from CSVs and external news sources twice daily, ensuring users always have access to the most current trade policy data.

GreatGreen - <https://github.com/fredamarte/greatgreen>

Interactive web app to combat desertification in the Sahel region, fostering community engagement and sustainable land management.

- Architected a high-performance web application using **TypeScript** and **React.js** with custom hooks and **context API** for state management, ensuring a responsive and adaptive D3.js user dashboard for ecological restoration activities.
- Constructed a **Next.js** interface for email and phone verification, integrating **Twilio API** and **AWS EC2** instances to validate and update user emails and phone numbers, filtering out **10%** of fraudulent users.
- Integrated interactive maps with **Leaflet.js** enabling users to track reforestation progress and identify areas needing attention

AI Travel Application

Conversational AI powered Travel assistant leveraging OpenAI API and Node.js.

- Utilized the **Web Speech API** to listen for and parse speech.
- Applied **Speech Recognition** and **Speech Synthesis** to respond accordingly after listening to user speech.
- Developed a **Vue.js** web client with **Firebase Functions APIs** and integrated **Firebase Authentication** for Google Sign-In.

SKILLS

Programming Languages: JavaScript (ES6), TypeScript, Python, Node.js, Java

Web Technologies: HTML/CSS, Sass, Tailwind CSS, React.js, React Native, Vue.js, Next.js, D3.js, jQuery, REST APIs

Dev Tools: Git, Firebase, MongoDB, AWS, Nginx, Jenkins, Jest, JIRA, Linux/Unix, Selenium, Docker, Terraform, GitHub Actions