Derek Barbosa

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Brockton, MA

Education

University of Massachusetts Amherst — Amherst, MA
Bachelor of Science in Computer Science — May 2026
Relevant Coursework: Databases, Web Development, Computer Networks

Massasoit Community College — Brockton, MA
Associate of Science in Computer Science, GPA: 3.6 — May 2024
Relevant Coursework: Data Structures, Object-Oriented Programming, Discrete Mathematics

Technical Skills

Languages: Python, Java, JavaScript/TypeScript
Frameworks: FastAPI, React, Node.js, HTMX
Databases: PostgreSQL, Supabase
Tools: Git, Docker, Figma
Concepts: REST APIs, JWT Authentication, Relational Databases, Idempotency, Distributed Systems, Message Queues, Dead-Letter Queues (DLQs), Horizontal Scaling

Projects

Trailies - Full-Stack Trail Discovery and Review Platform — 2025
• Built a full-stack trail discovery and review platform with authenticated user accounts, dynamic review interactions, and role-based administration
• Implemented authentication using JWTs stored in secure cookies with bcrypt password hashing
• Implemented role-based authorization with separate admin and user permissions
• Designed and implemented a RESTful API with 10+ endpoints using FastAPI and PostgreSQL to manage users, trails, and reviews
• Enabled real-time review submissions using HTMX, improving user interaction without full-page reloads
• Containerized the FastAPI backend and PostgreSQL database with Docker for reproducible local development

Distributed Event Ticketing Platform — 2026
• Built a distributed full-stack event ticketing platform where users can purchase tickets, reserve seats, and process refunds with automatic seat release functionality.
• Enforced purchase idempotency with unique keys to prevent duplicate purchases
• Responsible for the refund service end-to-end, enabling purchase refunds and automatic reserved seat release
• Implemented Redis-backed caching and asynchronous message queuing with dead-letter queues (DLQs) for fault-tolerant ticket purchasing
• Implemented horizontal scaling and reverse proxy load balancing with Docker and Caddy, using k6 to test system performance under concurrent load

Habitask - Semester Goal Planner and Tracker — 2026
• Designed and built a semester goal planning and tracking platform using React, FastAPI, and Supabase as part of a 7-person development team
• Implemented Google OAuth 2.0 authentication for secure user sign-in and account creation
• Developed backend logic for friend request lifecycle management, including pending request tracking and duplicate request prevention
• Implemented dynamic friend status rendering based on user privacy settings and request state