Marcos De La Torre   Junior Software Engineer

UC San Diego B.S. Computer Engineering GPA : 3.2

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Software engineer with a focus on high-traffic, consumer-facing backend systems. Experienced in building scalable, fault-tolerant services, real-time interactions, and secure data flows for products used by large user communities. Strong in Java and Python with hands-on experience in streaming APIs, schema design, CI/CD, and scalable systems.

Experience

UC San Diego   La Jolla, CA
Computer Science Software Engineering Tutor   Dec. 2023 - March 2025
- Debugged 200+ Android and backend applications by reproducing defects, analyzing logs/stack traces, and validating fixes across diverse codebases to ensure test coverage, verify regression fixes, and guide release readiness for ~40 project teams.
- Mentored teams in writing maintainable, testable code using OOD principles, design patterns, UML, and BDD workflows.
- Improved team delivery velocity by teaching debugging strategies, CI/CD hygiene, and scalable architecture decisions. TDD

Skills

Languages: Java (17), Python (3.x), C/C++ (17), Bash
Backend: Spring Boot, REST APIs, JWT Auth, RESTful APIs, TCP/IP
Databases: SQL/NoSQL, PostgreSQL, MongoDB, Firestore
Infra & DevOps: Docker, Linux, GitHub Actions (CI/CD)
Testing: Maven, JUnit, Pytest, Mocking, Regression Testing, Integration

Projects

Course Circle
Backend Engineer (Java, Spring Boot, PostgreSQL)   Nov. 2025 - Current
- Built a **Spring Boot** backend with **PostgreSQL** for relational data modeling, user/course mapping, and file metadata storage.
- Implemented binary file storage using PostgreSQL BYTEA fields and streaming uploads/downloads to support large PDFs, images, and past exams.
- Designed secure **JWT-based** role access controls to prevent abuse and ensure fairness between students sharing academic files.
- Developed a fault-tolerant upload pipeline, including retry logic, file hashing, and deduplication to prevent storage bloat. Added event-based notifications for new course files, using a publish/subscribe pattern to support future scalability.
- Containerized the system with **Docker** and configured early **CI/CD** steps for automated builds, integration tests, and consistent environment.

Jack Donuts Rewards App
Freelance Developer (JavaScript, React Native, Firebase)   April 2025 - Sept. 2025
- Built a production-ready cross-platform mobile rewards system using React Native (**Expo**), **Firebase** Authentication, and Firestore with indexed queries and security rules.
- Designed and implemented a scalable leaderboard system using rate-limited Firestore reads/writes to prevent abuse and minimize database costs under growing user traffic.
- Developed offline-first transaction logging with CSV export/import flows, ensuring data persistence and conflict-free reconciliation once the device reconnects.
- Built internal admin tools enabling staff to process refunds, push promotional notifications, and monitor user activity with safe, validated backend operations.

PantryPal
Team Lead Developer (Java, MongoDB, JRE)   Sept. 2023 - Mar 2024
- Integrated ChatGPT API and Whisper API for recipe generation and voice transcription, optimizing delivery with real-time **streaming** responses that rendered text incrementally to reduce latency and enhance interactivity.
- Designed **MongoDB** schemas for scalable recipe retrieval, containerized deployments with **Docker**, and automated testing and **CI/CD** using **GitHub Actions** to maintain build stability across environments.
- Managed sprints and issue tracking in **Jira** and coordinated development through Discord to sustain **Agile** delivery velocity.
- Designed and validated **JUnit** test cases for **API** correctness, streaming behavior, and user flows across multi-step interactions.

Open Source Contributions
• Dolphin Emulator: Added new metadata column to game analytics UI; contributed improvements to scanning pipeline.
• Raylib: Improved random number uniformity using rejection sampling; participated in design discussions on reproducibility.