

Diego Abdo Velásquez

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EDUCATION

Tecnológico de Monterrey, Santa Fe Campus

B.S in Computer Science and Technology: GPA 95/100

Mexico City, Mexico

Aug 2022 - Jun 2026

EXPERIENCE

Stride

Mexico City, Mexico

Backend Engineer

Sep 2024 - Present

- Developed a point-of-sale system for 100+ retail stores (**NestJS**, **TypeScript**, **PostgreSQL**, **TypeOrm**), with a sales service running in each store and a central API that manages the product catalog and audits sales.
- Implemented the card payment flow as a real-time WebSocket service (**Node.js**, **Socket.IO**), covering cart pricing, promotions, card terminal communication, receipt printing, and automatic reversal of unconfirmed charges.
- Built an inventory optimization engine (**Python**, **FastAPI**) that automated stock transfers between 100+ stores, replacing a manual process based on spreadsheets, using historical demand and stock data.
- Implemented asynchronous processing pipelines (**Celery**, **Redis**) to run an inventory sync and transfer optimization job across 100+ stores on demand, letting admins trigger it and navigate away instead of blocking on an HTTP request.
- Developed backend services for a payroll advance fintech platform, integrating external payment systems (SPEI) and enforcing strict financial logic and role-based access control (**RBAC**).

Freelance

Mexico City, Mexico

Backend Engineer

Apr 2024 - Aug 2024

- Built and deployed a school management system serving 500+ students, centralizing academic, administrative, and financial operations.
- Designed and modeled a relational database (**PostgreSQL**, **Prisma**) to support multi-entity relationships across students, staff, schedules, and financial records with strong data consistency.
- Implemented role-based authentication and authorization across multiple user roles (admin, teacher, parent, staff), ensuring secure access control.
- Developed RESTful APIs for profile management, scheduling, and financial tracking, enabling querying and search across student records, payment receipts, and class schedules.

PROJECTS

Multi-Agent Traffic Simulation | Python, WebGL, Flask | [Website](#) | [Source Code](#)

Oct 2024 - Nov 2024

- Designed a multi-agent traffic simulation with autonomous vehicles using **BFS** pathfinding and global memoization, reducing redundant route computations across agents.
- Developed a custom scheduler to prevent collisions at intersections by prioritizing agents in conflict zones, enabling safe coordination of concurrent agents in a shared environment.
- Built a decoupled REST architecture (**Flask**) integrating simulation logic with a real-time **WebGL** visualization, supporting continuous state updates and smooth client-side interpolation.

HONORS & AWARDS

- ICPC Mexico 2024 National Finalist (Top 100 nationwide) - Monterrey, Mexico.
- Graduated with Honors - Tecnológico de Monterrey.
- Awarded Academic Excellence Scholarship at Tecnológico de Monterrey.

SKILLS

Programming: TypeScript, JavaScript, Python, SQL.

Frameworks: NestJS, Node.js, FastAPI, Express, React.

Tools: Git, PostgreSQL, Supabase, Railway, TypeOrm, Prisma, Redis, Socket.IO, Celery.

Languages: Spanish (Native), English (C1 TOEFL ITP)