

# Diego Abdo Velásquez

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## EDUCATION

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**Tecnológico de Monterrey, Santa Fe Campus**  
*B.S in Computer Science and Technology: GPA 95/100*

**Mexico City, Mexico**  
*Aug 2022 - Jun 2026*

## EXPERIENCE

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### Stride

**Mexico City, Mexico**

*Backend Engineer*

*Sep 2024 - Present*

- Designed and implemented a distributed point-of-sale system across 100+ stores (**NestJS**, **PostgreSQL**), enabling offline-first operations and multi-location inventory management.
- Architected bidirectional synchronization between edge stores and a central server using **REST APIs** and scheduled jobs, ensuring eventual consistency and reliable data reconciliation at scale.
- Built an inventory optimization engine (**Python**, **FastAPI**) to compute inter-store transfers using historical demand and stock signals, improving allocation efficiency across locations.
- Implemented asynchronous processing pipelines with **Celery** and **Redis** for large-scale simulations and batch processing, reducing API blocking and improving system throughput.
- 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 scalable querying and search across large datasets.

## PROJECTS

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**Multi-Agent Traffic Simulation** | Python, WebGL, Flask | [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

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

## SKILLS

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**Programming:** TypeScript, JavaScript, Python, SQL.

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

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

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