

Mauricio Sanchez

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Education

Instituto Tecnológico y de Estudios Superiores de Monterrey

Monterrey, Mexico

Bachelor of Engineering in Computer Technologies

Expected Jun 2028

- **Scholarship** - Awarded the maximum 70% academic talent scholarship
- **Relevant coursework** - Data Structures, Algorithms, Databases, Compilers. **GPA** - 95/100

Experience

Cómo Vamos, Nuevo León

Nuevo Leon, Mexico

[JavaScript, Python, SQL] Data Analyst Intern

Dec 2025 - Present

- Developed the full ETL pipeline for the “Encuesta Así Vamos 2025” survey (4950+ households, 600+ variables), transforming raw survey data into a structured SQLite database for analysis.
- Built geospatial data pipelines in Google Earth Engine and QGIS, normalizing heterogeneous datasets from 10+ municipalities, to generate maps used in public reports and government decision-making.

ITESM On Campus Intern at Prepanet

Nuevo Leon, Mexico

[Python] Automation of Managerial Processes in their Academic environment

Jan 2025 - Dec 2025

- Developed a Python script that integrates the Canvas and Google Sheets APIs, reducing a daily 3-hour manual task to an automated 20-minute operation.
- Built progress-tracking and course-enrollment web apps in Google Apps Script over the school's Excel-based records, used by 400+ students to view their grades and select their subjects for the following term.

Projects

Mini Database Engine

Nuevo Leon, Mexico

[C] Database Engine with B+ Tree Storage

Mar 2026 - Present

- Built a persistent database engine in C with a B+ tree storage engine supporting inserts and deletes, including node splits, merges, key redistribution, and root collapse to keep the tree balanced.
- Implemented a checksummed write-ahead log (WAL) with fsync-ordered commits and crash recovery that replays the log on startup, validating each record and applying only committed transactions.
- Validated durability with a 50+ test suite, including crash-simulation tests that kill the process mid-write and confirm committed data survives and corrupt WAL tails are rejected.

Toy Text Editor

Nuevo Leon, Mexico

[C] Built a terminal-based text editor

Jun 2025

- Built a kilo-style terminal text editor in C from scratch with no external libraries, using raw-mode input (termios) and VT100 escape sequences for rendering.
- Implemented file open/edit/save, line numbering, go-to-line, and diff tracking for modified, added, and deleted lines.

Skills

Languages: C, C++, Python, SQL, JavaScript, TypeScript

Frameworks & Libraries: React, Astro, Tailwind CSS, Pandas, Google Apps Script

Tools & Platforms: Git, GitHub, Docker, SQLite, PostgreSQL, Supabase, Firebase, GEE, QGIS

Major Contest Awards

Mexican Mathematical Olympiad (OMM)

Mexico

Solved problems related to number theory, geometry, combinatorics and algebra

2021-2023

- **Silver Medal (2023):** Ranked 17th nationally; second highest in Tamaulipas history.