

RODRIGO LÓPEZ GUERRA

Software Engineer | Full-Stack, Data Systems & Simulation

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PROFESSIONAL SUMMARY

Software engineer and recent Tecnológico de Monterrey graduate with hands-on experience building full-stack products, data-processing pipelines, simulation systems, and native mobile applications. Delivered client, academic, and internship work with React/Next.js, TypeScript, Python/Django, Node.js/NestJS, and relational databases. Strong in API integration, data modeling, visualization, testing, and translating complex requirements into usable products.

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, SQL, C/C++, Kotlin, Swift, Julia

Frontend & Mobile: React, Next.js, Tailwind CSS, Three.js, Jetpack Compose, UIKit

Backend & Data: Django, Node.js, Express, NestJS, PostgreSQL, MySQL, Prisma, Supabase, SQLite, REST APIs

Engineering: Git, Linux, Jest, Cypress, Testing Library, ECharts, API design, data modeling, system dynamics, agent-based simulation, A* pathfinding.

EXPERIENCE

Social Impact & Technology Consultant [EpiCentro case study](#)

Aug 2025 – Jul 2026

Dandelion · Eugenio Garza Sada Global Leadership Program — Puebla, Mexico

- Developed the interactive epidemiological map for EpiCentro, in collaboration with ITRASIG, within a 16-person national team, building state interactions, disease and activity filters, state summaries, and source-linked news in React and TypeScript.
- Supported NestJS services and the Supabase/PostgreSQL dataset for Google News and RSS ingestion, normalization, deduplication, topic detection, relevance scoring, and fallback coverage across all 32 Mexican states.
- Integrated the map with the wider product architecture and supported teammates with frontend, service, and data-flow integration.
- Interviewed specialists and community stakeholders for EnSeñas AI, translating findings into stakeholder maps, an impact model, institutional buyer profiles, and a Puebla-centered MVP pilot strategy.

Full-Stack Developer Intern [OWARU case study](#)

Aug 2025 – Dec 2025

Inventer / OWARU · Tecnológico de Monterrey Campus Sonora Norte — Remote from Puebla, Mexico

- Built the student dashboard in Next.js and React, integrating Django and PostgreSQL data for recent exercises, calendar activity, assessments, feedback, and progress visualization.
- Implemented and adapted Django functions and JSON contracts, aligned backend data with reusable frontend components, and diagnosed integration issues across core user flows.
- Translated system-dynamics research into three working project-management simulations—Basic Design, Customer Demand, and Detail Design—and visualized time-series outputs with Apache ECharts.
- Contributed through Scrum planning, reviews, refactoring, troubleshooting, demonstrations, and documentation for OWARU's first integrated functional version.

EDUCATION

B.S. in Computer Science and Technology

Aug 2022 – Jul 2026

Tecnológico de Monterrey · Campus Puebla — Puebla, Mexico

GPA: 94.37 / 100

- International academic collaboration: 3 GSL Classroom programs with partner universities (2022–2024)
- Degree completed; Mexican professional license issued · Diploma de Excelencia en la Formación Integral (DEFI) for excellence in peer-mentorship leadership.

SELECTED SOFTWARE PROJECTS

Patrones Hermosos — Product Manager & Full-Stack Developer [Case study](#) Jan 2025 – Jul 2025

Team of 4 · Next.js, TypeScript, Node.js, Express, Prisma, MySQL

- Led product planning, architecture, and full-stack delivery for a public registration experience and role-protected administration platform serving event operations.
- Designed REST APIs and the relational data model; implemented signed JWT sessions, role- and venue-scoped access, registrations, analytics, audit logs, notifications, and PDF, ZIP, and Excel exports.
- Built automated and usability validation with Jest, Testing Library, and Cypress; 9 of 10 participants completed the assigned usability tasks.

Karggu Robots — Full-Stack Simulation Developer [Case study](#) Jan 2025 – Jul 2025

Team of 3 · Julia, Agents.jl, Genie, Python, React, Three.js, PyGame, OpenGL

- Implemented 3D bin packing under dimension and weight constraints, package dependencies and assignment, and A* routing with dynamic occupied cells for autonomous warehouse robots.
- Connected the Julia multi-agent simulation service to a Python packing module and two visualization clients: React/Three.js and PyGame/OpenGL.
- Built package-creation and assignment workflows, live simulation state, collision-aware robot movement, and operator controls across the end-to-end system.

EcoLife — Product Manager & Native Mobile Developer [Case study](#) Aug 2024 – Dec 2024

Team of 4 · Kotlin, Jetpack Compose, Swift, UIKit, SQLite

- Led product planning and helped deliver separate native Android and iOS applications in a 10-week development window.
- Implemented local SQLite persistence, habit registration, carbon-footprint estimates, historical records, and charting across both platforms, keeping the core experience available offline.
- Designed the product identity and prototypes, supported development of the Cleany Roads recycling game, and prepared both applications for release.

CLite Forge — Compiler Project [GitHub](#) 2026

Python, PLY, AST and Visitor patterns, llvmlite, LLVM IR

- Built a compiler pipeline that tokenizes and parses C-like source code, constructs an abstract syntax tree, performs structured traversal, and generates LLVM intermediate representation.
- Implemented primitive types, functions, arrays, expressions, assignments, function calls, conditionals, switch statements, and loop constructs.
- Added a calculator module and six runnable examples covering countdowns, factorial, Fibonacci, Towers of Hanoi, a word game, and a Taylor-series approximation.

LEADERSHIP & RECOGNITION

President · Student Social Responsibility Committee (FETEC) Jul 2023 – Dec 2023

- Coordinated initiatives with student groups, nonprofit organizations, and external partners; managed a meal-assistance program that awarded 12 grants and organized multiple campus service and philanthropy events.

Peer Mentor · Tecnológico de Monterrey 2024 – 2026

- Completed 96 hours of preparation and practice in peer mentorship; received DEFI, Cerdón de Excelencia en Liderazgo y Formación Estudiantil, Borrego de Oro LiFE, and related institutional distinctions.

Technical Competitions 2023 – 2024

- 2nd Place, Hack Puebla 2023 (Scrum Master, Backend Developer); 2nd Place and Most Creative Project, Global Game Jam 2023 (Unity, C#); Honorable Mention, Hack Puebla 2024 (Scrum Master, Full-Stack Developer).

CREDENTIALS & LANGUAGES

Selected credentials: Eugenio Garza Sada Global Leadership Program — Social Entrepreneurship (2026); Software Systems Development and Computational Algorithms competency badges (2026); CCNA: Switching, Routing, and Wireless Essentials (2024)

Languages: Spanish (native); English (Cambridge Linguaskill, CEFR B2, average score 178)