# Joel Chacón Castillo

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## Summary

Senior Software Engineer with strong systems, full-stack, and ML engineering expertise. I design reliable microservices, build production ML pipelines, and ship GenAI-backed features. Passionate about competitive programming and actively engage in coding contests. Skilled in cross-team collaboration, architecture ownership, and high-impact delivery.

## Skills

**Languages:** C/C++, Python, JavaScript, TypeScript, SQL
**Systems & Infra:** Kubernetes, Docker, Oracle Cloud Infraestructurep, Terraform, Redis, Vault
**Backend & Data:** FastAPI, GraphQL, SQLAlchemy, Postgres, OpenSearch, Kafka
**ML Engineering:** Model deployment, RAG, MLOps, observability (Jaeger, Kiali)

## Work Experience

### Orion Innovation — Full-stack Gen AI Engineer — Nov 2025 – Present

- Built microservices integrating retrieval pipelines and LLM layers.
- Implemented scalable vector indexing, hybrid search, and batched embedding generation.
- Improved reliability using health checks, dashboards, CI/CD automation, and rollout controls.
- Mentored junior engineers and conducted code reviews for production readiness.
- Collaborated with infra and product teams to ensure secure, compliant data flows.

### Oracle — Senior Software Developer — Sept 2023 – Jun 2025

- Developed REST/GraphQL services with FastAPI and SQLAlchemy; owned API evolution.
- Designed and stabilized microservice deployments (Docker, Kubernetes).
- Managed Redis, Vault, OpenSearch, object storage, and ML/DS deployment workflows.
- Added CI/CD quality gates (SonarQube, Pytest, pre-commit), reducing regressions.
- Refactored >50K LOC codebase for modularity, reproducibility, and maintainability.
- Built LLM-based POCs: RAG using LLaMA, automated code-review assistant.
- Conducted architecture reviews, improving system observability and fault tolerance.
- Participated in technical hiring and mentoring, focusing on algorithms and system design.

### UT Dallas — Postdoctoral Research Associate — Apr 2023 – Jul 2023

- Designed ML models and reproducible experimentation pipelines.
- Coordinated multi-institution research engineering efforts.
- Published PAKDD 2024 paper: PAKDD Publication.

### UT Dallas — Research Collaborator (Wildfire Prediction) — Nov 2022 – Mar 2023

- Created data pipelines and ML models for wildfire forecasting.
- Co-authored IEEE BigData 2024 paper: Firecast Paper — Code Release: Zenodo Repository.

### CIMAT — Full-Stack Developer — Aug 2014 – Jun 2015

- Developed institutional web systems using PHP, JS, HTML, MySQL to streamline workflows.
- Integrated user authentication, role-based access, and audit logging to meet compliance standards.
- Conducted unit and integration testing; improved system reliability and reduced bug reports by 25%.
- Collaborated with stakeholders to implement accessibility standards and optimize UIs.
- Maintained and documented codebase for long-term maintainability and knowledge transfer.

### LANGEBIO — Intern Software Engineer — Aug 2013 – Jul 2014

- Built bioinformatics pipelines for gene and sRNA sequencing data processing, including mapping and visualization (JBrowse).
- Designed relational database schemas and web-based tools to make genomics data accessible to researchers.
- Automated repetitive data processing tasks, reducing manual effort by 40%.
- Assisted in collaborative data curation and preprocessing for downstream ML analyses.
- Contributed to technical documentation and internal tutorials for lab users.

## Education

### Ph.D. in Mathematics — CIMAT — 2018 – 2023

Applied Mathematics, Machine Learning, Scientific Computing

**M.Sc. in Computer Science — CIMAT** <span style="color:blue">2015 – 2017</span>
Algorithms, Data Science, Machine Learning


**B.Eng. in Software Engineering — ITSI** <span style="color:blue">2009 – 2014</span>

## Specializations

- Meta React Specialization — Meta (2025)
- NLP Specialization — DeepLearning.AI (2024)
- Machine Learning Specialization — DeepLearning.AI (2022)

## Projects

**PyTestGenAI — AI REST API Test Generation** <span style="color:blue">Aug 2025 – Present</span>

- Python framework generating REST API tests using LLM reasoning and schema analysis.
- Multi-layer architecture: endpoint discovery, test synthesis, validation, artifact generation.
- Fully containerized with GitHub Actions integration for CI/CD automation.
- Built automated test coverage reports for multiple environments.
- Release: PyPI Test Release.

**agentic-codegen — AI Code Generation Pipeline** <span style="color:blue">Sept 2025 – Present</span>

- Multi-stage pipeline combining LLMs, static analysis (flake8, mypy, bandit), and runtime sandboxes.
- Designed to generate validated, safe, style-compliant Python modules automatically.
- Modular agent design enabling custom toolchains and extension to other languages.
- Integrated automated regression detection to prevent errors in downstream pipelines.

**LeetCode Practice** <span style="color:blue">Jul 2025 – Nov 2025</span>

- Completed extensive algorithm practice across arrays, DP, trees, graphs, and contest problems.
- Focused on performance optimization and time/space complexity improvement.
- Profile: leetcode.com/u/joelchacon.

## Certifications

- AI Pair Programming with GitHub Copilot — LinkedIn Certificate.
- Generative AI for Software Development — Coursera.
- Fundamentals of Building AI Agents — IBM.
- Meta React Specialization — Meta.
- OCI AI Foundations Associate — Oracle.

## Awards

- Meta Hacker Cup 2025 — Round 3 Qualifier (Top 174 Worldwide) Certificate: View Certificate.
- Talk: Diversity to Improve the Effectiveness of Evolutionary Algorithms — CIMAT (2024).