Ricardo M. Leal Lopez

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✈ Work Visa Eligibility | 👤 Video Presentation

EXPERIENCE

Sr. Software Engineer   September 2022 – Present

Valiot   *NL, México*

- Led backend development of the ValueChainOS product team using Python and TypeScript, creating and optimizing APIs for data retrieval, reducing data complexity issues.
- Develop interfaces and tools to solve mathematical problems, including the solution of constraints-based problems. The tools were developed using heuristic, genetic and linear algorithms.
- Streamlined product implementation by generalizing internal packages, reducing development workload by at least 50%.
- Built and maintained CI/CD pipelines, deploying services on containers to ensure high availability and reliability across production environments.
- Built and maintained Python tools for distributed task queue systems, to handle all of our team's internal task operations.

Software Engineer   June 2021 – September 2022

Valiot   *NL, México*

- Develop mechanisms for monitoring and evaluating diverse data sets from both clients and our product, such as identifying cases where an invalid parameter is received or detecting client-reported errors stemming from product usage, in order to provide corrective recommendations.
- Design and execute tailored functions for clients, focusing on data cleaning techniques and preprocessing approaches that include analyses and data evaluations.
- Design unit tests for the implementations that maintain a test coverage of at least 90% for the implementation.
- Create tools using Python to address company challenges by establishing links between the backend, frontend, and client services, particularly to resolve issues like data transmission failures.

Research Assistant   February 2020 – June 2021

Facultad de Ciencias Físico Matemáticas, UANL   *NL, México*

- Develop simulations of various materials' to understand their behaviour and analyze their reactions using molecular dynamics techniques, programmed on Python and LAMMPS.
- Improve the results and execution time of the simulations using different optimization techniques such as gradient methods.
- Use Python to address the creation and manipulation of nanostructures, as well for data analysis and prediction of changes.
- Utilized HPC (High-Performance Computing) clusters to optimize the computational efficiency of simulations.

EDUCATION

MSc. Computational Science and Applied Mathematics   México

Universidad Internacional de la Rioja   *Oct. 2023 – March 2025*

- Specialization in API development, CI/CD techniques, and software patterns for industrial solutions.

BSc. Physics   México

Universidad Autónoma de Nuevo León   *Aug. 2017 – Dec 2021*

- Specialization in Computational Physics, focusing on materials science, molecular dynamics, and data analysis

CERTIFICATES AND DIPLOMAS

Certified Scrum Developer (PSD I) | Link 🔗   **Data Science Diploma** | Link 🔗

PROJECTS

Dynamic GraphQL API | Link ⚲ | *Python, FastAPI, React, Docker*
- Developed a flexible Python API that is applicable to various GraphQL schemas.
- Implement methods to upload and process a customizable GraphQL schema.
- Include a Front End application to show the results.

Optimizing Cashier-Client Assignment in Supermarkets | Link ⚲ | *Python, FastAPI, React, OR*
- Create an unique mathematical model for a supermarket with variable cashiers.
- Include constraints to develop the solution of the problem, including some as limited hours, lunch time to eat and overlaps.
- Implement a Front End page to create and analyze scenarios, setting data through data tables and selecting parameters to change the solution logic.

TECHNICAL SKILLS

Languages: Python, C++, JavaScript, Java, Rust, Golang
Frameworks: React, Node.js, Flask, FastAPI, Litestar, Selenium, Pytest
Developer Tools: Git, Docker, GCP, AWS, Azure, GraphQL
Databases: SQL, MongoDB, DynamoDB, PostreSQL
Knowledge: HPC, Operations Research, API development, Big Data, Scrum Methodologies, CI/CD