Luis Fernando Barrera

Senior Software Engineer and Manager

Python, TypeScript, Databases | Finance, Accounting, Business

Mexico City, CDMX, (Mexico)   Spanish · English · Portuguese
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About

Senior Software Engineer and Engineering Manager with a track record building high-performing teams and shipping complex systems in finance, banking, and data-intensive products. Expert in Python and Backend development and; proficient in modern web stacks. I translate business and regulatory requirements into robust architectures and deliver reliable software at scale.

I have a strong drive for building software, leading teams, structuring chaos, organizing complexity. I achieve team objectives by fostering discussions to deeply understand problems and tackle them with a practical, hands-on approach, engage in coding and problem-solving alongside the team, focus on collective success and foster a collaborative environment. I am experienced in building teams and mentoring people.

I have the strong belief that the success of a team is not only a function of will and skills of the people but also of the culture, the organization, and the management team of the company. Enthusiastic about improving within a team, a company, and myself.

Skilled and enthusiastic Python programmer with a solid background in Finance, Accounting, and Business Data Applications. Love to design and analyze data through building applications and libraries. I don't just develop projects, I am proud to craft them.

Hopelessly curious and eclectic. Love to learn about any topic to solve problems. I use Getting Things Done (GTD) as my personal workflow, practice mindfulness to keep my mind clear and calm while handling stress, and have kept a personal ledger for 10 years.

If your data or project involves symbols like '$¢£€¥%', you would probably like to share a coffee with me or interview me.

Jobs

Nubank   https://nu.com.mx
Brazilian Global Fintech Bank   2024-12-10 - 2025-09-12
Senior Software Engineer (Money-In Team)   Location: Remote and Mexico City

Building amazing experiences for our customers to bring money to Nubank in Brazil, Mexico and Colombia. Using Clojure, Datomic, microservices and other proprietary technologies from Nubank.

- Worked in a full-stack environment using Clojure to deliver in-app experiences with the Nubank's proprietary framework in Clojure / Flutter (BDC).
- Used knowledge of banking systems in Brazil (Pix, TED, Boleto), Colombia (Bre-B, ACH, PSE), and Mexico (SPEI) to help solve problems in the Nubank microservices.

- Delivered hybrid app / widget in React and Clojure to help the CX team to check details of the transfer-in transactions in Colombia and Mexico, connecting them to the relevant microservices and GraphQL platforms
- Worked with AI-powered coding tools (Cursor, Claude, Gemini) to learn and deliver features quickly while debugging issues
- Used Grafana and other tools to monitor the microservices and the Nubank's proprietary platform.
- Studied and created documentation to better understand the Nubank's proprietary platform. Learning Clojure, Datomic, BDC to onboard to the team.
- Collaborating in a multi-country team, using skills in English, Spanish and Portuguese.

Sofía Salud

Mexican Health Insurance Tech Company
Sr. Backend Engineer (Payments)

https://sofiasalud.com/
2024-05-26 – 2024-12-09
Location: Remote and Mexico City

Modernized payments and claims services in a Django/GraphQL monolith and introduced AI-assisted claims adjudication to streamline operations. Updated and refactored the monolith for all Sofia Salud's operations.

- Refactoring code and implementing new features
- Working to improve the codebase and the architecture of the project, CICD, libraries, etc.
- Doing refactorings on a big monolith codebase related to payments and claims.
- Working with CFDI (Mexican electronic fiscal invoice) and the Accounts Payable systems.
- Implemented an AI service to automate the adjudication of claims for labs and medicines.

Banco Covalto

Mexican Fintech Bank
Senior Engineering Manager (Integration and Legacy Services)

https://covalto.com
2023-12-01 – 2024-03-15
Location: Remote and Mexico City

Led backend and integration engineering (acting director) to define target architectures, align banking operations, and deliver critical integration.

- Assumed the responsibilities of the Director of Banking Services Engineering to design the technical architecture considering the functional architecture designed by the CTO. Served as a liaison between Financial Product Managers and other people in Operations such as the Chief Operations Officer, the Legal Team and Sales to translate those requirements to Technical teams reviewing needs and ideas and creating or reviewing projects and their specifications.
- Kept the role of Manager and Technical Leader with a hands-on approach and programming and structuring code when necessary.
- Proposed solutions to various integration issues and systems within the Bank by leveraging the capabilities of all teams and compensating for their weaknesses through the use of components such as aligning catalogs and data types. Discussing things like the implementations of BIAN (Banking Industry Architecture Network).
- Led the design of two new operation architectures and ideal one with minimal changes and another tailored to the budgetary, temporal, and functional constraints of the bank, always seeking to optimize best engineering practices and address the bank's technological and operational challenges.
- Led the requirements to have an architecture that allows the bank to have an efficient, successful and cost-effective implementation of Electronic Banking. Audited the architecture and concluded that

changes should be done in order to do that. Proposed to restructure the Technology team to efficiently achieve those objectives.

- Managed a team of 4 people designing and implementing projects such as the financial product quoting system, the electronic signature service with e.firma for contracts, template and document services, and promissory note endorsements with Mifiel blockchain.
- Optimized my team to take initiatives to develop projects to help operational areas, apply technology and achieve efficiency in those processes. Promoted an open team dynamic to get ideas and feedback from the team and the rest of the bank to design and achieve maximum impact projects that benefited our internal users and customers.
- Led the development of services with Salesforce and Topaz (core banking) to expose APIs that allow for the automation of data flows from origination channel processes by connecting most of the bank's systems. Integrating them through the middleware-based legacy integration platform developed within my team.
- Proposed, designed, gathered requirements with potential customers, planned, and led the Treasury API project for real-time bank account movement consultation via REST or Webhook using Kafka, Django, and Topaz integration services. Led the consultations to get the customer requirements and gather security and compliance requirements into consideration for the project. Designed the project as a first step in an Open Banking initiative for Covalto.

Banco Covalto   https://covalto.com
Mexican Fintech Bank   2022-05-01 – 2024-03-15
Engineering Manager, Data Engineer, Tech Lead   Location: Remote and Mexico City

Engineering Manager (Fincore/ESB Squad). Portfolio Migration Leader in all the quantitative data as a consultant and Data Engineer.

- Successfully achieved the Portfolio from SOFOM to Banco Covalto (Lender company to regulated bank). 2 billion Mexican pesos (100 million USD). Migrating from SOFOM's in-house system Loan Management System to Stefanini's Topaz in Banco Covalto. Regulated operation by the Comisión Nacional Bancaria y de Valores (CNBV, Mexican equivalent to the U.S. SEC).
- Migration was a necessary step for business growth and the merger between Credijusto and Banco Covalto (former Finterra) and to achieve a NASDAQ IPO.
- Led the collaboration across all business areas and departments to gather the logic from legacy systems and the logic to target systems. Creating all the transformations in between.
- Wrote several financial math and accounting modules in a library to calculate, solve, split and do general work with amortization tables, cash flows, accounting, and payment application handling. Written against time with hard deadlines. (More details on the projects section in this CV as Pennyworth). Full Coverage. Data testing from source information and in delivered files.
- Wrote a library to abstract the Credit Contract to work, fill and share data. Writing multiple extractors to fill these Contracts from different sources: Loan Management Systems, Excel Files, Google Sheet Files, etc.
- Delivered normalized data to the business teams for validation and calculations to fill the migration layouts
- Worked as Engineering Manager for a team of 6 engineers working with several legacy projects related to payments, financial quotes, loan management systems, and the Enterprise Service Bus (ESB) components.
- Improved productivity and metrics through communication and setting OKRs; implementing testing, clean code and best coding and architecture practices.

Credijusto (now Banco Covalto)

Small Business Lending Fintech

Python Data Engineer

https://credijusto.com
2020-02-24 – 2022-04-30
Location: Remote and Mexico City

Python/Django programmer working in the Financial Core (Fincore) team.

- Maintained and developed Loany, a Portfolio Management System that handles Loans and Leases' transactions and calculations. Using Django and React.
- Refactored the Theoretical Table calculations to handle grace periods.
- Maintained Core Financial Libraries to handle calculations and settings across the company.
- Designed and developed Kardex, a financial transaction database that allows to get reports gathering quantitative and qualitative data. (More details on the projects section in this CV).
- Audited all the Loan contracts to arrive to correct calculations and logic based on each subproduct (revolving and simple credit).
- Developed strong financial math and accounting skills to help Tech team to understand the financial team needs and provide solutions to major company problems.
- Designed the Enterprise Service Bus architecture to message processes across multiple origin and target systems in a sequential process, inspired by the Django middleware architecture.

CIAL Dun & Bradstreet México

Latin America's leading business data and analytics provider

Python Data Warehouse Developer

https://cialdnb.com
2018-10-01 – 2020-01-15
Location: Remote and Mexico City

Python Programmer working with Kubernetes managing clusters and designing APIs to control and integrate CIAL's Data Collection workflow.

- Designed APIs to glue stats, status and control of the tasks in the kubernetes cluster using Python, FastAPI and Airtable as a convenient frontend interface (Hyperkube).
- Installed, Configured and Managed CialDnB's Kubernetes cluster with distributed storage. Configured Docker image to run the scrapers for collection purposes. (Ragnatela project).
- Helped refactoring the in-house designed distributed scrapy-based framework to collect results using redis as a distributed queue with middlewares to send to our data collection pipeline.
- Wrote some scrapers using Selenium and Scrapy.
- Designed Silk in Django. An API and management system for organizing the sources, schemas and tasks to collect data to feed the business users with Latin American companies' data in Portuguese and Spanish.
- Working remotely and asynchronously with a team distributed in Israel, Croatia and Russia.

informmind

An IT and Software Consulting Company

Founder, Software Engineer

2009-09-30 - 2014-05-06
Location: Mexico City, MX

Founder of informmind. Python Developer and Software Team Leader. Administrative consultant, Data Management Consultant.

- Company chiefly focused in Data management (Catalogue design and sanitation, Document schema design) and the installation of ERP systems in order to generate meaningful and useful information to the Finance, Administration and Executive departments.
- We offered to every small and medium sized business, solutions such as Websites, Apps, Servers and Networking consultant.
- Our vision was to offer: our customers, a quality and affordable all-in-one IT solution; our employees, the opportunity to learn and grow by offering tailored solutions that are valuable to our customer.
- Our customers were in the Manufacturing, Accounting, Commercial, Retail, Healthcare and Publishing industries.
- Remote support (telephone and mail) and in-site. Software and Hardware sales. Sales and project planning. Python software development. Software Architect. External Software implementation. Network design and implementation.

Technical Skills

Technical: Backend: Python, TypeScript, Django, FastAPI, Flask, Django REST Framework, REST API, GraphQL · **Databases:** pandas, dataclasses, numpy, SQLAlchemy, advanced SQL, PostgreSQL, SQLite3 · **Frontend:** JavaScript, TypeScript, Vue.js, React, HTMX, SASS · **Infrastructure:** AI-Powered Coding, docker, kubernetes, observability with Grafana, bash, linux, CircleCI, continuous integration

Leadership & Management: team building, OKRs and KPIs, mentoring, DevOps, agile methodologies, product requirements, software architecture & design, project management

Business Domain: administration, accounting, finance, software for SMB, ERP, CRM, taxes, electronic invoicing (CFDI), electronic signature, financial math

Languages

Spanish	English	Portuguese
Native	*C1*	*C1*
	The Anglo	Casa do Brasil

Main Projects

Treasury API (Banking API)   **Banco Covalto**
Treasury API to expose movements to bank customers
Product Designer. Architect. Manager.

kafka · django · accounting · reconciliation systems · product design · webhooks · customer requirements · auth0 · regulations & compliance

- Real-time bank account movement queries via REST API or Webhook. Integrated with financial core vía Kafka and services
- Proposed, designed, gathered requirements with potential customers, planned, and led the project for real-time bank account movement queries via REST or Webhook.
- Designed the project as a first step in an Open Banking initiative for Covalto.
- Developed from 2024-02-01 to 2024-03-15

firmas / mifiel (Web Application)   **Banco Covalto**
Electronic Signature System
Python Developer. Frontend Developer. Manager.

fastapi · postgresql · mifiel · web development · tortoiseorm · e.signature · blockchain · aws · google cloud · kubernetes

- A monolith of services to gather documents for signature, integrate with salesforce and other systems and allow the signature of documents with a mexican electronic fiscal signature.
- Allows customers to sign legal documents without the need of a physical presence using e.firma and Mifiel Services, without sending documents outside the bank archives
- Allows the signature of endosable promissory notes with Mifiel blockchain.
- Using FastAPI to create many micro frontends in a same codebase, including APIs to create frontends in React and integrations with other systems such as Salesforce.
- Integrated using Covalto's standard infra in GCP and AWS.
- Archive using S3/GCS cloud storage. Indexed in PostgreSQL database
- Microservice to provide documents based on templates filled with an API Request. Document Management System
- After designing the project, successfully inherited the project to a programmer and just managed, reviewed the code, and gather specifications from the business team to improve it.
- Developed from 2023-04-10 to 2024-03-15

Pennyworth (Financial Math/Accounting Library)   **Covalto, Inc.**

A full-fledged multipurpose financial and accounting library.

Designer. Python Developer.

business data · financial math · accounting · financial libraries · dataclasses · pandas · jupyter

- A library with modules to calculate interest, work with cashflows and time value, handle payments, keep accounting, and calculate and solve amortization tables (schedules).
- Calculator: A module to calculate amortization tables given some parameters as interest rate, principal, duration, etc.
- Table Module: A Schedule table object to make calculations. Works dynamically ordering calculations as a linked list with caches since records depended on previous record values. Can do operations on it as tables' addition and subtractions, table splits into many tables (for multiloan or complex tables), final payment adjustments, discount ious on time value, and roundings and adjustments.
- Solver: A solver working on the table module trying to imitate the GoalSeek module in Excel to change a value until getting another expected one as close as possible. Used to adjust interest rate to different method calculations, until getting zero in balance.
- Contract module: An abstraction to handle the Credit Contracts. Using a Contract-Version-Loan structure that contained all the information that the contract could have as: IOUs, Payments, Advance Payments, Restructures, Write-offs, Charges. Used as interchange format in business.
- Kardex: A system to generate an Account Statement based on the Contract Structure and applying it to get the correct balance per different scopes such as loan, date, iou, version.
- Using numpy_financial, dataclasses, pandas, jupyter.
- Developed from 2022-01-01 to 2022-12-31

Kardex (Loan Accounting System)   **Credijusto & Covalto, Inc.**

A system designed to make calculations on loans

Designer. Python Developer.

business data · sqlalchemy · financial math · accounting · dataclasses · pandas · jupyter · sqlite3

- Problem: Credijusto Loan Management system is a non-transactional system that registers balances instead of transactions.
- Main goal is to create a data structure that allows getting the different balances for each loan at any point of time aggregating all the transactions up to that day.
- Connect to the existing systems, Loan Management System and CRM, to gathered existing data and convert it to transactions.
- Using the data from those transactions calculate the regular interest, moratory interest, penalties, fees and balances in time using different algorithms of calculation depending on rules for products while maintaining accounting consistency, and using debits and credits.
- Develop connectors that allow us to fetch information from different sources and convert data to transactions
- Develop an accesible SQLAlchemy Python API to allow easy reporting.
- Developed from 2020-08-15 to 2022-12-31

This CV (Personal Project)
Curriculum Vitae Production System

- A system that builds a Github page with my CV, including a PDF.
- Using resume.json format as the basis for storing the CV data.
- Using jinja2 as template format.
- Using SASS with a stylesheet that formats the template for screen and print media.
- Developed from 2018-12-17
- https://github.com/luisfernandobarrera/resume

Experos (ERP)   **Nextor Telecom**
Custom ERP with Accounting Functionality
Backend Developer. Frontend Engineer. Project Owner and Manager.

- A micro-ERP with Invoicing, Purchases, Accounts Payable and Receivable capabilities to manage the company and automate processes, and eventually to merchandise it.
- Using Django-PostgreSQL, APIs and Knockout for developing mockups and allow frontend engineers to easily integrate it into a previously developed mocked up interface.
- Backend: Django, PostgreSQL, Django REST Framework APIs. M2Crypto, tablib, XML.
- Frontend: Knockout.js, Django.js. Bootstrap, React, Redux.
- Integrations with Mexican Electronic Invoicing, Electronic Accounting and various banks and payment systems
- Developed from 2015-03-01 to 2017-01-15

Education

Economics   Bachelor
UNAM   2010-08-01 – 2013-05-20

Interests

General

| Finance | Accounting | Money | Administration | Business | Data Management | Entrepreneurship | Markets |
| Personal Finance | Team Building & Management | Inventories |

Data

| Financial | Geographical | Data collection | Scraping | Pipelines | Designing Catalogues | Visualization |

Learning

| Serverless Apps | Personal Improvement |

Volunteer

El Sommelier Económico   2016-02-01 – current
Member
An organization to foster discussion of current trends and multidisciplinary learning.