

# PHYSICIST OSVALDO ROSALES PÉREZ

Software and Blockchain Engineer, problem solver, continuous learner and passionate about building a decentralized future on top of Bitcoin and the Lightning Network ⚡.

## CONTACT





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📺 Osvaldo Rosales | Physics Stories (Spanish)

## SKILLS

### Languages

Spanish Native language  
English C2, Full professional proficiency  
French C1, Fluent

### Programming Languages

Python   
Bitcoin Script   
Javascript   
Solidity   
Rust | Swift | C | Bash | SQL | React

### Software Tools & Libraries Experience

Bitcoin & Lightning  
BitcoinDevelopmentKit, python-bitcoinrpc,  
BitcoinJS, IbexHUB API.

### Node Management

MyNode/RaspiBlitz, LNBits, RTL, Voltage.

### Electronics

Raspberry Pi, Arduino, Texas instrument  
Launchpad MSP430, 3D printing.

### Ethereum & Polygon

Python Brownie Framework, Ganache,  
Remix, OpenZeppelin, Web3JS, Infura.

### Web Backend

Django, Flask, NodeJS, MySQL, Post-  
greSQL.

### Data Analysis and Visualization (Python)

Numpy, Pandas, SciPy, StatsModels, Mat-  
plotlib, Seaborn.






### Machine Learning, AI & Data extranction

OpenCV, Keras, TensorFlow, SciKit-Learn,  
Tesseract OCR Engine, Scrapy Web.

### CI/CD

Docker and Docker Compose, AWS,  
Jenkins.

### $x^2$ Highly proficient in mathematics

Probability and Statistics   
Advanced Calculus   
- Differential, Integral, Vector & Complex  
Linear Algebra   
Differential Equations   
Numerical Simulations 

## ₿ BITCOIN & PERSONAL PROJECTS

🔗 - **Bitcoin-Lightning IOS Wallet [Link]:** Developed a prototype for a **non-custodial**, descriptor-based IOS Bitcoin wallet, implementing the **BitcoinDevelopmentKit**, connecting to my own **Electrum server** for Blockchain data and successful transaction broadcast on mainnet. Also added **Lightning Payments** functionality through the **IBEXHub API** Service.

🔗 - **Chaotic Attraction [Link]:** Developed a 3D interactive experience to touch and play with the **Butterfly Effect**. The numerical simulation runs in the browser, solving a Lorentz System of differential equations to get the next step for each particle. Every time you see it, the simulation is completely unique. Deployed on IPFS.

## ⚙️ EXPERIENCE

📅 02/2022 - Present

📍 CryptoMX, Tijuana, México

### Blockchain Consultant (Remote)

- Assisted on the creation of online educational content and courses about **Bitcoin**, Ethereum Smart-Contracts and NFTs by **communicating technical information, at different levels of complexity**, e.g., Elliptic curve cryptography, Hashing algorithms, Proof of Work vs Proof of Stake consensus and smart-contract interactions.
- Developed Solidity smart-contracts for **ERC-721** NFTs and Royalties Splitters, tested and deployed on **Ethereum and Polygon networks** with the **Python Brownie Framework**.

📅 08/2021 - Present

📍 MedTrainer, Queretaro, México

### Senior Platform Engineer (Remote)

- Lead the newly established **Python Automation Team** from initial proposal and architecture design to the final delivery of an **Automation Microservices Platform** for on-demand **data retrieval and web scraping** of several US-States medical professional licensing websites.
- Maintained **constant communication and collaboration** with the company CTO, DevOps and frontend departments about the projects design and implementation.
- Transformed each data validation task **from 1 employee-hour to 1 automated-minute**.
- Established standards for good practices in **python microservices** and **test-driven development** as well as standards for **Detailed Documentation and Templates** for future projects.

📅 02/2021 - 08/2021

📍 Arkus Nexus, Tijuana, México

### Machine Learning Engineer (Remote)

- Developed **Machine learning** models for patter recognition and text extraction from images implementing Keras, OpenCV and Tesseract OCR Engine. This models were served through a **Flask API** and triggered as **Celery asynchronous tasks** on **AWS** with a **RabbitMQ message broker**.
- Supported other **Django** and **Flask** web projects within the company.

📅 01/2019 - 02/2021

📍 Grupo Molecular, Tijuana, México

### Lead Developer and Researcher

- Lead a team of developers on the design and delivery of a **Financial Analysis Web Platform** that fetched and analyzed real-time data from various APIs implementing **Django REST Framework**, PostgreSQL database, **Celery asynchronous tasks** on the backend and **NodeJS+ReactJS** on the frontend.
- Developed **Machine learning** models for **time-series forecasting** and **pattern recognition** implementing Long-Short Term Memory Models and Convolutional Neural Networks.
- Delivered statistical **data analysis and visualization** of experimental results in different research projects with **Python** tools.

## 🎓 EDUCATION

📅 2014 - 2019

📍 Universidad Autónoma de Baja California,  
Science Faculty, Ensenada, México.

### Degree in Physics

📅 2017 - 2018

📍 Université Claude Bernard Lyon 1,  
Faculté des Sciences et Technologies, Lyon, France.

### Academic Exchange