

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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in [Oswaldo Rosales](#)
📺 [Oswaldo Rosales | Physics Stories](#)

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, PostgreSQL.

Data Analysis and Visualization (Python)
Numpy, Pandas, SciPy, StatsModels, Matplotlib, Seaborn.

Machine Learning, AI & Data extranction
OpenCV, Keras, TensorFlow, SciKit-Learn, Tesseract OCR Engine, Scrapy Web.

CI/CD
Docker and Docker Compose, AWS, Jenkins.

✎ 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