LUIS PAPIERNIK

Software engineer | Physicist

🌐 luispapiernik.dev   📞 +57 312 845 46 94   💼 luispapiernik   🐙 Luispapiernik
@ lpapiernik24@gmail.com   📍 Medellin, Colombia

Physicist passionate about technology, with more than 5 years of experience as a software developer, and a strong formal background in math, physics and programming. My specialty is backend development, but I am able to perform a wide variety of tasks. I am passionate about what I do, so I am always improving my knowledge.

RELEVANT EXPERIENCE

Python Software engineer

Team International

📅 09.2022 – Currently   📍 Milla de oro. Medellin

- Designed and implemented command-line tools, streamlining processes and enhancing efficiency.
- Refactored code for data science solutions, improving readability, performance, and maintainability.
- Designed and maintained high-quality software following clean architecture principles, ensuring scalability and robustness.
- Mentored Python enthusiasts in the Tog Gun Lab program, fostering skill development and knowledge sharing.
- Provided guidance and support as a Python mentor in the Python Studio program, aiding in the growth and proficiency of participants.

Backend developer

Guane Enterprises

📅 02.2021 – 03.2022   📍 Milla de oro. Medellin

- Created microservices using FastAPI, Celery, Redis, RabbitMQ, and PostgreSQL, enhancing system scalability and performance.
- Automated processes using Python and Selenium, significantly reducing manual effort and increasing efficiency.
- Conducted web scraping activities using Python and Selenium, gathering valuable data for analysis and decision-making.
- Extracted structured data from documents using regular expressions, improving data accessibility and usability.
- Implemented business logic efficiently using Pyspark, optimizing data processing workflows and enhancing productivity.
- Administered Google Cloud Computing resources including cloud functions, buckets, Dataproc clusters, and Dataproc jobs, ensuring smooth operation and resource utilization.
- Refactored partner codebase, enhancing code quality, readability, and maintainability.
- Presented as a speaker at the company's seminar, sharing expertise and insights on functional programming, and contributing to knowledge sharing and collaboration within the organization.

Software developer

BCfort

📅 05.2019 – 10.2020   📍 Complejo Ruta N. Medellín

- Developed backend systems using NodeJS, Express, and MongoDB, delivering robust and scalable solutions for various applications.
- Deployed APIs on EC2 instances and managed S3 resources on AWS cloud computing platform, ensuring reliable and efficient service delivery.

PROJECTS

Course Project
Music composition with biaxial neural network.

🐙 *See project on GitHub for details.*

- This project attempts to reproduce the paper "Generating Polyphonic Music Using Tied Parallel Networks" by Daniel D. Johnson.

PyCellsLib
Library for the simulation and visualization of cellular automata.

🐙 *See project on GitHub for details.*

Degree Work
Work developed as a requirement to obtain the degree of physicist.

🐙 *See project on GitHub for details.*

At the moment the github repository might be private. For access or further information please contact me.

- In this project, supervised learning algorithms are studied from the perspective of category theory, in particular, monoidal categories.

Fractals generator (In progress)
Compilation of scripts for the generation of various fractals.

🐙 *See project on GitHub for details.*

LANGUAGES

Natural Languages

Spanish: Native
English: EF Set C2 Proficient

Programming Languages

🐍 Python
C C/C++
JS JavaScript
λ Haskell
Dart

- Designed and developed unit tests, ensuring code quality, reliability, and maintainability throughout the development lifecycle.
- Designed and developed load tests to assess system performance under various conditions, ensuring scalability and resilience.
- Developed Telegram bots, enhancing communication and automation capabilities, and improving user experience.
- Developed smart contracts using Solidity, facilitating secure and decentralized transactions on blockchain platforms.
- Conducted data analysis to extract insights and inform decision-making processes, driving business growth and optimization.

Freelance
Upwork

- 📅 Ocasionally
- 📍 Remote

- Engaged in backend development activities, leveraging various technologies and frameworks to build robust, scalable, and efficient server-side solutions.
- Developed bots for trading game items, enhancing user experience and facilitating efficient and secure transactions within the gaming ecosystem.

EDUCATION

Relevant Courses (with computational approach)
Universidad de Antioquia

- 📅 04.2015 – 06.2022
- 📍 Medellín, Colombia

- Techniques for Physical Sciences I (VPython, Blender and CUDA in C).
- Numerical analysis.
- Techniques for Physical Sciences II (Artificial Intelligence).
- Computational Physics 1 and 2 (Resolution of physical problems with Python, Root framework and C++).
- Computational Astrophysics (N-body problems simulations and Simulation of fluids and galaxies with SPH methods).
- Computability (theory of computable functions).
- Number Theory (with some cryptography topics).

Physics Student
Universidad de Antioquia

- 📅 04.2015 – 06.2022
- 📍 Medellín, Colombia

GPA: 3.9/5.0

The Coding School
IBM

- 📅 10.2020 – 05.2021
- 📍 Remote

Introductory course in quantum computing.

QColombia Workshop
QWorld

- 📅 17.02.2022 – 07.03.2022
- 📍 Remote

Introductory course in quantum computing.

Certificates
See here

EVENTS

Fourier analysis applied to music
Universidad de Antioquia

- 📅 14.06.2017
- 📍 Medellin, Colombia

The goal of the project was to obtain the sheet music of a melodic from an audio file, using the fast Fourier transform.

Modular Arithmetic and Cryptology
SPECI UdeA

- 📅 01.11.2018
- 📍 Medellin, Colombia

On classic cryptology methods and how to break them.
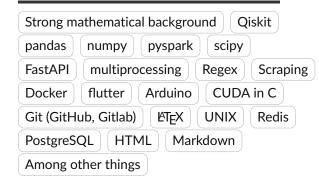
Grupoids: A Theory of Local and Global Symmetry
SPECI UdeA

- 📅 25.04.2019
- 📍 Medellin, Colombia

On the theory of categories in the study of symmetries.

HARD SKILLS

Strong mathematical background | Qiskit | pandas | numpy | pyspark | scipy | FastAPI | multiprocessing | Regex | Scraping | Docker | flutter | Arduino | CUDA in C | Git (GitHub, Gitlab) | LaTeX | UNIX | Redis | PostgreSQL | HTML | Markdown | Among other things

SOFT SKILLS

Hard-working | Fast-learner | Creative | Great Adaptability | High stress tolerance | Good communication

REFERENCES

Alejandro Sanchez Yali
📞 +57 300 769 70 30
@ alejandro.sanchezy@udea.edu.co

Camilo Gómez Zapata
📞 +57 314 543 17 93
@ camilo.gomez@guane.com.co

David Tintinago Pinzon
📞 +44 794 956 42 62
@ david.tintinago-pinzon@warwick.ac.uk

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