Juan Pablo Serrano Pérez

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Objective

I am a recent Master's degree in Mathematics graduate, driven by a passion for tackling algorithmic and computational challenges with creativity and rigor. My professional objective is to join a dynamic team where I can contribute to innovative solutions and play a pivotal role in addressing emerging issues. I specialize in the analysis and design of algorithms, aiming to contribute to advancements and efficiency in the fields of computer science, optimization, and mathematical research.

Education

Master of Science in Mathematics — 2023
Center of Research and Advanced Studies, National Polytechnic Institute, Mexico
Bachelor of Physics and Mathematics — 2021
National Polytechnic Institute, Mexico

Projects

Clustering Algorithm — 2023
Developed a clustering algorithm as part of my master's thesis, exploring unsupervised learning to investigate recursion in optimal graphs drawings related to the crossing number problem in combinatorial geometry.
Automation and Optimization of Backtesting Strategies — 2023
Implemented a Python program that optimizes parameters for various technical indicators, evaluating buy and sell strategies for assets.
Arbitrage in Foreign Exchange Markets — 2023
Designed an algorithm to find real arbitrage opportunities in the Foreign Exchange/Cryptocurrencie Markets. **Linear programming optimization** — 2020
Developed Simplex Algorithm in Python to find optimal solutions in a linear programming problem.

Work Experience

Microservices Developer — 2021 - 2023
Enterprise Resource Planning Solutions, Mexico
I worked as a backend developer developing microservices using Spring Boot.
Preparatory Master's Course — 2023
Center of Research and Advanced Studies, National Polytechnic Institute, Mexico
Taught a preparatory master's course in abstract algebra.

Current Research Working

1. Carlos Alfaro Montúfar, Juan Pablo Serrano, *Evolutive Sandpiles*.

Skills

– Proficient in Python, MATLAB, and Java programming.

– Knowledge on fundamentals of Computer Science such as data structures, design and analysis of algorithms, time complexity.

– Experience in working with optimization mathematics: linear programming, Nash and Pareto equilibrium.

- Strong background in Probability and Statistics.
- Analytical and abstract thinker.

Activities

- Collaborated in the 4th Reunion of Optimization, Mathematics, and Algorithms held in Mexico City.

Strengths

My proactive approach to learning and problem-solving sets me apart. I consistently seek creative solutions, new ideas, and methodologies to address specific challenges, primarily specializing in the field of algorithmic and computational mathematics.

Languages

- English: C1 Proficiency level.

References

- Dr. Ruy Fabila-Monroy (rfabila@math.cinvestav.mx)
- Dr. Onésimo Hernández-Lerma (ohernand@math.cinvestav.mx)
- Dr. Carlos A. Alfaro Montúfar (alfaromontufar@gmail.com)