LARA DI CAVALCANTI PONTES

+55 83 99993-0601 – laradicp@gmail.com – larapontes@eng.ci.ufpb.br

Languages: Native Portuguese, Fluent English (*TOEFL iBT:* 113/120), and Basic French.
Github: laradicp **LinkedIn:** laradicp **Personal website:** laradicp.github.io

EDUCATION

Universidade Federal da Paraíba (UFPB) 05/2019 – 05/2024
B.S. in Computer Engineering, cum laude – 9.7/10 (#1 GPA in the history of the program) *João Pessoa, Brazil*

PUBLICATIONS AND RESEARCH PAPERS

Saragih, A., **Pontes, L.**, Amin, S., & Fransoo, J. C. (2024). Spin the Bottle Bill: Deposit-Refund System Policy and Reverse Supply Chain Design. Submitted to *Operations Research*.

Pontes, L., Neves, C., Subramanian, A., & Battarra, M. (2024). The maximum length car sequencing problem. *European Journal of Operational Research*, 316(2), 707-717.

Pontes, L., Neves, C., Subramanian, A., & Battarra, M. (2021). O problema de sequenciamento com restrições de cadência. *Proceedings of the LIII Simpósio Brasileiro de Pesquisa Operacional, João Pessoa, Brazil.*

CONFERENCE PRESENTATIONS

Pontes, L. (2024, October). *The maximum length car sequencing problem.* Undergraduate Operations Research Prize, INFORMS Annual Meeting, Seattle, United States.

Pontes, L. (2024, July). *The maximum length car sequencing problem.* EURO Conference, Copenhagen, Denmark.

RESEARCH EXPERIENCE

Research Assistant – Logistics & Optimization Group (LOG) UFPB 07/2024 – Ongoing
Supervisors: Prof. Luciano Costa, Prof. Anand Subramanian, Prof. Brian Denton (University of Michigan)

- Inventory replenishment for a public university hospital under uncertain demand and two-stage lead times.

Research Collaboration with Austin Saragih (MIT) 05/2024 – 09/2024
Collaborators: Prof. Saurabh Amin (MIT), Prof. Jan C. Fransoo (Tilburg University)

- Worked on a recursive bilevel mixed-integer nonlinear program to maximize the recycling rate of beverage containers in deposit-refund systems, paper under review in Operations Research.
- Proved the NP-hardness of the second-level supply chain design problem, contributed to the convexity and monotonicity analyses for global optimality of the proposed method, and conducted a case study in California.
- Provided policy insights to help the California state government achieve and surpass its 80% recycling goal.

Research Fellow – Fiotec Fiocruz 12/2023 – 03/2024

- Developed a MILP model to minimize the costs in the ICU bed management of Brazil's Federal District.

Research Assistant Fellow – LOG UFPB 08/2020 – 01/2024
1-month Exchange Period – University of Bath 07/2023
Supervisors: Prof. Anand Subramanian, Prof. Maria Battarra (University of Bath)
Collaborator: Carlos Neves

- Leading author of paper published in the European Journal of Operational Research (EJOR) about a new variant of the car sequencing problem, in which the objective function aims at maximizing the manufactured cars without any violation.
- Formulated MILP models, developed combinatorial bounds, implemented local search-based heuristic and exact iterative algorithms, and conducted an instance space analysis using MATILDA.
- Reduced the time required to solve the company's needs from hours to less than a second.

WORK EXPERIENCE

Prescriptive Analytics Research Intern – SaveAdd 09/2023 – 02/2024

- Implemented an efficient heuristic solution for the prescription of surprise bags using daily unsold stock. The feasibility of each surprise bag is determined by an embedded 3D bin packing model.
- Built a value proposition classification dataset based on The B2B Elements of Value and developed a data-driven decision making tool with DistilBERT to identify the best hyper-segmentation strategy for food industry suppliers with unsold stock.

Software Engineer Internship Offer (Winter 2023) – Meta UK 04/2022

Combinatorial Optimization Developer – Atoptima (France) and UFPB 02/2021 – 08/2021

- Contributed to the open-source branch-price-and-cut framework Coluna.
- Worked on incorporating support for customized input data and optimizers, implemented the retrieval of disaggregated solutions, and added features to the column generation and the block decomposition modules.

Introduction to Computer Engineering Teaching Assistant – UFPB 09/2020 – 12/2020

ACHIEVEMENTS AND AWARDS

Finalist for the Undergraduate OR Prize – INFORMS 08/2024
"The maximum length car sequencing problem" was selected as one of the eight finalists for the INFORMS Undergraduate OR Prize, held at the upcoming 2024 INFORMS Annual Meeting in Seattle.

Best Undergraduate Work – Brazilian Society of Operations Research (Sobrapo) 11/2021
"O problema de sequenciamento com restrições de cadência" was awarded the Best Undergraduate Work at the Brazilian OR Conference, the most prestigious undergraduate prize in the operations research (OR) field in Brazil.

Tech Fellow – Fundação Estudar 09/2022
A merit scholarship to high-performing Brazilian students aimed at leading the next technology revolutions in Brazil. The program selected 23 out of 4,285 candidates, and it involves a study grant, access to a distinct community of people in tech, career support, and mentorship from prominent leaders in various fields.

Young Researcher Award in the field of Exact and Earth Sciences (1st place) – UFPB 12/2022
The research on "The maximum length car sequencing problem" was deemed the best among the 112 projects in the Exact and Earth Sciences category of the UFPB scientific program.

First place at entrance exam for Computer Engineering at UFPB 01/2019
Achieved a score of 965.9 in Mathematics at the National High School Exam (top <0.1% in Brazil).

Maximum score at the National High School Exam (Enem) Essay 03/2017
Seventy-seven students out of more than 6 million candidates got the maximum score that year.

Second place at robotics competition for gold medalists at Brazilian Robotics Olympiad 11/2017
Represented the Paraíba state nationally and ranked first among students without prior programming knowledge.

National Gold and Silver Medals at Brazilian Robotics Olympiad, and Silver Medals at International Mathematical Kangaroo Competition and Astronomy and Astronautics Brazilian Olympiad 2017/18

TOOLS AND INTERESTS

Tools C/C++, Python, Julia, JuMP, Gurobi, CPLEX, HiGHS, OR-Tools, MiniSat, LaTeX, Git, Linux.
Interests Comb. Optim., Stochastic Programming, Sequential Decision Making, Healthcare, Sustainability.

RELEVANT TRAINING

2nd Copenhagen School of Stochastic Programming 06/2024

Public Speaking Course (120 hours) – Vox2you 2023

VRPSolver Course 2020
Lectured by Prof. Eduardo Uchoa for the graduate program in Industrial Engineering at UFF.