

Renan SPENCER TRINDADE

PhD · Research Engineer at École Polytechnique

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École Polytechnique	Palaiseau, France	
Research Engineer	lul 2023 - Now	
 Working with hybrid techniques from Operations Research and Artificial Intelligence to solve complex problems in differen fields of application in order to support companies in their decision-making processes. 	t	
 POST-DOCTORAL RESEARCHER Working on the "Integrated Urban Mobility" project, held by Uber & École Polytechnique, focuses on solving optimization problems in air and ground travel operation and integration. Built techniques that deal with continuous nonlinear and non-convex properties and combinatorial characteristics. Working on the open source implementation of the SC-MINLP method. https://github.com/iumx-chair/SC-MINLP Researching air traffic management problems, including avoiding aircraft collisions. 	Oct. 2019 - Jun. 2023	
 Post-Doctoral Researcher (Short stay) Worked on the Hydro Unit Commitment problem in a project held between École Polytechnique and EDF. Developed a tailored method applied to the Ain hydro valley in France, in collaboration with OSIRIS Department. Implemented a method using Lagrangian decomposition and bundle methods, employing parallelization to solve it. 		
 STUDENT OF INTERNATIONAL EXCHANGE PROGRAM Selected for the Research Program for International Talents at the École polytechnique. Implemented an automatic mathematical reformulator for piecewise linearization in mixed-integer non-linear problems (MINLP), extending the Rose project of COIN-OR. 	Jun. 2018 - Oct. 2018	
Teaching experience		
 École Polytechnique RESPONSIBLE FOR THE TDS INF569 - Decision theory, with applications to energy systems. (2019-2020, 2021-2022, and 2022-2023) Computer Science (Informatique), Master 1 (Ingénieur 3A). 	Palaiseau, France Jan. 2020 - Now	
Université Paris 1 Panthéon-Sorbonne	Paris, France	
 RESPONSIBLE FOR THE COURSE SESSIONS X5113319 - Programming in C++ (2022-2023) Undifferentiated Modeling and Mathematical Methods in Economics and Finance. Master 2. 	Oct. 2022 - Sept. 2024	
Education		
Federal University of Rio de Janeiro (UFRJ)	rio de Janeiro, Brazil	
Ph.D. in Systems Engineering and Computer Science	Jul. 2014 - May 2019	

Federal University of Santa Maria (UFSM)

MASTER'S DEGREE IN COMPUTER SCIENCE

Franciscan University (UFN)

BACHELOR'S DEGREE IN COMPUTER SCIENCE

Skills_____

Possarch tonics	Combinatorial Optimization, Convex and non-convex programming, Machine Learning, Mathematical optimization,
Research topics	Mixed Integer Linear Programming, Operations Research, Scheduling Problems
Programming	C/C++, Python, JAVA, Git, Linux, LaTeX
Optimization	Ampl, Baron, Cplex, Gurobi, IPOPT, Julia, Matlab
Machine Learning	TensorFlow, Keras, PyTorch, Scikit-learn
Languages	English, French, Portuguese, Spanish

Renan Spencer Trindade · Curriculum Vitae

Santa Maria, Brazil

Mar. 2012 - Mar. 2014

Santa Maria, Brazil

Mar. 2008 - Dec. 2011

Honors & Awards.

- 2015 **Recognition of Distinction Award**, Federal University of Santa Maria
- 2014 Roberto Diéguez Galvão Award, Brazilian Society of Operations Research (SOBRAPO)

Top publications

Full papers in journals

2023	Comparing perspective reformulations for piecewise-convex optimization,	Operations Research Letters
2020	Renan Spencer Trindade, Claudia D'Ambrosio, Antonio Frangioni, Claudio Gentile	operations research Letters
2021	Arc-flow approach for single batch-processing machine scheduling,	Computers & Operations
	Renan Spencer Trindade, Olinto César Bassi de Araújo, Marcia Fampa	Research
2021	Decomposition and shortest path problem formulation for solving the hydro unit commitment and scheduling in a hydro valley,	European Journal of
	Wim Ackooij, Claudia D'Ambrosio, Dimitri Thomopulos, Renan Spencer Trindade	Operational Research
2018	Modelling and symmetry breaking in scheduling problems on batch processing machines,	International Journal of
	Renan Spencer Trindade, Olinto César Bassi de Araújo, Marcia Fampa, Felipe Martins Müller	Production Research
Book ch	apters	
2020	(To appear) A comparison of formulations for aircraft deconfliction,	Numerical Computations ,
	Renan Spencer Trindade, Claudia D'Ambrosio	NUMTA 2023, LNCS
2022	Hydro Unit Commitment,	Encycl of Optimization
2022	Renan Spencer Trindade, Claudia D'Ambrosio	επογοί, οι ορμπηζατιοπ
	Arc-flow approach for parallel batch processing machine scheduling with non-identical job	Combinatorial
2020	sizes,	Optimization, ISCO 2020,
	Renan Spencer Trindade, Claudia D'Ambrosio, Antonio Frangioni, Claudio Gentile	LNCS 12176
Confere	nces and talks	
2023	A comparative study of reformulations for piecewise-convex optimization,	Danidaraa UC
	Discrete Optimization: Mathematics, Algorithms, and Computation (ICERM - Brown University)	Providence, US
2022	Formulations for piecewise-convex problems,	Constant Human and
	XV Global Optimization Workshop	Szegea, Hungary
2020	Comparing Formulations for Piecewise Convex Problems,	
	18th Cologne-Twente Workshop on Graphs and Combinatorial Optimization	ischia, italy
	Modelling batch processing machines problems with symmetry breaking and arc flow	
2020	formulation,	Aussois, France
	24th Combinatorial Optimization Workshop	