

Lizeth Carolina Riascos-Álvarez
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Ph.D. candidate in Industrial Engineering
criaal.com | [github](https://github.com)

Education

University of Toronto, Canada Ph.D. in Industrial Engineering, Advisors: Dionne Aleman and Merve Bodur	2018-2023
Universidad de Nuevo León, Mexico Masters in Systems Engineering, Advisor: Roger Ríos-Mercado	2015-2017
Universidad Nacional, Colombia Bachelor in Industrial Engineering	2008-2013

Publications

A Branch-and-Price Algorithm Enhanced by Decision Diagrams for the Kidney Exchange Problem Lizeth Carolina Riascos-Álvarez, Merve Bodur and Dionne M. Aleman Available at [arXiv] . To appear in [MSOM]	2020
A Feasibility-Seeking Approach to Two-stage Robust Optimization in Kidney Exchange Lizeth Carolina Riascos-Álvarez, Dionne M. Aleman and Merve Bodur Available at [arXiv]	2022

Works in Progress

Planning for the Worst-Case Transplant Cancellations in Kidney Exchange Lizeth Carolina Riascos-Álvarez, Merve Bodur and Dionne M. Aleman	2023
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Conference Presentations

A Defender-Attacker-Defender Approach To Robust Optimization for The Kidney Exchange Problem With Non-Homogeneous Uncertainty CORS Annual Conference	2022/Canada
A Lagrangian-based Branch and Bound for the Kidney Exchange Problem CORS Annual Conference	2021/Canada
A Branch-and-Price Algorithm Enhanced by Decision Diagrams for the Kidney Exchange Problem INFORMS Annual Meeting	2020 / USA
Logic-based Benders Decomposition for the Kidney Exchange Problem INFORMS annual meeting	2019 / USA

Posters

A Lagrangian-based Branch-and-bound Algorithm Enhanced by Multi-valued Decision Diagrams for the Kidney Exchange Problem Mixed Integer Programming Workshop (Online)	2020/USA
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Research Experience

Researcher at Medical Operations Research Laboratory University of Toronto. Director: Dionne Aleman	2018-Present
Visiting Scholar The University of Texas at Austin. Director: Jonathan F. Bard	2016

Professional Experience

Business Intelligence Analyst at IDATA S.A.S.	April-December, 2014 / Colombia
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- Designed algorithmic models based on structured data for determining optimal payment policies and marketing strategies.
- Conducted SQL queries and data cleansing to provide stakeholders with reports and updated statistics.

Logistics Division Intern at AUTEKO S.A

June-December, 2013 / Colombia

- Based on historic data, I created dispatch policies of automotive parts so as to minimize transport costs and assure timely delivery service.

Teaching Assistanships

Business Process Engineering

Fall, 2021

University of Toronto

Mathematical Programming

Winter, 2020/2021

University of Toronto

Statistics II

Winter, 2011/2012

Universidad Nacional de Colombia

Awards

Peri Family Graduate Scholarship in Healthcare Engineering

2020

University of Toronto

MIP Workshop Travel Grant

USA, 2020

MIP Workshop

MIE Graduate Student Conference Grant

2019/2020

University of Toronto

Fulbright Scholarship

2017

Fulbright Colombia-USA

Best Undergraduate Thesis in Industrial Engineering

2014

Universidad Nacional de Colombia

Software Development

Project Name	Description	Languages	
State-of-the-art Branch-and-Price Algorithm	Large-scale optimization, customizable solution, 2000+ vertices	C++, Python	[arXiv]
State-of-the-art Two-Stage Robust Optimization	Best response under worst-case network disruption/plan deviation, 100+ vertices	C++, Python	[arXiv]

Productized Works

In [\[arXiv\]](#), I designed and implemented the first branch-and-price algorithm, a large-scale optimization methodology, to assign donors to recipients considering long human-donation chains. In [KidneyExchange.jl](#), a new version based on our algorithm was proposed and it is now publicly available as a Julia package.

Programming

LANGUAGES: C++, Python, Java, Matlab, R, VBA
OPTIMIZATION: Gurobi, IBM CPLEX
OTHER: Latex, Git, Linux

Extracurricular

President of the student club The Operations Research Challenge (TORCH)

2019 - Present

University of Toronto. Website: orchallenge.org

Session Chair of Optimization in Healthcare - II

June, 2021

Canadian Operations Research Society Annual Conference