Bryan GALARZA

Antwerp – Belgium

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Google Scholar • ResearchGate • GitHub

Career Profile

Operations Research specialist with a strong background in developing optimization algorithms for both academic and real-world decision-making problems. My work bridges theory and practice, with a focus on metaheuristics, exact methods, and data-driven approaches to support efficient, practical solutions across domains such as transportation, logistics, and healthcare.

Core skills: Combinatorial Optimization | Metaheuristics | Transportation | Algorithms | Programming
Nationality: Belgian citizen (EU)

Education

University of Antwerp, ANT/OR — **Antwerp, Belgium**
Doctor of Philosophy (Ph.D.) — *Jun 2019 – May 2023*
Operations Research
Supervisors: Kenneth Sörensen and Pieter Vansteenwegen
Thesis: Towards the Goldilocks Zone of demand-responsive transportation services

Ghent University, Industrial Systems Engineering — **Ghent, Belgium**
Master of Science in Engineering Sciences, Cum Laude — *Sep 2016 – Jul 2018*
Industrial Engineering and Operations Research (burgerlijk ingenieur)
Thesis: Multimodal coordination schemes for Intelligent Traffic Systems

Ghent University, Engineering and Architecture — **Ghent, Belgium**
Bachelor of Science in Engineering Sciences — *Sep 2012 – Jul 2016*
Chemical Engineering and Material Science (burgerlijk ingenieur)

Sint-Lievenscollege — **Antwerp, Belgium**
High-school, general secondary education (ASO) — *Sep 2005 – Jul 2011*
Science and Mathematics

Experience

Department of Engineering Management (ENM) - University of Antwerp — **Antwerp, Belgium**
Postdoctoral Researcher — *Oct 2025 – Present*
I work on the STRAUSS project, which focuses on urban logistics within the field of Operations Research. My tasks include:
- Developing algorithms and frameworks for solving urban logistics challenges.
- Supervising and supporting PhD students in their research.
- Collaborating with academic and industry partners to ensure practical impact.

VLAIO - Triptomatic — **(remote) Duffel, Belgium**
Lead Operations Research Expert — *Oct 2023 – Oct 2025*
Triptomatic is a software company offering digital solutions in healthcare. I am fully responsible for the Operations Research part of a VLAIO-funded development project. My tasks include:
- Conducting research on on-demand transportation problems in healthcare and translating them into OR models.
- Designing and implementing real-time optimization algorithms for vehicle dispatching and routing.
- Integrating Operations Research algorithms into a decision-support framework with GIS-based tools.
- Performing data analysis to evaluate algorithmic performance and identify systemic improvement opportunities.
- Bridging academic research with industrial application, ensuring scientific rigor while delivering practical solutions.

Department of Engineering Management (ENM) - University of Antwerp — **Antwerp, Belgium**
Postdoctoral Volunteer Researcher — *May 2023 – Oct 2023*
As a postdoctoral researcher, I continued to write and publish academic papers in the field of Operations Research. I also presented my research in international conferences.

Doctoral Researcher *Jun 2019 – May 2023*

My PhD research focused on designing and optimizing semi-flexible, on-demand transportation systems.
Key achievements and tasks:

- Researched and designed novel semi-flexible bus services.
- Developed novel algorithms for static and online real-time optimization of on-demand feeder services.
- Published five academic papers in peer-reviewed international journals.
- Presented at multiple international conferences and gave invited seminars.
- Participated in industry collaboration projects, acting as a consultant for companies.

Atlas Copco **Wilrijk, Belgium**

Improvement consultant *Sep 2018 – Apr 2019*

Project-based consulting work focused on optimizing packaging policies. My tasks included:

- Documented existing packaging policy for piping components.
- Proposed improvements using linear programming and metaheuristics.

Languages

English: Proficient

Dutch: Proficient

Spanish: Proficient

French: Elementary

Computer skills

Programming:
- *Proficient:* C++, Python, Java, R, MATLAB
- *Basic:* SQL, MongoCxx

Software:
- *Proficient:* LaTeX, CPLEX, Gurobi, Hexaly, CI/CD tools (Bitbucket, Github)
- *Intermediary:* Docker, Jira, FlexSim, VISSIM, Maple, AMPL

Microsoft Office / Google workspace: Excel / Sheets, PowerPoint / Slides, Word / Docs, Teams / Meet, Outlook / Gmail, Drive, Calendar (Proficient)

Accomplishments

Sint-Lievenscollege **Antwerp, Belgium**

Dr. Splichal Award *2011*

Award for the best high-school thesis.

Sint-Lievenscollege **Antwerp, Belgium**

Zuster Roes Award *2011*

Award for significant improvement in various aspects of high-school education.

University of Antwerp **Antwerp, Belgium**

Best Paper Award *2020*

Finalist (2nd place) for the *Best Paper Award* in the Doctoral Day of the Faculty of Business and Applied Economics

EURO **Monterrey, Mexico**

ELAVIO scholarship *2022*

Winner of the EURO scholarship for attending the ELAVIO summer school.

Publications (6)

A large neighborhood search algorithm to optimize a demand-responsive feeder service
Transportation Research Part C: Emerging Technologies, 127 (2021)
DOI: https://doi.org/10.1016/j.trc.2021.103102

A survey on demand-responsive public bus systems
Transportation Research Part C: Emerging Technologies, 137 (2022)
DOI: https://doi.org/10.1016/j.trc.2022.103573

A column generation algorithm for the demand-responsive feeder service
Networks, 80(3) (2022)
DOI: https://doi.org/10.1002/net.22095

The real-time dynamic online feeder service with a maximum headway at mandatory stops
Transportmetrica A: Transport Science, (2023)
DOI: https://doi.org/10.1080/23249935.2023.2227738

A demand-responsive feeder service with a maximum headway at mandatory stops
Networks, 83(1) (2023)
DOI: https://doi.org/10.1002/net.22185

Towards the Goldilocks Zone of demand-responsive bus services
4OR, 22, PhD Thesis Abstract (2024)
DOI: https://doi.org/10.1007/s10288-023-00546-4

Conference presentations (9)

ORBEL 34 — **Lille, France**
34th Annual Conference of the Belgian Operations Research Society — *2020*
A demand responsive feeder-system service with mandatory and clustered, optional bus stops

ORBEL 35 — **Virtual**
Corona Sessions: Public Transportation — *2021*
A demand-responsive feeder service with mandatory and optional bus stop

EURO 2021 — **Athens, Greece**
31st European Conference on Operations Research — *2021*
A large neighbourhood search algorithm to optimize a demand-responsive feeder service

NORS 2021 — **Bergen, Norway**
The Norwegian Operations Research Society — *2021*
A demand-responsive feeder service with mandatory stops and frequency constraints

ELAVIO 2022 — **Monterrey, Mexico**
Latin Ibero-American Summer School On Operations Research — *2022*
A demand-responsive feeder service with a maximum headway at mandatory stops

MIC 2022 — **Ortigia-Syracusa, Italy**
14th Metaheuristics International Conference — *2022*
A demand-responsive feeder service with a maximum headway at mandatory stops

ORBEL 36 — **Ghent, Belgium**
36th Annual Conference of the Belgian Operations Research Society — *2022*
Towards better service quality with the dynamic feeder service with a maximum headway at mandatory stops

CLAIO 2022 — **Buenos Aires, Argentina**
XXI Latin Ibero-American Conference On Operations Research — *2022*
Towards better service quality with the dynamic feeder service with a maximum headway at mandatory stops

IFORS 2023 — **Santiago, Chile**
The 23rd Conference of the International Federation of Operational Research Societies — *2023*
The real-time dynamic online feeder service with a maximum headway at mandatory stops

Hobbies

: Planning and exploring diverse cultures through travel.

: Landscape and urban photography using a mirrorless camera.

: Long-distance hiking, often in mountainous regions.

: Sketching fictional characters and concept art.