

# Diego Bravo

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As an aspiring researcher with a BSc in Industrial Engineering and passionate for mathematical modeling and optimization, my purpose is to contribute to an unpredictable world of limited resources and unlimited needs. I intend to tackle combinatorial problems promoting a sustainable world via e-transportation and balancing business requirements with societal needs.

## EDUCATION

### Universidad Católica del Norte - UCN

*Industrial Engineering BSc, Cum Laude/Distinction*

GPA 3.54/4.0

Antofagasta, Chile

**2019 - 2024**

## EXPERIENCE

### Undergraduate Research Assistant at UCN and ESG-UQAM/CIRRELT

**2023 - 2024**

- Developed mathematical models to address vehicle routing in waste collection, public services, and commercial distribution.
- Engineered solution methods through metaheuristic and decomposition algorithms, utilizing the full Python stack.
- Conducted a research bachelor thesis across UCN and ESG-UQAM under the supervision of Dr.Zbib and Dr.Lespay.

### Undergraduate Teaching Assistant at UCN

**2022 - 2023**

- Provided teaching assistance, supervised projects, and evaluated students in two different Operations Research courses, addressing topics like linear programming, heuristics, algorithms, and Python-Gurobi programming.

### Internship at Brumier Consulting, Buenos Aires, Argentina

**Summer 2022**

- Performed data analysis at sales points and applied Gurobi to vehicular routing for improved operational performance.

## RESEARCH ARTICLES

### Consistent Semi-Periodic Capacitated Arc Routing Problems with Bin Size Allocation

*Paper in development by Diego Bravo, Hani Zbib, and Hernán Lespay. Targeted submission to Transportation Sciences.*

### Consistent Vehicle Routing Problem with Simultaneous Pick-up and Delivery and Time Windows

*Paper in development by Diego Bravo and Hernán Lespay. Targeted submission to Computers and Operations Research.*

## CONFERENCES AND SEMINARS

**Optimization Days Conference:** GERAD and CIRRELT, HEC Montréal, May 2024

**CRI2GS Seminar:** ESG-UQAM and CIRRELT, Montréal-Canada, May 2024

**IFORS Conference:** 23rd Conference of the International Federation of Operational Research Societies, Chile, July 2023

## ACHIEVEMENTS

**2024:** Unanimously elected Best Student 2024 by the Industrial Engineering Faculty at Universidad Católica del Norte.

**2024:** Collaborative research thesis across UCN and ESG-UQAM, contributing to the field of waste management.

**2023:** Recipient of the Mitacs Globalink Research Internship Scholarship, supporting research abroad.

**2023:** Honored by Preu-UCN for leading educational coordination and spearheading coaching efforts.

**2023:** Received the IFORS Conference Scholarship to present research on Vehicle Routing and Heuristics.

**2022:** Awarded by CEICI for contributions as a Teaching Assistant in Operations Research at UCN.

**2019:** Led the team to a competitive showing in UCN's inter-course Eco-Car project.

**2019:** Received the Platzi Scholarship for demonstrating exceptional potential in technology.

**2018:** Honored in high school for outstanding in English Language, Philosophy, and Literature.

## VOLUNTEERING

**2023-2024, Yenapatur:** Proactively integrating exchange students in local culture.

**2022-2024, PreU-UCN:** Offering physics instruction, orientation, and coaching.

- **Physics Instructor:** Taught physics, managed teams, and prepared lectures.

- **Orientation Coach:** Facilitated workshops and motivational talks.

**2022, PropiciandoCambios:** Promoting sustainability through educational talks.

**2021, ProICI:** Advocating for student-led engineering initiatives.

**2020, Skyhack:** Innovative tech-driven education in collaboration with UNAM students.

## REFERENCES

Dr.Hani Zbib, Université du Québec à Montréal, [zbib.hani@uqam.ca](mailto:zbib.hani@uqam.ca)

Dr.Hernán Lespay, Universidad Católica del Norte, [hernan.lespay@ucn.cl](mailto:hernan.lespay@ucn.cl)

Dr.Francisco Tapia, Universidad Católica del Norte, [francisco.tapia@ucn.cl](mailto:francisco.tapia@ucn.cl)