

Connor Lawless

CONTACT	Stanford University Management Science & Engineering 475 Via Ortega, Stanford, CA 94305	lawlessc@stanford.edu https://conlaw.github.io
RESEARCH INTERESTS	<i>Human-centered artificial intelligence</i> via computational optimization, human-computer interaction, and machine learning.	
ACADEMIC POSITIONS	Stanford University Stanford HAI Postdoctoral Fellow - Advisors: Madeleine Udell and Ellen Vitercik	Palo Alto CA <i>July 2024 - Current</i>
EDUCATION	Cornell University Ph.D. in Operations Research and Information Engineering M.S. in Operations Research and Information Engineering - PhD Advisor: Oktay Günlük - Thesis: Integer Programming Approaches for Trustworthy Machine Learning	Ithaca, NY <i>May 2024</i> <i>December 2022</i>
	University of Toronto B.A.Sc. in Industrial Engineering , <i>High Honors</i>	Toronto, ON <i>April 2019</i>
WORKING PAPERS	OptiMUS-0.3: Using Large Language Models to Model and Solve Optimization Problems at Scale Ali AhmadiTeshnizi, Wenzhi Gao, Herman Brumborg, Shayan Talaei, Connor Lawless , Madeleine Udell <i>Major Revision at Management Science</i>	
	Fair Minimum Representation Clustering via Integer Programming Connor Lawless , Oktay Günlük <i>Major Revision at Operations Research (supersedes CPAIOR version)</i>	
	“It Was a Magical Box”: Understanding Practitioner Workflows and Needs in Optimization Connor Lawless , Jakob Schoeffer, Madeleine Udell <i>Submitted to ACM CHI 2026</i>	
	LLMs for Cold-Start Cutting Plane Separator Configuration Connor Lawless , Yingxi Li, Anders Wikum, Madeleine Udell, Ellen Vitercik <i>Under review at INFORMS Journal on Computing (supersedes CPAIOR version)</i>	
JOURNAL PUBLICATIONS	“I Want it That Way”: Enabling Interactive Decision Support via Large Language Models and Constraint Programming Connor Lawless , Jakob Schoeffer, Lindy Le, Kael Rowan, Shilad Sen, Cristina St. Hill, Jina Suh, Bahar Sarrafzadeh <i>ACM Transactions on Intelligent & Interactive Systems (ACM TIIS), 2024</i>	
	Interpretable and Fair Decision Rules via Column Generation Connor Lawless , Sanjeeb Dash, Oktay Günlük, Dennis Wei <i>Journal of Machine Learning Research (JMLR), 2023</i>	
CONFERENCE PUBLICATIONS	Understanding Fixed Predictions via Confined Regions Connor Lawless , Lily Weng, Berk Ustun, Madeleine Udell <i>International Conference on Machine Learning (ICML), 2025</i>	

EquivaMap: Leveraging LLMs for Automatic Equivalence Checking of Optimization Formulations

Haotian Zhai, **Connor Lawless**, Leqi Liu, Ellen Vitercik
International Conference on Machine Learning (ICML), 2025

LLMs for Cold-Start Cutting Plane Separator Configuration

Connor Lawless, Yingxi Li, Anders Wikum, Madeleine Udell, Ellen Vitercik
International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR), 2025

Fair Minimum Representation Clustering

Connor Lawless, Oktay Günlük
International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR), 2024

Cluster Explanation via Polyhedral Description

Connor Lawless, Oktay Günlük
International Conference on Machine Learning (ICML), 2023

Interpretable Clustering via Multi-Polytope Machines

Connor Lawless, Jayant Kalagnanam, Lam Nguyen, Dzung T. Phan, Chandra Reddy
AAAI Conference on Artificial Intelligence (AAAI), 2022

WORKSHOP AND TECHNICAL REPORTS

LLMs for Optimization: Modeling, Solving, and Validating with Generative AI

Connor Lawless, Leonard Bouisseaux, Ellen Vitercik, Madeleine Udell

Tutorial in AAAI Conference on Artificial Intelligence (AAAI), 2026

Two-Stage Approach to Routing with Driver Preferences via Heatmaps

Connor Lawless, Sotiris Ntanavaras, Anders Wikum
Proceedings of the Amazon-MIT Last Mile Vehicle Routing Challenge (2022)

Fair and Interpretable Decision Rules for Binary Classification

Connor Lawless, Oktay Günlük
NeurIPS Workshop on Optimization in Machine Learning (2020)
IJCAI Workshop on AI for Social Good (2021)

PATENTS

Trade Platform with Reinforcement Learning

Hasham Burhani, Shary Mudassir, Xiao Qi Shi, **Connor Lawless**
US Patent, Granted in 2023

Interpretable Clustering via Multi-Polytope Machines

Dzung T. Phan, **Connor Lawless**, Jayant R. Kalagnanam, Lam M. Nguyen, Chandra K. Reddy
Patent Application in US (2021)

Leveraging generative language models for interactive constraint satisfaction

Jina Suh, Bahar Sarrafzadeh, Cristina Daescu, Shilad Sen, **Connor Lawless**, Jakob Schoeffer
Patent Application in US (2025)

ACADEMIC PRESENTATIONS

Democratizing Optimization via Generative AI

– RAIN Seminar, Stanford

October 2025

LLMs for Optimization: Modeling, Solving, and Validating with Generative AI

– Guest Lecture, University of Southern California
– AAAI Tutorial, Singapore

September 2025
January 2026

Understanding Fixed Predictions via Confined Regions

– INFORMS Workshop on Data Science, Atlanta GA

October 2025

LLMs for Cold-Start Cutting Plane Configuration

- AAAI Bridge on AI and OR (Poster), Philadelphia PA *February 2025*
- INFORMS Computing Society Conference, Toronto ON *March 2025*
- ICCOPT, Los Angeles CA *July 2025*
- CPAIOR, Melbourne Australia *November 2025*

Enabling Interactive Decision Support via Large Language Models and Constraint Programming

- Microsoft Office of Applied Research Seminar *August 2023*
- Cornell ORIE PhD Colloquium, Ithaca NY *September 2023*
- CCC Joint AI-OR Workshop, Washington DC *March 2024*
- INFORMS, Seattle WA *October 2024*
- AAAI Bridge on AI and OR, Philadelphia PA *February 2025*
- IUI (Invited Talk), Cagliari Italy *March 2025*

Fair Minimum Representation Clustering

- NYC Joint PhD Colloquium *May 2023*
- CPAIOR 2024, Uppsala Sweden *May 2024*
- European Conference on Operational Research, Copenhagen Denmark *July 2024*
- AAAI Bridge on AI and OR (Poster), Philadelphia PA *February 2025*

Cluster Explanation via Polyhedral Description

- Cornell ORIE PhD Colloquium, Ithaca NY *September 2022*
- Making Sense of Explainable ML, Lorentz Center at the University of Leiden *October 2022*
- Fidelity AI Center Seminar, Remote *April 2023*
- Thematic Einstein Seminar on Optimization and ML, Berlin Germany *April 2023*
- NYC Operations Day (Poster), NYC NY *April 2023*
- SIAM Optimization Conference, Seattle WA *May 2023*
- International Federation of Operations Research Society Meeting, Santiago Chile *July 2023*
- ICML (Poster), Honolulu HI *July 2023*
- INFORMS Annual Meeting, Phoenix AZ *October 2023*
- Stevens Institute of Technology, Hoboken NJ *October 2023*
- University of Maryland: Smith School of Business, College Park MD *December 2023*
- University of Ottawa: Telfer School of Business, Ottawa ON *December 2023*
- USC: Marshall School of Business, Los Angeles CA *January 2024*
- University of Washington: Industrial and Systems Engineering, Seattle WA *February 2024*
- Amazon Modeling and Optimization Group *February 2024*
- Stanford University: Udell Group Meeting, Stanford CA *February 2024*
- Mitsubishi Electric Research Lab, Boston MA *March 2024*

Interpretable Clustering via Multi-Polytope Machines

- IBM Research Applied AI Seminar, Remote *August 2021*
- Cornell ORIE PhD Colloquium, Ithaca NY *October 2021*
- INFORMS Optimization Society, Greenville SC *March 2022*
- European Conference on Operational Research, Espoo Finland *July 2022*

Fair and Interpretable Decision Rules for Binary Classification

- ORACL Workshop, Cornell University *June 2019*
- AI for Social Good Workshop, IJCAI (Remote) *January 2021*
- Machine Learning NeEDs Mathematical Optimization Seminar Series *February 2021*
- European Conference on Operational Research (Remote) *July 2021*
- INFORMS, Anaheim CA *October 2021*

TEACHING EXPERIENCE	Instructor ORIE 5270: Big Data Technologies, <i>Spring 2023 - Cornell</i> Teaching Effectiveness: 4.45/5 (Dept. Avg.: 3.99)
	Instructor ORIE 6125: Computational Methods in OR, <i>Spring 2023 - Cornell</i> Teaching Effectiveness: 4.63/5 (Dept. Avg.: 3.99)
	Instructor Data Analytics 2021-2022 - iXperience Teacher Rating: 4.9/5 (Fall '21), 5/5 (Spring '22)
	Teaching Assistant ORIE 5135: Computational IP, <i>Spring 2022 - Cornell</i>
	Teaching Assistant ORIE 4740: Learning with Big Messy Data, <i>Fall 2021 - Cornell</i>
	Instructor Data Science Bootcamp 2020 - 2021 iXperience Teacher Rating: 4.9/5 (Summer '20), 4.9/5 (Winter '21)
	Guest Lecturer ORIE 6140: Mathematical Modeling for OR, <i>Fall 2020 - Cornell</i>
	Teaching Assistant ORIE 3300: Optimization I, <i>Fall 2019 - Cornell</i>
	Guest Lecturer ENGRI 1101: Engineer Applications of OR, <i>Fall 2019 - Cornell</i>
HONORS	University of Iowa Future Business Analytics Professor Workshop Selected Attendee 2025 Outstanding Graduate Instructor, Cornell ORIE 2023 EEAMO Doctoral Consortium Selected Attendee 2023 Michigan Institute for Data Science Future Leaders Summit Selected Attendee 2023 Outstanding Reviewer, AISTATS 2023 FAccT Doctoral Consortium Selected Attendee 2022 Ontario Professional Engineers Foundation for Education Gold Medal, University of Toronto 2019 W.S. Wilson Medal, University of Toronto 2019 Dean's List, University of Toronto 2014-2019 Edward L. Donegan Scholarship (\$100K), University of Toronto 2014-2019 Ben Bernholtz Memorial Prize in Operations Research, University of Toronto 2016

ADVISING AND STUDENT COLLABORATORS

Anders Wikum, 2020-, Cornell ORIE Undergraduate and Stanford MS&E PhD Student.

Yingxi Li, 2024-, Stanford MS&E PhD Student.

Haotian Zhai, 2024-2025, UT Austin EE PhD Student.

Jillian Chang, 2025, Stanford Undergraduate.

Sophia Jiang, 2025, Stanford Undergraduate.

Josh De Leeuw, 2024, Cornell ORIE Undergraduate.

Michael Luo, 2024, Cornell ORIE Undergraduate.

Henry Robbins, 2020, Cornell ORIE Undergraduate.

SERVICE

In Stanford:

- Co-organizer **ISL Seminar** (*2024-2025*)

In Cornell:

- *Mentoring*: Graduate Student Mentor with Operations Research Graduate Association (*2020-2023*)
- *Operations Research Graduate Association*: Co-President (*2021-2022*), Visit Weekend Coordinator (*2020 - 2021*), Mentorship Director (*2022 - 2023*), URM PhD Application Support Program Officer (*2023 - 2024*)

In Conferences:

- *Session Chair*: INFORMS Annual Meeting, EURO Annual Meeting, IFORS Triennial Meeting
- *Referee*: AISTATS, FAccT, ICML, AAAI, NeurIPS, UIST

In Journals:

- *Referee*: Journal of Machine Learning Research, Operations Research, INFORMS Journal of Computing, INFORMS Journal on Optimization, INFORMS Journal on Data Science, Computers and Operations Research, INFORMS TutORials

INDUSTRY EXPERIENCE	Microsoft Research , Research Intern Project Title: “Enabling Interactive Decision Support via Large Language Models and Constraint Programming”	<i>May - August 2023</i>
	IBM Research , Research Intern Project Title: “Interpretable Clustering via Multi-Polytope Machines”	<i>May - August 2021</i>
	Cornell University , COVID-19 Class Scheduling Team Led the implementation of the primary optimization models to schedule all classes at Cornell during COVID-19.	<i>June - September 2020</i>
	Royal Bank of Canada , A.I. Scientist Project Title: “Deep Reinforcement Learning for Trade Execution”	<i>September 2017 - June 2018</i>
	BlackRock , Software Engineer	<i>June-August 2017, 2018</i>
	GetSmarter , Software Engineer	<i>June-August 2016</i>
RELEVANT SKILLS	Languages: English - Native French, German, Spanish - Beginner	
	Programming: Python, R, Java, SQL, MATLAB, C, Gurobi LaTeX, ReactJS, HTML, Windows/Unix Environment	
	Development: Git, SVN	
PROFESSIONAL MEMBERSHIPS	Institute for Operations Research and the Management Sciences (INFORMS) Queer in AI Out in STEM	
REFERENCES	Oktay Günlük , Gary C. Butler Family Professor, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, oktay.gunluk@isye.gatech.edu	
	Andrea Lodi , Andrew H. and Ann R. Tisch Professor, Operations Research and Information Engineering, Cornell University, andrea.lodi@cornell.edu	
	David Shmoys , Laibe/Acheson Professor of Business Management & Leadership Studies, Operations Research and Information Engineering, Cornell University, david.shmoys@cornell.edu	
	Madeleine Udell , Assistant Professor, Management Science & Engineering, Stanford University, udell@stanford.edu	
	Ellen Vitercik , Assistant Professor, Management Science & Engineering, Stanford University, vitercik@stanford.edu	