

# Connor Lawless

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

## **Understanding Fixed Predictions via Confined Regions**

– INFORMS Workshop on Data Science, Atlanta GA *October 2025*

– INFORMS, 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	<b>Instructor</b>	ORIE 5270: Big Data Technologies, <i>Spring 2023 - Cornell</i> Teaching Effectiveness: 4.45/5 (Dept. Avg.: 3.99)	
	<b>Instructor</b>	ORIE 6125: Computational Methods in OR, <i>Spring 2023 - Cornell</i> Teaching Effectiveness: 4.63/5 (Dept. Avg.: 3.99)	
	<b>Instructor</b>	<b>Data Analytics</b> 2021-2022 - <i>iXperience</i> Teacher Rating: 4.9/5 (Fall ‘21), 5/5 (Spring ‘22)	
	<b>Teaching Assistant</b>	ORIE 5135: Computational IP, <i>Spring 2022 - Cornell</i>	
	<b>Teaching Assistant</b>	ORIE 4740: Learning with Big Messy Data, <i>Fall 2021 - Cornell</i>	
	<b>Instructor</b>	<b>Data Science Bootcamp</b> 2020 - 2021 <i>iXperience</i> Teacher Rating: 4.9/5 (Summer ‘20), 4.9/5 (Winter ‘21)	
	<b>Guest Lecturer</b>	ORIE 6140: Mathematical Modeling for OR, <i>Fall 2020 - Cornell</i>	
	<b>Teaching Assistant</b>	ORIE 3300: Optimization I, <i>Fall 2019 - Cornell</i>	
<b>Guest Lecturer</b>	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	<b>Anders Wikum</b> , 2020-, Cornell ORIE Undergraduate and Stanford MS&E PhD Student.		
	<b>Yingxi Li</b> , 2024-, Stanford MS&E PhD Student.		
	<b>Haotian Zhai</b> , 2024-2025, UT Austin EE PhD Student.		
	<b>Jillian Chang</b> , 2025, Stanford Undergraduate.		
	<b>Sophia Jiang</b> , 2025, Stanford Undergraduate.		
	<b>Josh De Leeuw</b> , 2024, Cornell ORIE Undergraduate.		
	<b>Michael Luo</b> , 2024, Cornell ORIE Undergraduate.		
	<b>Henry Robbins</b> , 2020, Cornell ORIE Undergraduate.		
SERVICE	<b>In Stanford:</b>		
	– Co-organizer <b>ISL Seminar</b> (2024-2025)		
	<b>In Cornell:</b>		
	– <i>Mentoring</i> : Graduate Student Mentor with Operations Research Graduate Association (2020-2023)		
	– <i>Operations Research Graduate Association</i> : Co-President (2021-2022), Visit Weekend Coordinator (2020 - 2021), Mentorship Director (2022 - 2023), URM PhD Application Support Program Officer (2023 - 2024)		
	<b>In Conferences:</b>		
	– <i>Session Chair</i> : INFORMS Annual Meeting, EURO Annual Meeting, IFORS Triennial Meeting		
	– <i>Referee</i> : AISTATS, FAccT, ICML, AAAI, NeurIPS, UIST		
	<b>In Journals:</b>		
	– <i>Referee</i> : 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	<b>Microsoft Research</b> , Research Intern <i>May - August 2023</i> Project Title: “Enabling Interactive Decision Support via Large Language Models and Constraint Programming”	
	<b>IBM Research</b> , Research Intern <i>May - August 2021</i> Project Title: “Interpretable Clustering via Multi-Polytope Machines”	
	<b>Cornell University</b> , COVID-19 Class Scheduling Team <i>June - September 2020</i> Led the implementation of the primary optimization models to schedule <b>all classes at Cornell during COVID-19</b> .	
	<b>Royal Bank of Canada</b> , A.I. Scientist <i>September 2017 - June 2018</i> Project Title: “ <b>Deep Reinforcement Learning for Trade Execution</b> ”	
	<b>BlackRock</b> , Software Engineer <i>June-August 2017, 2018</i>	
RELEVANT SKILLS	<b>GetSmarter</b> , Software Engineer <i>June-August 2016</i>	
	<b>Languages:</b>	English - Native French, German, Spanish - Beginner
	<b>Programming:</b>	Python, R, Java, SQL, MATLAB, C, Gurobi LaTeX, ReactJS, HTML, Windows/Unix Environment
	<b>Development:</b>	Git, SVN
PROFESSIONAL MEMBERSHIPS	Institute for Operations Research and the Management Sciences (INFORMS) Queer in AI Out in STEM	
REFERENCES	<p><b>Oktay Günlük</b>, Gary C. Butler Family Professor, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Tech, <a href="mailto:oktay.gunluk@isye.gatech.edu">oktay.gunluk@isye.gatech.edu</a></p> <p><b>Andrea Lodi</b>, Andrew H. and Ann R. Tisch Professor, Operations Research and Information Engineering, Cornell University, <a href="mailto:andrea.lodi@cornell.edu">andrea.lodi@cornell.edu</a></p> <p><b>David Shmoys</b>, Laibe/Acheson Professor of Business Management &amp; Leadership Studies, Operations Research and Information Engineering, Cornell University, <a href="mailto:david.shmoys@cornell.edu">david.shmoys@cornell.edu</a></p> <p><b>Madeleine Udell</b>, Assistant Professor, Management Science &amp; Engineering, Stanford University, <a href="mailto:udell@stanford.edu">udell@stanford.edu</a></p> <p><b>Ellen Vitercik</b>, Assistant Professor, Management Science &amp; Engineering, Stanford University, <a href="mailto:vitercik@stanford.edu">vitercik@stanford.edu</a></p>	