Yingcong Tan

Contact Information

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Summary

I obtained a Ph.D. in Industrial Engineering at Concordia University, under the supervision of Dr. Daria Terekhov and Dr. Andrew Delong. My Ph.D. thesis is on *Learning Linear Programs: Inverse Optimization as a Form of Machine Learning.*

I am interested in interdisciplinary research topics in Operations Research and Machine Learning. In particular, my research interests lie in inverse optimization and its applications to planning and scheduling problems.

Research Experience

Postdoctoral Fellow Aug. 2022 - Jul.2023
TIDEL Lab, University of Toronto, Toronto, Ontario, Canada
Advisor: Dr. J. Christopher Beck, Department of Mechanical and Industrial Engineering, University of Toronto

Postdoctoral Fellow Sep. 2021 - Jul. 2022
Concordia University, Montréal, Québec, Canada
Advisor: Dr. Daria Terekhov, Department of Mechanical, Industrial and Aerospace Engineering , Concordia University
Dr. Andrew Delong, Department of Computer Science and Software Engineering, Concordia University

Research Intern Apr. - Aug. 2021
Zhejiang Lab, Zhejiang, China

Education

Ph.D. in Industrial Engineering Jan. 2017 - Apr. 2021
Concordia University, Montréal, Québec, Canada
Thesis: *Learning Linear Programs: Inverse Optimization as a Form of Machine Learning*
Advisor: Dr. Daria Terekhov, MIAE Department, Concordia University
Dr. Andrew Delong, CSSE Department, Concordia University

M.Eng. in Industrial Engineering Sep. 2015 - Dec. 2016
Concordia University, Montréal, Québec, Canada
Recipient of the F.A. Gerard Prize

Bachelor of Applied Science in Engineering Science 2007 - 2012
University of Toronto, Toronto, Ontario, Canada
Major in Biomedical Engineering from the Division of Engineering Science

Refereed Conference Proceedings

Tan, Y., Delong, A., & Terekhov, D. (2020). *Learning Linear Programs from Optimal Decisions.* In Neural Information Processing Systems, 2020 (Spotlight, top 20% of the accepted papers).

Tan, Y., Delong, A., & Terekhov, D. (2019). *Deep Inverse Optimization*. Integration of Constraint Programming, Artificial Intelligence, and Operations Research, CPAIOR 2019, Thessaloniki, Greece, June 4-7 2019, (pp. 540-556).

Tan, Y., & Terekhov, D. (2018). *Logic-Based Benders Decomposition for Two-Stage Flexible Flow Shop Scheduling with Unrelated Parallel Machines*. In Advances in Artificial Intelligence:

31st Canadian Conference on Artificial Intelligence, CAI2018, Toronto, ON, Canada, May 8-11, 2018, (pp. 60-71).

Refereed Journal

Tan, Y., Delong, A., & Terekhov, D.. Learning the Objective of Linear Programs: Models and Insights. (In preparation).

Marzolini, S., Swardfager, W., Alter, D. A., Oh, P. I., **Tan, Y.**, & Goodman, J. M. (2015). *Quality of Life and Psychosocial Measures Influenced by Exercise Modality in Patients with Coronary Artery Disease*. European Journal of Physical and Rehabilitation Medicine, 51(3), 291-299.

Referred Short Paper

Tan, Y. (2018). *Automated Scheduling: Reinforcement Learning Approach to Algorithm Policy Learning*. Extended Abstract. In Advances in Artificial Intelligence: 31st Canadian Conference on Artificial Intelligence, Canadian AI 2018, Toronto, ON, Canada, May 8-11, 2018, (pp. 335-338).

Conference Presentations

Tan, Y.(2020). *Learning Linear Programs from Optimal Decisions.*
Presentation at NeurIPS, December 6-12, 2020.

Tan, Y.(2019). *Deep Inverse Optimization.*
Presented at CPAIOR2019, Thessaloniki, Greece, June 4-7, 2019.
Presented at JOPT2019, Montréal, Québec, Canada, May 13-15, 2019

Tan, Y. (2018). *Decomposition-Based Exact Algorithms for Two-Stage Flexible Flow Shop Scheduling with Unrelated Parallel Machines.*
Presented at CORS2018 Halifax, Nova Scotia, Canada, June 4-7, 2018.
Presented at CAI2018, Toronto, ON, Canada, May 8-11, 2018.

Tan, Y. (2018). *Automated Scheduling: Reinforcement Learning Approach to Algorithm Policy Learning.*
Presentation at CAI2018 (Student Symposium), Toronto, ON, Canada, May 8-11, 2018.

Awards

Concordia Accelerator Award 2020
Concordia University, Montréal Québec

Conference and Exposition Award 2018, 2019
Concordia University, Montréal Québec

F.A. Gerard Prize 2018
Awarded annually to the most deserving non-thesis master graduate of Gina Cody School of Engineering and Computer Science
Concordia University, Montréal, Québec

Best Paper Award 2018
O.R./M.S. Scientific Writing Student Competition
GERAD, Montréal, Québec

Student Travel Scholarship May 2018
Awarded by the student symposium of CAI2018.

Scholarships And Bursaries

Concordia Merit Scholarship 2018-2019
In-Course scholarship awarded to graduate students with high academic standing.
Concordia University, Montréal, Québec

Power Corporation Of Canada Graduate Fellowship 2016-2017
In-Course scholarship awarded to graduate students with high academic standing.
Concordia University, Montréal, Québec

Graduate Research Assistantship 2017-2019
Concordia University, Montréal, Québec

Graduate Student Support Program Bursary 2017-2019
Concordia University, Montréal, Québec

Teaching Experience

Teaching Assistant
INDU480 - Cases in Industrial Engineering (Undergraduate Course) Winter 2020
Dept. of Mechanical, Industrial and Aerospace Engineering (MIAE)
Concordia University, Montréal, Québec, Canada

COMP6321 - Machine Learning (Graduate Course) Fall 2019
Dept. of Computer Science and Software Engineering (CSSE)
Concordia University, Montréal, Québec, Canada

INDU6231 - Scheduling Theory (Graduate Course) Summer 2017
Dept. of Mechanical, Industrial and Aerospace Engineering (MIAE)
Concordia University, Montréal, Québec, Canada

Professional Experience

Project Coordinator Feb. 2013 - Aug. 2014
Cardiovascular Rehabilitation and Prevention Program
Toronto Rehabilitation Institute, Toronto, Ontario, Canada

Engineering Intern Sep. 2010 - Aug. 2011
Dept. of Telecommunication Engineering
Hydro One Inc., Toronto, Ontario, Canada

Service

Academic Reviewer
Journal of Computers & Operations Research 2019

MIAE Graduate Student Committee Jan. 2016 - Apr. 2020
Dept. of Mechanical, Industrial and Aerospace Engineer
Concordia University, Montréal, Quebec, Canada
- Committee Chair: Sept. 2017 - Aug. 2019
- Organized graduate seminar (30+ talks); department-wide networking events (10+ events); distinguished Speaker Seminar of the Gina Cody School (4 talks); Ph.D. Student Poster Competition (3 times)
- Completed several funding applications (+10K granted).

Team Lead of Question Creation & Automation Sept. 2016 - Mar. 2019
The Operations Research Challenge (*TORCH*)
Concordia University, Montréal, Quebec, Canada

Clinic Exercise Volunteer Oct. 2010 - Aug. 2014
Research Volunteer June 2012 - Feb. 2013
Cardiovascular Prevention and Rehabilitation Program
Toronto Rehabilitation Institute, Toronto, Ontario, Canada

Certificate

CORS Diploma 2019
Canadian Operational Research Society

Graduate Seminar in University Teaching 2022
Concordia University, Montréal Québec