

Gregory Litster

PHD CANDIDATE · MECHANICAL AND INDUSTRIAL ENGINEERING

University of Toronto, Toronto, ON

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Education

University of Toronto

Toronto, ON

PH.D. PSYCHOLOGY AND ENGINEERING

2022 - present

- Advisor: Dr. Emily Moore
- Dissertation topic: *Problem Framing Processes in Interdisciplinary Design Teams*

University of Waterloo

Waterloo, ON

M.A.SC. MANAGEMENT SCIENCES

2020 - 2022

- Advisor: Dr. Ada Hurst
- Thesis: *Using systems mapping to understand design framing*

University of Waterloo

Waterloo, ON

B.KI. KNOWLEDGE INTEGRATION

2015 - 2020

- Joint Honours in Mathematics
- Minor in Philosophy
- Honors thesis: *Remembering KI: A resource for Knowledge Integration Students*
- Supervised by Dr. Kathryn Plaisance

Publications

JOURNAL MANUSCRIPTS

- Litster, G.**, Hurst, A. (In press). Analyzing Problem Framing in Design Teams: A systems Mapping Approach *Artificial Intelligence, Engineering Design and Manufacturing*
- Rennick, C. **Litster, G.**, Hulls, C., Hurst, A. (2023). Curricular Hackathons for Engineering Design Learning: The case of Engineering Design Days *IEEE Transactions on Education*
- Rennick, C. **Litster, G.**, Hurst, A., Hulls, C.C.W, Bedi, S., (2022). Characterizing Engineering Design Activities Using Jonassen's Design Theory of Problem Solving *International Journal of Engineering Education*
- Litster, G.**, Hurst, A., (2021). Protocol Analysis in Engineering Design Education Research: Observations, Limitations and Opportunities *Studies in Engineering Education*

PEER-REVIEWED CONFERENCE PROCEEDINGS

- Rennick C., Nickel, J. **Litster, G.**, Hurst, A. Students perceptions and attitudes towards engineering design in work-integrated learning contexts. *2024 ASEE Annual Conference and Exposition*
- Nickel, J., Rennick, C., Litster, G., Hulls, C.C.W, Hurst, A., (2023). A Qualitative Investigations of Students' Design Experiences in a Work-Integrated Learning Setting, *International Conference of Engineering Design (ICED23)*
- Litster, G.** Sheridan, P., Moore, E., (2023) Are we talking about the same thing? – The use of 'groups' and 'teams' in Canadian Engineering Education Research, *2023 CEEA-ACEG Conference*
- Litster, G.** Sheridan, P., Moore, E., (2023) An evaluation of team mental model elicitation techniques used in undergraduate engineering contexts: a systematic review, *2023 ASEE Annual Conference and Exposition*
- Litster, G.**, Hurst, A., Cardoso, C., (2022) A systems thinking inspired approach to understanding design activity, in *Design Computing and Cognition DCC'22. J.S. Gero (ed)*, pp. 183-201, Springer Nature.
- Litster, G.**, Hurst, A., Pretti, T. J. (2021) 'Surveying Design Skill Development in Work-Integrated Learning Experiences: A Review of the Literature', in *Proceedings of the International Conference on Engineering Design (ICED21)*, **Awarded Reviewers Favourite Paper** DOI:10.1017/pds.2021.546

Hurst, A., Duong, C., Flus, M., **Litster, G.**, Nickel, J., Dai, A. (2021). Evaluating Peer-led Feedback in Asynchronous Design Critiques: a question-centered approach. *2021 American Society of Engineering Education Annual Conference*. doi:10.18260/1-2-37103.

Dai, A., Flus, M., **Litster, G.**, Nickel, J., Hurst, A. (2020). What Do Engineers Do? Design and Sustainability in Recruitment Materials of Engineering Programs in Canada. *Canadian Design Workshop I*.

Hurst, A., **Litster, G.**, Rennick, C. (2020), Operationalizing Jonassen's Design Theory of Problem Solving: An Instrument to Characterize Educational Design Activities in *2020 ASEE Virtual Annual Conference Content Access, Virtual On line*

WORKS IN PROGRESS

Litster G., Moore E., Uncovering Problem Frames using Short text Topic Modelling. In preparation for the *2025 International Conference on Engineering Design (ICED25)*

Presentations

INVITED TALKS AND WORKSHOPS

2024 **Workshop Organizer** Transparency and Collaboration: A Workshop on Open Access Design Team Data, *Design Computing and Cognition '24*

POSTERS AND CONFERENCE PRESENTATIONS WITHOUT PROCEEDINGS

* *presenting author*

Litster, G.*, Sheridan, P. Moore, E., Hurst, A., 2024., Comparing Systems Mapping and Latent Semantic Analysis for Measuring Shared Understanding, A poster presentation at *Design Computing and Cognition '24*

Litster, G.*, Rennick C., Hurst, A., Hulls, C., Bedi, S. 2021., Assessing student problem solving skills, Presented at the *12th Annual University of Waterloo Teaching and Learning Conference*

Rennick, C., **Litster G.***, Hurst A., Hulls C., Bedi, S., 2021., Characterizing Engineering Design Activities Using Jonassen's Design Theory of Problem Solving. Presented at the *Canadian Design Workshop I*

Awards, Fellowships, & Grants,

2024	Ontario Graduate Scholarship - (in name only) , University of Toronto	\$ 15,000
2023	Ontario Graduate Scholarship , University of Toronto	\$ 15,000
2022	McLean Foundation Graduate Scholarship in Science and Technology , University of Toronto	\$ 3000
2021	Canadian Graduate Scholarship - Masters , NSERC	\$ 17,500
2021	President's Graduate Scholarship , University of Waterloo	\$ 10,000
2021	Ontario Graduate Scholarship , declined for NSERC	\$ 15,000
2020	Engineering Deans Entrance Scholarship , University of Waterloo	\$ 5,000
2020	Community Contribution Award , St. Jerome's University	
2015	President's Scholarship , University of Waterloo	\$ 2,000

Teaching Experience

Teaching Assistant

CHE299: COMMUNICATION

- Facilitated weekly communication tutorials for a class size of 30 students.

University of Toronto
Winter 2024

Teaching Assistant

TEP445: THE POWER OF STORY - DEVELOPING YOUR LEADERSHIP NARRATIVE

University of Toronto
Fall 2022 - Winter 2024

Teaching Assistant

TEP449: INTERCULTURAL COMMUNICATION AND LEADERSHIP

University of Toronto
Winter 2024

Teamwork and Communication Instructor

MIE490/491: MECHANICAL AND INDUSTRIAL ENGINEERING CAPSTONE DESIGN PROJECT

- Provided feedback on for teamwork and communication elements of student's fourth year design projects.

University of Toronto
Fall 2023 - Winter 2024

Teaching Assistant

MSCI211: ORGANIZATIONAL BEHAVIOUR

University of Waterloo
Winter 2020 - 2021

Undergraduate Teaching Assistant

INTEG210: MAKING COLLABORATION WORK

University of Waterloo
Fall 2019

Workshop Facilitator

STUDENT LEADERSHIP PROGRAM

University of Waterloo
Fall 2017 - Spring 2020

Research Experience

Graduate Research Assistant

READY LAB - MECHANICAL AND INDUSTRIAL ENGINEERING

- Assisted in audio and video data collection at hackathons

University of Toronto
2023-24

Graduate Research Assistant

ENGINEERING IDEAS CLINIC

- Supervisors: Dr. Ada Hurst

University of Waterloo
2021-22

Undergraduate Research Assistant

ENGINEERING IDEAS CLINIC

- Supervisors: Dr. Ada Hurst

University of Waterloo
2019

Outreach & Professional Development

SERVICE AND OUTREACH

2024 **Judge** Clark Prize Environmental Design Challenge

University of
Toronto

2023 **Panellist** Undergraduate Student Research Program

University of
Toronto

2018 **Organizer** Student Leadership Conference

St. Jerome's
University

2017 **Frost Leader Advisor** Office of Student Experience

St. Jerome's
University

2016 **Student Activities Team Member** Office of Student Experience

St. Jerome's
University

PROFESSIONAL DEVELOPMENT

- **Teaching Assistant Training Program**, University of Toronto.
- **Supporting Student Writing**, University of Toronto.
- **Policies and Procedures for Teaching Assistants**, University of Toronto.
- **Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans**.
- **ExpecTations, TA Training**, University of Waterloo.
- **Inclusivity Training**, St. Jerome's University.
- **SafeTalk Certification**, University of Waterloo.
- **Upstander Training**, St. Jerome's University.

AD-HOC REVIEWS

American Society for Engineering Education, Canadian Engineering Education Association, Canadian Design Workshop

PROFESSIONAL MEMBERSHIPS

The Design Society, American Society for Mechanical Engineering, Canadian Engineering Education Association, American Society for Engineering Education

RESEARCH INTERESTS

Design Cognition, Psychology in engineering, Teamwork, Interdisciplinary Collaboration, Engineering Design, Design Education