Alexander Olson

Acting Head, Centre for Analytics & AI Engineering (CARTE), University of Toronto

Location
Toronto, ON

Alex is an applied artificial intelligence leader whose career has focused on translating cutting-edge AI research into institutional strategy, academic innovation, and cross-sector partnerships. As Acting Head of the Centre for Analytics & AI Engineering (CARTE) at the University of Toronto, he leads one of Canada's leading applied AI centres, overseeing approximately $3 million in active research, education, and industry partnership commitments while advancing an additional $2 million in funding opportunities.

In his current role, Alex serves as a trusted advisor to senior university leadership on institutional AI strategy, responsible AI adoption, governance, and risk management. He has contributed to University of Toronto guidance on generative AI, partnered with the Vice-Provost on institution-wide teaching and learning initiatives, and co-presented a keynote at the AI Summit for Ontario Universities focused on the future of AI in higher education. He has also represented the University internationally through strategic partnerships with governments, multinational corporations, and research institutions, including Canada's participation in the Canada–Korea AI Action Plan.

Since joining CARTE at its founding in 2020, Alex has built and led numerous strategic partnerships with organizations including Mitsubishi Corporation, Ericsson, the City of Toronto, University Health Network, Labatt Breweries, and several international universities. He has developed executive education programs, faculty AI boot camps, graduate exchanges, and applied research initiatives spanning healthcare, manufacturing, libraries, urban planning, and engineering. His work has focused on helping organizations responsibly adopt AI while building institutional capacity and strengthening research collaboration.

An accomplished educator and researcher, Alex has designed and delivered AI curriculum for faculty, students, executives, clinicians, and industry leaders, while publishing extensively in artificial intelligence, machine learning, urban analytics, healthcare, and interdisciplinary AI applications. He holds a Master of Applied Science in Artificial Intelligence from the University of Toronto and a First-Class Honours degree in Artificial Intelligence from the University of Edinburgh.

Alexander W. Olson

Curriculum Vitae

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Profile

Applied-AI research leader operating at the intersection of AI expertise, institutional strategy, and cross-sector partnership. Acting Head of the Centre for Analytics & AI Engineering (CARTE) at the University of Toronto, an applied AI centre housed within the Faculty of Applied Science & Engineering and reaching across the wider university through research collaborations, partnership agreements, and training delivery for industry, faculty, and students. Trusted internal subject-matter expert to senior University of Toronto leadership on institution-facing AI communications and strategy since late 2023 including review of institutional guidance published through the Provost's Office, co-presented keynote at the AI Summit for Ontario Universities (November 2025), and consultation on generative AI literacy modules for instructors and students; and partner to the Vice-Provost, Innovations in Undergraduate Education on the cross-divisional teaching and learning work that preceded U of T's AI Task Force. Peer-reviewed research published as AI collaborator in urban planning (*Cities*), theoretical geography (*Geographical Analysis*), industrial ecology (*Journal of Industrial Ecology*), environment and health (*Indoor Air*), and vascular surgery (*Journal of Vascular Surgery*).

Education

Master of Applied Science, Artificial Intelligence — University of Toronto, 2018–2020
Thesis: *Latent modelling of urban data: Enriching computational analysis in urban studies by applying novel methods*.

BSc, First-Class Honours, Artificial Intelligence — University of Edinburgh, 2014–2018
Top Graduate Award in Artificial Intelligence.

Employment History

At the Centre for Analytics & AI Engineering (CARTE) since its founding in 2020; roles listed reverse-chronologically below.

Acting Head, Centre for Analytics & AI Engineering (CARTE), University of Toronto

*October 2025 – Present.

- Responsible for management and delivery of approximately CAD $3 million in active commitments spanning external training programmes, funded research partnerships and exchange schemes.
- Developed a further CAD $2 million in new funding opportunities for CARTE.
- Selected by the Faculty of Applied Science & Engineering to represent the University of Toronto's AI research ecosystem on a December 2025 engineering delegation to South Korea, with meetings at the Canadian Consulate and major Korean corporations; delegation contributed directly to the Hanwha Ocean MOU with U of T signed in March 2026.
- Advise senior University of Toronto leadership on institutional AI strategy, responsible LLM adoption, and risk; represent CARTE and U of T's AI research ecosystem in national and international partnership discussions.
- Launched and now direct the Cognizant–U of T Generative AI Training Program: a one-year, Cognizant Foundation-funded initiative that builds faculty capacity across disciplines to design generative AI modules and deploys trained graduate and postdoctoral facilitators to deliver them to students (approximately 4,100 student learning experiences projected in Year 1).
- Direct CARTE's institutional consulting practice across U of T units on engagements including institutional guidance for AI procurement and vendor integration, responsible LLM use for library-science research-support, a GPU-backed student compute prototype, and the boundary between sanctioned and shadow AI use.
- Lead applied AI research delivery on City of Toronto Transportation Services sidewalk paver asset mapping and on UofT Libraries Model Context Protocol (MCP) pilot projects.
- Continue to lead delivery of the multi-year partnerships established in the Senior Research Associate period below, including the CARTE-IITP Graduate Exchange Programme and the Mitsubishi Corporation Visiting Graduate Cohort and M-Lab Bootcamp; contribute to new institutional partnerships with Ericsson (national wireless communications research) and Hanwha Ocean.
- Serve as a Canadian lead representative for the Canada–Korea AI Action Plan (Global Affairs Canada), contributing to Canadian engagement with Korean counterparts in AI.

Senior Research Associate, Centre for Analytics & AI Engineering (CARTE), University of Toronto

November 2022 – October 2025. Concurrent with the Data Sciences Institute facilitator role below.

- Built and delivered the Mitsubishi Corporation partnership (2024–Present), which now comprises two co-branded CARTE programmes: the Visiting Graduate Cohort, an exchange programme bringing Mitsubishi Corporation staff to U of T for a full semester of

applied AI courses; and the M-Lab Bootcamp, a short-format executive and working-professional programme (Vol. 1 and Vol. 2 delivered; Vol. 3 scheduled).

- Co-founded and delivered the CARTE-IITP Graduate Exchange Programme with industry capstones across LG Electronics, Lorex, ModiFace, Nexxt Intelligence, and Sunnybrook. 64 graduates to date, 96% pass rate, 100% reported satisfaction, projected 30 participants annually through 2027.
- Reviewed institutional guidance on generative AI for publication through the Provost's Office; consulted on the development of generative AI literacy modules for instructors and students; and partnered with Vice-Provost Susan McCahan (Innovations in Undergraduate Education) on the cross-divisional teaching and learning work that preceded U of T's AI Task Force, culminating in a co-presented keynote with her at the November 2025 AI Summit for Ontario Universities.
- Led CARTE's applied AI research portfolio across healthcare (University Health Network, Faculty of Medicine), manufacturing (steel continuous casting with Prof. Markus Bussmann, Mechanical & Industrial Engineering), and construction (building typology modelling with Prof. Shoshanna Saxe, Civil & Mineral Engineering).
- Personally supervised three Mitacs Accelerate interns on applied AI projects with Toronto-area industry partners, spanning medical imaging (Perimeter Medical Imaging AI), e-commerce recommendation systems (Bloom AI), and generative AI for speech-driven animation (MemeSpeak).
- Mentored graduate researchers on interdisciplinary generative AI research partnerships; resulting work has been peer-reviewed and published in domain venues.
- Designed and delivered AI bootcamps for internal University of Toronto units (Schmidt AI Postdoctoral Fellows, DSI faculty, CARTE open-cohort) and external partners (Princess Margaret Hospital, Enbridge, Livingston International, BioZone / CREATE, Labatt Breweries × CARTE Impact Lab, Mitsubishi Corporation's M-Lab Bootcamp).

Content Developer and Technical Facilitator, Deep Learning, Data Sciences Institute, University of Toronto

December 2023 – March 2025.

- Designed and taught the Data Sciences Institute's open-source Deep Learning Foundations course. Curriculum maintained on GitHub, adopted by five additional instructors, delivered to more than 200 students across cohorts; average satisfaction score 4.9 / 5.
- Relationship with DSI has continued post-course: DSI now consults me on the forward planning of their AI curriculum.

Research Associate, Centre for Analytics & AI Engineering (CARTE), University of Toronto

September 2020 – November 2022.

- Established formal collaboration agreements with Labatt Breweries, Toronto Metropolitan University, and the University Health Network, bringing clinical and industry data into CARTE's research environment under appropriate ethics and data governance. Delivered on-site AI training for Labatt Breweries in April 2022.
- Co-developed and began co-managing the CARTE–DSI Faculty ML Bootcamp with the Data Sciences Institute, an annual programme for U of T faculty which has been delivered every year since 2019 with the sole exception of 2020. Still a cornerstone of CARTE's faculty-facing teaching practice.
- Designed and facilitated research-skills clinics on computational modelling, natural language processing, and machine learning for approximately 30 graduate students annually.
- Delivered 12 guest lectures to engineering, computer science, and general graduate audiences with top-quartile student feedback.

Publications

Refereed Journal Articles

Huang, W., **Olson, A. W.**, Khalil, E. B., & Saxe, S. (2025). Image-based prediction of residential building attributes with deep learning. *Journal of Industrial Ecology*, 29(1), 81–95. https://doi.org/10.1111/jiec.13591

Sui, Y., Kwan, A., **Olson, A. W.**, Sanner, S., & Silver, D. A. (2024). Bayesian network motifs for reasoning over heterogeneous unlinked datasets. *Data Mining and Knowledge Discovery*, 38(6), 3643–3689. https://doi.org/10.1007/s10618-024-01054-7

Olson, A. W., & Saxe, S. (2024). Single-image building height estimation using EfficientNet: A simplified, scalable approach. *Findings*. https://doi.org/10.32866/001c.116609

Mendell, A. Y., **Olson, A. W.**, & Siegel, J. A. (2022). Evaluation of fixed and adaptive concentration thresholds for particle filter systems. *Indoor Air*, 32(10), e13134. https://doi.org/10.1111/ina.13134

Guven, G., Arceo, A., Bennett, A., Tham, M., Olanrewaju, B., McGrail, M., Isin, K., **Olson, A. W.**, & Saxe, S. (2022). A construction classification system database for understanding resource use in building construction. *Scientific Data* (Nature Publishing Group), 9(1), 42. https://doi.org/10.1038/s41597-022-01141-8

Olson, A. W., Calderón-Figueroa, F., Bidian, O., Silver, D., & Sanner, S. (2021). Reading the city through its neighbourhoods: Deep text embeddings of Yelp reviews as a basis for determining similarity and change. *Cities*, 110, 103045. https://doi.org/10.1016/j.cities.2020.103045

Olson, A. W., Zhang, K., Calderón-Figueroa, F., Yakubov, R., Sanner, S., Silver, D., & Arribas-Bel, D. (2021). Classification and regression via integer optimization for neighborhood change. *Geographical Analysis*, 53(2), 192–212. https://doi.org/10.1111/gean.12252

Refereed Conference Proceedings

Kim, J., Seo, M., Choi, E., & **Olson, A. W.** (2025). Predicting interview engagement in real-time recruitment: Class imbalance and behavioral feature analysis. In *2025 IEEE International Conference on Data Mining Workshops (ICDMW)* (pp. 1537–1545). IEEE. https://doi.org/10.1109/ICDMW69685.2025.00184

Park, S., Bae, Y., Han, G., & **Olson, A. W.** (2025). FLODA: Harnessing vision-language models for deepfake assessment. In *2025 IEEE International Conference on Consumer Electronics (ICCE)* (pp. 1–8). IEEE. https://doi.org/10.1109/ICCE63647.2025.10929816

Huang, W., **Olson, A.**, Khalil, E. B., & Saxe, S. (2022). Note: Image-based prediction of house attributes with deep learning. In *Proceedings of the 5th ACM SIGCAS/SIGCHI Conference on Computing and Sustainable Societies (COMPASS '22)* (pp. 693–695). Association for Computing Machinery. https://doi.org/10.1145/3530190.3534828

Refereed Abstracts and Short Communications

Raju, S., Roche-Nagle, G., **Olson, A.**, Eisenberg, N., & Chan, T. (2022). Utilizing machine learning algorithms to evaluate sex-based differences in preoperative hemoglobin thresholds in open vascular surgery. *Journal of Vascular Surgery*, 75(6), e313.

Conference Presentations (Non-Refereed)

Olson, A., Bidian, O., Calderón-Figueroa, F., & Silver, D. (2019). Reading the city. *2019 Canadian Sociological Association Conference (CONGRESS 2019)*, Vancouver, BC.

Preprints and Working Papers

Olson, A. W., Cucu, A., & Bock, T. (2020). Multi-class zero-shot learning for artistic material recognition. *arXiv preprint*.

Theses

Olson, A. W. (2020). *Latent modelling of urban data: Enriching computational analysis in urban studies by applying novel methods* (Master of Applied Science thesis). University of Toronto, Toronto, ON.

Talks, Workshops and Public Engagement

Reverse chronological within each subsection. Formal talk titles appear in quotation marks; other entries describe the format and audience.

Invited Talks and Lectures

Opening keynote, *Ontario Tech Conference on University Teaching and Learning*. Oshawa, ON. March 2026.

Talk on applied AI for academic libraries, University of Toronto Libraries. Toronto, ON. March 2026.

Strategic AI briefing for Petcurean (pet nutrition firm). Virtual. February 2026.

Co-presented keynote with Vice-Provost Susan McCahan, *AI Summit for Ontario Universities*, University of Toronto. Toronto, ON. November 2025. Sector-wide summit convening Ontario university leaders on shared challenges and collective next steps for GenAI in higher education.

Keynote, *ILead Community of Practice Conference*, University of Toronto. Toronto, ON. November 2025.

Seminar, CARTE × Earth Labs Generative AI Seminar Series. Virtual. September 2025.

Talk on AI for pharmacology and toxicology research, PharmTox × CARTE × Data Sciences Institute. Hybrid, University of Toronto. July 2025.

Welcome remarks, *Edge AI Innovations Summit Toronto 2024*, Schwartz Reisman Innovation Campus. Toronto, ON. November 2024.

Seminar, Morningstar (financial data and research firm). Toronto, ON. November 2024.

Seminar, Engineering Science Option, University of Toronto. Toronto, ON. October 2024.

Monthly seminar series on applied generative AI, Morningstar. Virtual. October 2024.

Career talk with UofT graduate students, TELUS. Toronto, ON. June 2024.

Guest lecture in *Disruptive Technology*, Lassonde School of Engineering, York University. Toronto, ON. October 2023.

"Empowering Families for the AI Future." Talk on AI for families, OMERS. Virtual. September 2023.

"An Analytical Deep-Dive Into the 2023 Mayoral By-Election." *Civic Tech Toronto* Meetup #403, University of Toronto. Toronto, ON. July 2023.

Speaker, *Toronto Machine Learning Summit 2023*. Toronto, ON. June 2023.

"ChatGPT and Large Language Models 101." *Civic Tech Toronto* Meetup #382, University of Toronto. Toronto, ON. March 2023.

"ChatGPT in the Classroom: Understanding Risks and Benefits of Large Language Models." Public talk, CARTE, University of Toronto. Toronto, ON. March 2023.

AltaML industry seminar series, CARTE. Toronto, ON. March 2023.

CPAC seminar series (Canadian cable public affairs broadcaster), CARTE. Toronto, ON. February 2023.

Briefing to IT@UofT staff, University of Toronto. Virtual. May 2022.

Workshops, Tutorials and Bootcamps

Workshop on designing and evaluating AI agents in health research, Clinician Investigator Program. Virtual. March 2026.

Hands-on workshop on AI tools for quantitative data analysis, Centre for Research & Innovation Support, University of Toronto. Toronto, ON. March 2026.

Lunch-and-learn on generative AI in everyday work, CARTE (open to UofT community). Virtual. February 2026.

Workshop on AI-assisted quantitative data analysis, CARTE. Virtual. January 2026.

Four-day AI bootcamp for visiting graduate cohort, Mitsubishi Corporation × CARTE. Toronto, ON. October 2025.

Machine learning bootcamp for UofT faculty, Data Sciences Institute × CARTE. Toronto, ON. June 2025.

Machine learning bootcamp for Schmidt AI Postdoctoral Fellows, University of Toronto. Toronto, ON. April 2025.

Workshop on generative AI literacy, CARTE. Virtual. April 2025.

Workshop on AI in communications, University of Toronto staff. Toronto, ON. April 2025.

Tutorial on generative AI, Schmidt AI × CARTE. Toronto, ON. November 2024.

Machine learning workshop, *Canadian Society for Chemical Engineering Conference*. October 2024.

Machine learning bootcamp for Schmidt AI Fellows, University of Toronto. Toronto, ON. July 2024.

Machine learning bootcamp for UofT faculty, Data Sciences Institute × CARTE. Toronto, ON. June 2024.

Executive training on applied AI, Livingston International (customs and logistics firm). Toronto, ON. May 2024.

AI bootcamp for clinicians and staff, Princess Margaret Hospital × CARTE. Toronto, ON. April 2024.

Five-day AI bootcamp, Enbridge × CARTE. Toronto, ON. November 2023.

Three-day machine learning bootcamp, CREATE for BioZone (biomedical engineering graduate programme). Toronto, ON. August 2023.

Faculty bootcamp on machine learning, Data Sciences Institute × CARTE. Toronto, ON. June 2023.

Workshop session, *EdTech Workshop 2023: CTRL+Shift*, University of Toronto. Toronto, ON. May 2023.

AI bootcamp, Labatt Breweries × CARTE Impact Lab. Toronto, ON. Spring 2023.

Open-cohort machine learning bootcamp, CARTE. Toronto, ON. June 2022.

On-site AI training for Labatt Breweries. Toronto, ON. April 2022.

Panels and Roundtables

Panelist on AI, transportation and open data, *Built with Intelligence* series (AI Collective × City of Toronto Open Data), Toronto City Hall. April 2026. Co-panelists: Jesse Coleman (City of Toronto) and Tzu-Jen Chan (MobilityData).

Research roundtable with visiting University of Bremen delegation, University of Toronto. Toronto, ON. February 2026.

Panelist, OMERS Employee Resource Groups AI Panel. Toronto, ON. September 2023.

Panelist, *Engineering Research Day 2022: Building a Sustainable Future*, University of Toronto. Virtual. May 2022.

Media and Public Commentary

Toronto Star — feature coverage of AI in urban traffic signal optimisation ("This one thing may ease Toronto's frustrating traffic jams…" and "Toronto has given AI the green light to tackle its traffic woes…"). 2025 – 2026.

CBC Radio interview on AI analysis of Bill 212 public comments and Strong Mayor legislation. July 2025.

CBC interview on AI-generated hoax detection. July 2025.

Background consultation with *Toronto Star* on Bill 212 and AI analysis. Toronto, ON. June 2025.

Technical Skills

Applied AI. Large language models and generative AI; deep learning and neural networks; natural language processing; computer vision; predictive analytics and statistical modelling; diffusion models; recommendation systems; bias evaluation and mitigation; LLM deployment.

Software and infrastructure. Python; PyTorch; TensorFlow; HuggingFace Transformers; Pandas and NumPy; Weights & Biases; Docker; cloud-based AI services; GPU infrastructure and research computing.

Research and programme delivery. Curriculum design for graduate and professional audiences; bootcamp and micro-credential development; grant writing and funding acquisition; international programme management; cross-sector partnership development.