Daniel J. I	Lizotte	Curriculum Vitae
Computer Science The University o London, ON N6 Canada	ce   Epidemiology and Biostatistics f Western Ontario http://www.csc A 5B7 +1 (5 Upda	dlizotte@uwo.ca l.uwo.ca/~dlizotte/ 519) 661-2111 x86644 ated: October, 2024
Research Interests	<b>Machine Learning and Statistical Methodology for Health</b> with models and decision support, including reinforcement learning w prediction and decision models for heterogeneous populations, a	a focus on predictive rith multiple outcomes, and health equity.
Academic Appointments	<b>Associate Professor at the University of Western Ontario</b> Department of Computer Science, Faculty of Science Department of Epidemiology and Biostatistics, Schulich School of Me	2021-Present edicine & Dentistry
	Cross Appointments: Department of Statistical and Actuarial Sciences Schulich Interfaculty Program in Public Health	
	Institute Memberships: Bone and Joint Institute Institute for Earth & Space Exploration Rotman Institute of Philosophy	
	Assistant Professor at the University of Western Ontario Department of Computer Science, Faculty of Science Department of Epidemiology and Biostatistics, Schulich School of Me	2015-2021 edicine & Dentistry
	Cross-appointments: Department of Statistical and Actuarial Sciences Schulich Interfaculty Program in Public Health	
	Assistant Professor at the University of Waterloo David R. Cheriton School of Computer Science, Faculty of Mathemat	2011-2014 ics
	<b>Postdoctoral Fellow at the University of Michigan</b> <i>Department of Statistics,</i> College of Literature, Science, and the Ar <i>Population Studies Center</i> , Institute for Social Research	2008-2011 ts
AFFILIATE AND ADJUNCT	<b>Centre for Research on Health Equity and Social Inclusion</b> Executive Committee Member	2022-
APPOINTMENTS	<b>Lawson Health Research Institute</b> Affiliate Scientist	2022-
	<b>Vector Institute</b> Faculty Affiliate	2019-
	<b>University of Waterloo School of Public Health and Health Ser</b> Adjunct Assistant Professor	vices 2019-2021
EDUCATION	<b>Ph.D.</b> in Computing Science, University of Alberta <b>M.Sc.</b> in Computing Science, University of Alberta	2008 2003
	<b>D.C.S.</b> University of New Drunswick	2001

Funding History	<b>Craig H Neilsen Foundation SCIRTS Senior Research Grants</b> Co-Applicant with lead Dr. Dalton Wolfe \$800 000 USD for Improving walking outcomes using implementation science and a trial design	2022-2026 a pragmatic
	<b>SSHRC Insight</b> Co-Investigator with lead Dr. Gerald McKinley \$99 632 for A Community of Practice Approach to NonSuicidal Self Injury Research	2022-2024 ch
	<b>New Frontiers in Research Fund - Special Call</b> Co-Applicant with lead Dr. Dalton Wolfe \$226 562 for Methods to design and test personalized mobility programming in paper physical disability	2022-2023 ersons with
	<b>CIHR Health Research Training Program</b> Co-Applicant and Mentor with lead Dr. Laura Rosella \$2 394 219 for Artificial Intelligence for Public Health (AI4PH) Training Platform	2022-2026
	Western Interdisciplinary Development Initiative Co-Investigator with lead Dr. Luke Stark \$25 000 for Automating (In)justice: Real-World Social Impacts of AI Governance and Around the World	2021-2023 e in Canada
	<b>NSERC Alliance</b> Principal Investigator, industry collaboration with Point Click Care \$40,000 for Reinforcement Learning Methodology for Decision Analysis in Long Te	2021-2022 erm Care
	Western Interdisciplinary Development Initiative Co-Investigator with lead Dr. Jane Thornton \$25 000 for Western Research Hub for Physical Activity and Health	2021-2022
	<b>NSPIRE-PHC Applied Health Research Question (AHRQ)</b> Co-Principal Investigator with J. Kueper, Dr. A. Terry \$36 166 for Creating an Action Plan for the Use of Artificial Intelligence: COVID-1 and Recovery in Primary Health Care in Ontario.	2020-2021 9 Pandemic
	<b>CIFAR AI and COVID-19 Catalyst Grant</b> Collaborator with lead Dr. Alona Fyshe \$15 000 over 1 year (extended) for "Tracking Mental Health During the Coronavirus	2020-2021 5 Pandemic"
	Western Research Catalyst Grant Co-Investigator with lead Dr. Jacob Shelley \$50 000 over 1 year for "Ethical, legal, and policy dimensions of scaling back social and restrictive public health measures for the COVID-19 pandemic"	2020-2021 distancing
	<b>CIHR Planning and Dissemination Grant</b> Principal Investigator \$24950 over 2 years (extended for COVID-19) for "Beyond Supervised Learning Intelligence Tools to Help Public Health Stakeholders Serve Marginalized Population	2019-2023 g: Artificial ons"
	<b>NSERC Engage</b> Principal Investigator, industry collaboration with PointClickCare \$25 000 over 6 months for "Predictive modelling methodology for longitudinal daterm care"	2019 ata in long-
	<b>CIFAR AI &amp; Society Call for Workshops</b> Co-Applicant with Drs. Alona Fyshe (P.I.) and Ted Parson \$50 000 over 1 year for "The Summer Institute for the Societal Impacts of AI"	2018-2019

<b>NSERC Discovery Grant</b> Principal Investigator \$28 000/year for "Machine learning methodology for sequential decision support scale longitudinal data"	2018-2024 t from large-
<b>CIHR Planning and Dissemination Grant</b> Co-Applicant with Principal Applicant Dr. Merrick Zwarenstein \$19 933 for "Artificial Intelligence for Screening and Secondary Prevention of Chr Disease in a Learning Health System in Ontario (LeHSOn-AI)"	2018-2019 ronic Kidney
<b>NSERC Engage</b> Principal Investigator, industry collaboration with RightBlue Labs \$25000 over 6 months for "Data-driven prediction of mental health risk"	2017
Western Strategic Support for CIHR Success Principal Investigator \$23 000 over 2 years for "Rapid analysis of social media data to augment surveilland disease outbreaks"	2017 ce of foodborne
<b>Ontario Research Fund - Research Excellence (Round 8)</b> Co-Investigator with Principal Investigator Dr. Richard Kim \$100 000 of \$1.45 million over 5 years for "Pharmacogenomics Technologies and Pa Approaches for Enhancing Drug Safety and Effectiveness"	2016 tient-Centred
<b>CIHR Project Grant</b> Co-Applicant with Principal Investigator Dr. Kelly Anderson \$720 000 over 3 years for "Understanding the Role of the Family Physician in Ear Intervention: A Mixed Methods Study"	2017 Iy Psychosis
<b>CIHR Project Grant</b> Co-Applicant with Principal Investigator Dr. Manuel Montero-Odasso \$967 725 over 5 years for "Gait as a clinical marker to predict progression to dement in mild cognitive impairment"	2017 ia syndromes
<b>UWO Interdisciplinary Development Initiatives</b> Participant with Dr. K. Shoemaker (Director) and others \$200 000 over 3 years for "The Smart, Healthy Campus," a data-driven mental heal	2016 1th initiative
<b>Canadian Frailty Network Catalyst Grant Program</b> Co-investigator with Principal Investigator Dr. Cheryl Forchuk and others \$100 000 for "TELEPROM-G: A Study Evaluating Access and Care Delivery Services Among Community-Based Seniors"	2016–2017 of Telehealth
<b>NSERC Discovery Grant</b> Principal Investigator \$22 000/year for "Machine learning for non-myopic decision support and knowledg	2012-2018 ge discovery"
<b>GRAND National Centre of Excellence Project PLATFORM2:CONFIG</b> co-Investigator with Principal Investigators Drs. M. Müller (Alberta), H. H. \$8 648 for "Optimizing CPLEX for Medical Decision Making Problems"	2014-2015 Ioos (UBC)
<b>Canada Foundation for Innovation - Leaders Opportunity Fund</b> co-Principal Investigator Drs. Jesse Hoey and Pascal Poupart (Waterloo) <i>Total \$442 330 from all sources for "Computational Health Informatics Lab Infras</i>	2013 tructure"
<b>Izaak Walton Killam Memorial Scholarship</b> This is the most prestigious graduate award administered by the University	2005–2007 v of Alberta.

AWARDS

<b>Ralph Steinhauer Award of Distinction</b> This award recognizes academic achievement of students studying in Albe	erta.	2005
NSERC Post Graduate Scholarship B	2003-	-2005
NSERC Post Graduate Scholarship A	2001-	-2003
University of New Brunswick Computer Science Prize for Best Undergraduate Honours Thesis		2001
Lieutenant Governor of New Brunswick Silver Medal		2001

This award is for the highest cumulative grade point average in Computer Science.

# PUBLICATIONS Journal Articles

[1] Rebecca Rodrigues, Jennifer N. S. Reid, Joshua C. Wiener, Suzanne Archie, Richard G. Booth, Chiachen Cheng, Arlene G. MacDougall, Lena Palaniyappan, Bridget L. Ryan, Aristotle Voineskos, Paul Kurdyak, Saadia Hameed Jan, Kelly K. Anderson, and the project co investigators. Access to a regular primary care physician among young people with early psychosis in ontario, canada. *Early Intervention in Psychiatry*, 18(7):513–523, 2024.

[2] Blayne Welk, <u>Tianyue Zhong</u>, Jeremy Myers, John Stoffel, Sean Elliot, Sara M. Lenherr, and Daniel Lizotte. Identifying Bladder Phenotypes After Spinal Cord Injury With Unsupervised Machine Learning: A New Way to Examine Urinary Symptoms and Quality of Life. *Journal of Urology*, 212(1), 2024.

[3] Nathan Phelps, Stephanie Marrocco, Stephanie Cornell, Dalton L. Wolfe, and Daniel J. Lizotte. Reinforcement learning in large, structured action spaces: A simulation study of decision support for spinal cord injury rehabilitation. *Intelligence-Based Medicine*, 9:100137, 2024.

[4] <u>Caroline Strickland</u>, Muhammad Zakar, Chandrika Saha, Sareh Soltani Nejad, Noshin Tasnim, Daniel J. Lizotte, and Anwar Haque. Drl-gan: A hybrid approach for binary and multiclass network intrusion detection. *Sensors*, 24(9), 2024.

[5] Stephanie L Marrocco, Laura J Graham, Daniel J Lizotte, and Dalton L Wolfe. Identifying systems developed for classifying physiotherapy interventions in neurological rehabilitation: A scoping review. *Physiotherapy Canada*, 0(0):e20230103, 0.

[6] Chris Brogly, Daniel J. Lizotte, Marc Mitchell, Mark Speechley, Arlene MacDougall, Erin Huner, Kelly K. Anderson, and Michael A. Bauer. An app-based ecological momentary assessment of undergraduate student mental health during the covid-19 pandemic in canada (smart healthy campus version 2.0): Longitudinal study. *PLOS Digital Health*, 3(5):1–19, 05 2024.

[7] J Kueper, J Rayner, S Bhatti, K Angevaare, S Fitzpatrick, P Lucamba, E Sutherland, and D Lizotte. Data-driven decision support tool co-development with a primary health care practice based learning network [version 1; peer review: awaiting peer review]. *F1000Research*, 13(336), 2024.

[8] Jennifer W. He, Amanda L. Terry, Dan Lizotte, Greta Bauer, and Bridget L. Ryan. Understanding intersectional inequality in access to primary care providers using multilevel analysis of individual heterogeneity and discriminatory accuracy. *PLOS ONE*, 19(1):1–19, 01 2024.

<sup>\*</sup>Directly-supervised trainees are <u>underlined</u>.

[9] <u>Strickland, Caroline</u>, Nancy Chi, Laura Ditz, Luisa Gomez, Brittin Wagner, Stanley Wang, and Daniel J Lizotte. Factors influencing admission decisions in skilled nursing facilities: Retrospective quantitative study. *J Med Internet Res*, 25:e43518, May 2023.

[10] Danielle M. Nash, Cathy Thorpe, Judith Belle Brown, Jacqueline K. Kueper, Jennifer Rayner, Daniel J. Lizotte, Amanda L. Terry, and Merrick Zwarenstein. Perceptions of artificial intelligence use in primary care: A qualitative study with providers and staff of ontario community health centres. *The Journal of the American Board of Family Medicine*, 36(2):221–228, 2023.

[11] Nithin J. Menon, Brayden D. Halvorson, Gabrielle H. Alimorad, Jefferson C. Frisbee, Daniel J. Lizotte, Aaron D. Ward, Daniel Goldman, Paul D. Chantler, and Stephanie J. Frisbee. Application of a novel index for understanding vascular health following pharmacological intervention in a pre-clinical model of metabolic disease. *Frontiers in Pharmacology*, 14, 2023.

[12] Nithin J Menon, Brayden D Halvorson, Gabrielle H Alimorad, Jefferson C Frisbee, Daniel J Lizotte, Aaron D Ward, Daniel Goldman, Paul D Chantler, and Stephanie J Frisbee. A novel vascular health index: Using data analytics and population health to facilitate mechanistic modeling of microvascular status. *Frontiers in Physiology*, 13:2575, 2022.

[13] Cheryl Forchuk, Abraham Rudnick, Deborah Corring, Daniel Lizotte, Jeffrey S Hoch, Richard Booth, Barbara Frampton, Rupinder Mann, and Jonathan Serrato. A smart technology intervention in the homes of people with mental illness and physical comorbidities. *Sensors*, 23(1):406, 2022.

[14] Jacqueline Kueper, Jennifer Rayner, Merrick Zwarenstein, and Daniel J. Lizotte. Describing a complex primary health care population in a learning health system to support future decision support and artificial intelligence initiatives. *International Journal of Population Data Science*, 7(1), 2022.

[15] A.L. Terry, J. K. Kueper, R. Beleno, J.B. Brown, S. Cejic, J. Dang, D. Léger, S. McKay, L. Meredith, A. D. Pinto, B.L. Ryan, M. Stewart, M. Zwarenstein, and D.J. Lizotte. Is primary health care ready for artificial intelligence? what do primary health care stakeholders say? *BMC Medical Informatics and Decision Making*, 22(237), 2022.

[16] <u>Brent Davis</u>, Dawn Estes McKnight, Daniela Teodorescu, Anabel Quan-Haase, Rumi Chunara, Alona Fyshe, and Daniel J. Lizotte. Quantifying depression-related language on social media during the COVID-19 pandemic. *International Journal of Population Data Science*, 5(4), 2022.

[17] Jacqueline K Kueper, Amanda Terry, Ravninder Bahniwal, Leslie Meredith, Ron Beleno, Judith Belle Brown, Janet Dang, Daniel Leger, Scott McKay, Andrew Pinto, Bridget L Ryan, Merrick Zwarenstein, and Daniel J Lizotte. Connecting artificial intelligence and primary care challenges: findings from a multi stakeholder collaborative consultation. *BMJ Health & Care Informatics*, 29(1), 2022.

[18] Mayuri Mahendran, Daniel Lizotte, and Greta R. Bauer. Quantitative methods for descriptive intersectional analysis with binary health outcomes. *SSM - Population Health*, 17:101032, 2022.

[19] Mayuri Mahendran, Daniel Lizotte, and Greta R. Bauer. Describing intersectional health outcomes: An evaluation of data analysis methods. *Epidemiology*, 33:395–405, May 2022.

[20] Chris Brogly, J Kevin Shoemaker, Daniel J Lizotte, Jacqueline K Kueper,

and Michael Bauer. A mobile app to identify lifestyle indicators related to undergraduate mental health (smart healthy campus): Observational app-based ecological momentary assessment. *JMIR Form Res*, 5(10):e29160, Oct 2021.

[21] Chris Brogly, Michael A Bauer, Daniel J Lizotte, MacLean L Press, Arlene MacDougall, Mark Speechley, Erin Huner, Marc Mitchell, Kelly K Anderson, and Eva Pila. An app-based surveillance system for undergraduate students' mental health during the COVID-19 pandemic: Protocol for a prospective cohort study. *JMIR Res Protoc*, 10(9):e30504, Sep 2021.

[22] <u>Maede S. Nouri</u>, Daniel J. Lizotte, Kamran Sedig, and Sheikh S. Abdullah. Visemure: A visual analytics system for making sense of multimorbidity using electronic medical record data. *Data*, 6(8), 2021.

[23] Greta R. Bauer, Siobhan M. Churchill, Mayuri Mahendran, Chantel Walwyn, Daniel Lizotte, and Alma Angelica Villa-Rueda. Intersectionality in quantitative research: A systematic review of its emergence and applications of theory and methods. *SSM - Population Health*, page 100798, 2021. Online.

[24] Moutasem A. Zakkar and Daniel J. Lizotte. Analyzing patient stories on social media using text analytics. *Journal of Healthcare Informatics Research*, March 2021. https://doi.org/10.1007/s41666-021-00097-5.

[25] Jason E. Black, Jacqueline K. Kueper, Amanda L. Terry, and Daniel J. Lizotte. Development of a prognostic prediction model to estimate the risk of multiple chronic diseases: Constructing a copula-based model using Canadian primary care electronic medical record data. *International Journal of Population Data Science*, 6(1):1–18, January 2021.

[26] Greta Bauer and Daniel J. Lizotte. Artificial intelligence, intersectionality, and the future of public health. *American Journal of Public Health*, 111(1), January 2021. Opinion Editorial (Peer reviewed).

[27] Jacqueline K. Kueper, Daniel J. Lizotte, Manuel Montero-Odasso, and Mark Speechley. Cognition and motor function: The gait and cognition pooled index. *PLOS ONE*, 15(9):1–16, 2020.

[28] Nicole Schoer, Rebecca Rodrigues, Jennifer Reid, Bridget L. Ryan, Daniel J. Lizotte, Richard Booth, Arlene G. MacDougall, Paul Kurdyak, and Kelly K. Anderson. Patterns of primary care use prior to a first diagnosis of non-affective psychotic disorder in Ontario, Canada. *Canadian Journal of Psychiatry*, pages 1–12, 2020. doi:10.1177/0706743720961732.

[29] Danica Facca, Maxwell Smith, Jacob Shelley, Daniel J. Lizotte, and Lorie Donelle. Exploring the ethical issues in research using digital data collection strategies with minors: A scoping review. *PLOS ONE*, 15(8):1:17, 2020.

[30] Kathryn Nicholson, Tine de Burghgraeve, Martin Fortin, Lauren Griffith, Silvan Licher, Dan Lizotte, Frances Mair, Ruben Miozzo, <u>Maede Sadat Nouri</u>, Bridget Ryan, Eng Sing Lee, Susan Smith, Moira Stewart, Amanda Terry, Mayra Tisminetzky, Maria Ukhanova, Stephen Wetmore, and Saverio Stranges. Advancing crossnational planning and partnership: Proceedings from the international multimorbidity symposium 2019. *Journal of Comorbidity*, 10:1–6, 2020.

[31] Sheikh S. Abdullah, Neda Rostamzadeh, Kamran Sedig, Daniel J. Lizotte, Amit X. Garg, and Eric McArthur. Machine learning for identifying medication-associated acute kidney injury. *Informatics*, 7(2):18, May 2020.

[32] Jason E. Black, Amanda L. Terry, and Daniel J. Lizotte. Development and evaluation of an osteoarthritis risk model for integration into primary care health information technology. *International Journal of Medical Informatics*, 141:104160, 2020.

[33] Jacqueline Kueper, Amanda Terry, Merrick Zwarenstein, and Daniel J. Lizotte. Artificial Intelligence and primary care research: A scoping review. *The Annals of Family Medicine*, 18:250–258, May 2020.

[34] Lavanya Uruthiramoorthy, Daniel Lizotte, Monali Malvankar, Cindy Hutnik, and Kathy Speechley. Estimating patient-reported outcomes for glaucoma management: Cross-sectional study. *Journal of Evidence-Based Medicine*, 13:8–16, 2020.

[35] Markus Gulilat, Denise Keller, Bradley Linton, <u>Pananos, A. Demetri</u>, Daniel Lizotte, George K. Dresser, Jeffrey Alfonsi, Rommel G. Tirona, Richard B. Kim, and Ute I. Schwarz. Drug interactions and pharmacogenetic factors contribute to variation in apixaban concentration in atrial fibrillation patients in routine care. *Journal of Thrombosis and Thrombolysis*, 49(2):294–303, Feb 2020.

[36] Carter W. Lim, Vlad Diaconita, Eddie Liu, Nicholas Ault, Daniel Lizotte, Mary Nguyen, and Cindy M.L. Hutnik. Effect of 6-week washout period on intraocular pressure following chronic prostaglandin analogue treatment: a randomized controlled trial. *Canadian Journal of Ophthalmology*, 55(2):143 – 151, 2020.

[37] Daniel J. Lizotte, Mayuri Mahendran, Siobhan M. Churchill, and Greta R. Bauer. Math versus meaning in MAIHDA: A commentary on multilevel statistical models for quantitative intersectionality. *Social Science & Medicine*, 245:112500, 2020.

[38] <u>Davis, Brent D.</u>, Kamran Sedig, and Daniel J. Lizotte. Archetype-based modeling and search of social media. *Big Data and Cognitive Computing*, 3(3), 2019.

[39] Emma Farago, Shrikant Chinchalkar, Daniel J. Lizotte, and Ana Luisa Trejos. Development of an EMG-based muscle health model for elbow trauma patients. *Sensors*, 19(15), 2019.

[40] Eliseos J. Mucaki, Jonathan Z. L. Zhao, Daniel J. Lizotte, and Peter K. Rogan. Predicting response to platin chemotherapy agents with biochemically-inspired machine learning. *Signal Transduction and Targeted Therapy*, 4(1):1–12, 2019.

[41] Thomas Akdeniz, Daniel J. Lizotte, and Nasser Abukhdeir. A generalised shapelet-based method for analysis of nanostructured surface imaging. *Nanotechnology*, 30(7):1–9, 2018.

[42] Kelly K. Anderson, Suzanne Archie, Richard G. Booth, Chiachen Cheng, Daniel Lizotte, Arlene G. MacDougall, Ross M. G. Norman, Bridget L. Ryan, Amanda L. Terry, Rebecca Rodrigues, and et al. Understanding the role of the family physician in early psychosis intervention. *BJPsych Open*, 4(6):447–453, 2018.

[43] Laura E. Jansen, Wendy A. Teft, <u>Rhiannon V. Rose</u>, Daniel J. Lizotte, and Richard B. Kim. CYP2D6 genotype and endoxifen plasma concentration do not predict hot flash severity during tamoxifen therapy. *Breast Cancer Research and Treatment*, 171(3):701–708, Oct 2018.

[44] Daniel J. Lizotte and <u>Arezoo Tahmasebi</u>. Prediction and tolerance intervals for Dynamic Treatment Regimes. *Statistical Methods in Medical Research*, 26(4):1611–1629, 2017.

[45] Markus Gulilat, Anthony Tang, Steven E. Gryn, Peter Leong-Sit, Allan C. Skanes, Jeffrey E. Alfonsi, George K. Dresser, Sara L. Henderson, <u>Rhiannon V. Rose</u>, Daniel J.

Lizotte, Wendy A. Teft, Ute I. Schwarz, Rommel G. Tirona, and Richard B. Kim. Interpatient variation in rivaroxaban and apixaban plasma concentrations in routine care. *Canadian Journal of Cardiology*, 33(8):1036–1043, 2017.

[46] Daniel J. Lizotte and Eric B. Laber. Multi-objective Markov decision processes for data-driven decision support. *Journal of Machine Learning Research*, 17(211):1–28, 2016.

[47] <u>Suderman, Robert</u>, Daniel J. Lizotte, and Nasser Mohieddin Abukhdeir. Theory and application of shapelets to the analysis of surface self-assembly imaging. *Phys. Rev. E*, 91:033307, Mar 2015.

[48] E. B. Laber, D. J. Lizotte, M. Qian, W. E. Pelham, and S. A. Murphy. Dynamic treatment regimes: technical challenges and applications. *Electronic Journal of Statistics*, 8(1):1225–1272, 2014.

[49] George Zhu, Daniel J. Lizotte, and Jesse Hoey. Scalable approximate policies for Markov decision process models of hospital elective admissions. *Artificial Intelligence in Medicine*, 61(1):21–34, May 2014.

[50] Eric B. Laber, Daniel J. Lizotte, and Bradley Ferguson. Set-valued dynamic treatment regimes for competing outcomes. *Biometrics*, 70(1):53–61, March 2014.

[51] Luiza Antonie, Kris Inwood, Daniel J. Lizotte, and J. Andrew Ross. Tracking people over time in 19th century Canada for longitudinal analysis. *Machine Learning*, 95:129–146, 2013.

[52] Daniel J. Lizotte, Michael Bowling, and Susan A. Murphy. Linear fitted-Q iteration with multiple reward functions. *Journal of Machine Learning Research*, 13:3253–3295, Nov 2012.

[53] Daniel Almirall, Daniel J. Lizotte, and Susan A. Murphy. Comment on "Evaluation of Viable Dynamic Treatment Regimes in a Sequentially Randomized Trial of Advanced Prostate Cancer" by L. Wang, A. Rotnitzky, X. Lin, R. E. Millikan and P. F. Thall. *Journal of the American Statistical Association, Applications and Case Studies*, 107(498):509–512, 2012.

[54] Daniel Lizotte, Russell Greiner, and Dale Schuurmans. An experimental methodology for response surface optimization methods. *The Journal of Global Optimization*, 53(4):699–736, 2012.

[55] Susan Shortreed, Eric Laber, Daniel Lizotte, T. Stroup, Joelle Pineau, and Susan Murphy. Informing sequential clinical decision-making through reinforcement learning: an empirical study. *Machine Learning*, 84:109–136, 2011.

[56] Ruth E. Shaw, Lawrence E. Garey, and Daniel J. Lizotte. A parallel numerical algorithm for Fredholm integro-differential two-point boundary value problems. *The International Journal of Computer Mathematics*, 77:305–318, 2000.

# **Refereed Conferences - Full Papers**

[57] Mozhgan Salimiparsa, Kamran Sedig, and Daniel J. Lizotte. Unlocking the power of explainability in ranking systems: A visual analytics approach with XAI techniques. In *Proceedings of the Third Workshop on eXplainable AI in Healthcare (XAI-Healthcare)*, June 2023. Selected for oral presentation.

[58] <u>Pananos, A. Demetri</u> and Daniel J. Lizotte. Comparisons between Hamiltonian Monte Carlo and maximum a posteriori for a Bayesian model for apixaban induction dose & dose personalization. In Finale Doshi-Velez, Jim Fackler, Ken Jung, David Kale, Rajesh Ranganath, Byron Wallace, and Jenna Wiens, editors, *Proceedings of the 5th Machine Learning for Healthcare Conference*, volume 126 of *Proceedings of Machine Learning Research*, pages 397–417, Virtual, 07–08 Aug 2020. PMLR.

[59] Maria Jahja and Daniel J. Lizotte. Visualizing clinical significance with prediction and tolerance regions. In Finale Doshi-Velez, Jim Fackler, David Kale, Rajesh Ranganath, Byron Wallace, and Jenna Wiens, editors, *Proceedings of the 2nd Machine Learning for Healthcare Conference*, volume 68 of *Proceedings of Machine Learning Research*, pages 217–230, Boston, Massachusetts, 18–19 Aug 2017. PMLR.

[60] <u>Rhiannon V. Rose</u> and Daniel J. Lizotte. gLOP: the global and Local penalty for capturing predictive heterogeneity. In Finale Doshi-Velez, Jim Fackler, David Kale, Byron Wallace, and Jenna Wiens, editors, *Proceedings of the 1st Machine Learning for Healthcare Conference*, volume 56 of *JMLR Workshop and Conference Proceedings*, 2016. 8 pages.

[61] <u>Michael Cormier</u>, Daniel J. Lizotte, and Richard Mann. Reconstruction of 3-D density functions from few projections: Structural assumptions for graceful degradation. In *12th Conference on Computer and Robot Vision*, pages 147–154, 2015.

[62] Adedamola Adepetu, Elnaz Rezaei, Daniel Lizotte, and Srinivasan Keshav. Critiquing time-of-use pricing in Ontario. In *IEEE SmartGridComm Symposium*, pages 223–228. IEEE Press, 2013.

[63] Tameem Adel, Ruth Urner, Benn Smith, Daniel Stashuk, and Daniel J. Lizotte. Generative multiple-instance learning models for quantitative electromyography. In Ann Nicholson and Padhraic Smyth, editors, *Proceedings of the 29th conference on Uncertainty in Artificial Intelligence (UAI)*, pages 2–11, Corvallis, Oregon, 2013. AUAI Press. Selected for oral oresentation.

[64] Rayman Preet Singh, Peter Xiang Gao, and Daniel J. Lizotte. On hourly home peak load prediction. In *IEEE SmartGridComm Symposium*, pages 163–168. IEEE Press, 2012. Best Paper Award.

[65] A. Khan, J.A. Doucette, R. Cohen, and D.J. Lizotte. Integrating machine learning into a medical decision support system to address the problem of missing patient data. In *11th International Conference on Machine Learning and Applications (ICMLA)*, volume 1, pages 454–457, Dec. 2012.

[66] Shehroz S. Khan, Jesse Hoey, and Daniel Lizotte. Bayesian multiple imputation approaches for one-class classification. In Leila Kosseim and Diana Inkpen, editors, *Advances in Artificial Intelligence*, volume 7310 of *Lecture Notes in Computer Science*, pages 331–336. Springer, 2012.

[67] Daniel J. Lizotte. Convergent fitted value iteration with linear function approximation. In J. Shawe-Taylor, R.S. Zemel, P. Bartlett, F.C.N. Pereira, and K.Q. Weinberger, editors, *Advances in Neural Information Processing Systems* 24, pages 2537–2545. NIPS Foundation, 2011.

[68] Daniel J. Lizotte, Michael Bowling, and Susan A. Murphy. Efficient reinforcement learning with multiple reward functions for randomized clinical trial analysis. In *Proceedings of the 27th International Conference on Machine Learning (ICML)*, pages 695–702, 2010.

[69] Tao Wang, Daniel Lizotte, Michael Bowling, and Dale Schuurmans. Stable dual dynamic programming. In *Advances in Neural Information Processing Systems (NIPS)*, pages 713–720, 2007.

[70] Daniel Lizotte, Tao Wang, Michael Bowling, and Dale Schuurmans. Automatic gait optimization with Gaussian process regression. In *Proceedings of the 20th International Joint Conference on Artificial Intelligence (IJCAI)*, pages 944–949, 2007.

[71] Qin Wang, Colin Cherry, Daniel Lizotte, and Dale Schuurmans. Improved large margin dependency parsing via local constraints and Laplacian regularization. In *Proceedings of the Tenth Conference on Computational Natural Language Learning (CONLL-06)*, pages 21–28, 2006.

[72] Tao Wang, Daniel Lizotte, Michael Bowling, and Dale Schuurmans. Bayesian sparse sampling for on-line reward optimization. In *Proceedings of the 22nd International Conference on Machine Learning (ICML)*, pages 961–968, 2005.

[73] Omid Madani, Daniel Lizotte, and Russell Greiner. Active model selection. In *Proceedings of the 20th conference on Uncertainty in Artificial Intelligence (UAI)*, pages 357–365, 2004.

[74] Daniel Lizotte, Omid Madani, and Russell Greiner. Budgeted learning of naïve-Bayes classifiers. In 19th Conference on Uncertainty in Artificial Intelligence (UAI), pages 378–385, 2003.

[75] Daniel Lizotte and Hong Zhang. Trading confidence for communications. In *IEEE International Conference on Systems, Man and Cybernetics (SMC)*, volume 1, pages 935–940, 2004.

[76] Daniel Lizotte, Eric Aubanel, and Virendra Bhavsar. Chapter 12: Nonuniform DFT applications in MRI: Parallel algorithms and implementations on the IBM SP. In Robert D. Kent and Todd W. Sands, editors, *High Performance Computing Systems and Applications*, pages 41–54, Norwell, MA, 2003. Kluwer Academic Publishers.

[77] Daniel Lizotte, Lawrence Garey, and Ruth Shaw. A parallel numerical algorithm for boundary-value FIDEs on a PC cluster. In *Proceedings of the International Parallel and Distributed Processing Symposium (IPDPS)*, pages 397–402, 2002.

# **Refereed Conferences - Abstracts**

[78] Jaky Kueper, Merrick Zwarenstein, Amanda Terry, and Daniel J. Lizotte. Using epidemiology and artificial intelligence to describe a complex primary care population in a learning health system. In 2022 North American Primary Care Research Group Annual Meeting, November 2022. Oral presentation.

[79] Jaky Kueper, Dan Lizotte, Amanda Terry, Judith Brown, Bridget Ryan, Leslie Meredith, Janet Dang, Moira Stewart, Merrick Zwarenstein, Daniel Leger, and Scott McKay. Identifying priorities for artificial intelligence and primary care in Ontario: A multi-stakeholder engagement event. In 2021 North American Primary Care Research Group Annual Meeting, November 2021. Oral presentation.

[80] Amanda Terry, Dan Lizotte, Judith Brown, Bridget Ryan, Jaky Kueper, Leslie Meredith, Janet Dang, Moira Stewart, Merrick Zwarenstein, Daniel Leger, and Scott McKay. Is primary health care ready for artificial intelligence? Stakeholder perspectives: Worth the risk as long as you do it well. In 2021 North American Primary Care Research Group Annual Meeting, November 2021. Oral presentation.

[81] M Mahendran, G Bauer, D Lizotte, and Y Zhu. Evaluating quantitative methods for intercategorical-intersectionality research: a simulation study. *European Journal of Public Health*, 30(Supplement 5), 09 2020. ckaa165.745.

[82] Jacqueline K. Kueper, Amanda L. Terry, Merrick Zwarenstein, and Daniel J. Lizotte. A scoping review on artificial intelligence and primary care: Where is the research field now and where does it need to go? In *Proceedings of the 2019 North American Primary Care Research Group Annual Meeting*, November 2019. Oral presentation.

[83] Jacqueline K. Kueper, Jennifer Rayner, Amanda L. Terry, Amit Garg, Danielle M Nash, Erin Huner, Judy Belle Brown, Merrick Zwarenstein, Richard Booth, and Daniel J. Lizotte. Impact of social determinants of health information on predictive models for chronic kidney disease in primary health care. In *Proceedings of the 40th Annual North American Meeting of the Society for Medical Decision Making*, 2018.

[84] Jason Black, Daniel J. Lizotte, and Amanda L. Terry. Framr-emr: Framework for prognostic predictive model development using electronic medical record data with a case study in osteoarthritis risk. In *Proceedings of the 2017 North American Primary Care Research Group Annual Meeting*, 2017.

[85] <u>Maria Jahja</u> and Daniel J. Lizotte. Prediction regions and tolerance regions for multi-objective markov decision processes. In *Proceedings of the 3rd Multidisciplinary Conference on Reinforcement Learning and Decision Making*, 2017. 4-page extended abstract.

[86] Kueper, J K, D J Lizotte, M Montero-Odasso, and M Speechley. Cognition and motor function: A novel outcome measure for studies of pre-dementia syndromes. In *Canadian Society of Epidemiology and Biostatistics* 2017 *Conference: From Molecules to Population*, 2017.

[87] Lavanya Uruthiramoorthy, Daniel J. Lizotte, Monali Malvankar, and Cindy Hutnik. Predicting important patient domains for glaucoma management. In *Canadian Society of Epidemiology and Biostatistics* 2017 Conference: From Molecules to Population, 2017.

[88] Cheryl Forchuk, Marnin Heisel, Tony O'Regan, Akshya Vasudev, Amer Burhan, Anne Skelton, Richard Booth, Wafa'a Ta'an, Jeffrey Hoch, Abraham Rudnick, Daniel Lizotte, and Jeffrey Reiss. Teleprom-g a study evaluating access and care delivery of telehealth services among community-based seniors. In *Future Technologies Conference*, 2017.

[89] Katherina Baranova, Eliseos Mucaki, Dimo Angelov, Daniel J. Lizotte, and Peter Rogan. Cisplatin response prediction in recurrent bladder cancer using biochemicallyinspired machine learning. In *Great Lakes Bioinformatics and Canadian Computational Biology Conference*, 2016.

[90] Daniel J. Lizotte. Multi-objective markov decision processes for decision support. In *Proceedings of the 2nd Multidisciplinary Conference on Reinforcement Learning and Decision Making*, 2015. 4-page extended abstract.

## **Book Chapters**

[91] Marie Davidian, Brian Everitt, Ron S. Kenett, Geert Molenberghs, Walter Piegorsch, and Fabrizio Ruggeri, editors. *Wiley StatsRef*, chapter Reinforcement Learning. Wiley, 2017. 3000 words.

#### Commentaries

[92] Edward (Ted) A. Parson, Alona Fyshe, and Dan Lizotte. Artificial intelligence's societal impacts, governance, and ethics. Technical Report No. 19-44, UCLA

School of Law, Public Law Research Paper, September 2019. Available at SSRN: https://ssrn.com/abstract=3476399.

#### **Educational Cases in Public Health**

[93] S.L. Sibbald, J.R. Graham, and D.J. Lizotte. Development of an electronic health record strategy at the Glenburn public health unit. In S.L. Sibbald and G. McKinley, editors, *Western Public Health Casebook*. Public Health Casebook Publishing, London, ON, 2019.

# Theses

[94] Daniel Lizotte. Practical Bayesian optimization. PhD thesis, U. of Alberta, 2008.

[95] Daniel Lizotte. Budgeted learning of naïve Bayes classifiers. Master's thesis, University of Alberta, 2003.

WORKSHOPS, Presentations, and Tutorials	AI4PH and Statistics Canada Workshop: Connection and understanding around national data, AI modelling and public health Worked as a facilitator for this workshop led by Drs. Laura Rosella (U of T) and Cl Sanmartin (Statistics Canada.) Ottawa, ON, Canada	2023 audia
	<b>Artificial Intelligence for Public Health</b> Invited presentation at the Human Sciences Seminar Series of the Northern Or School of Medicine, co-presented with Drs. Laura Rosella and Jaky Kueper. Thunder Bay, ON, Canada	2023 ntario
	<b>AI North: AI4PHP Thunder Bay</b> Workshop on AI for Public Health Practice, supported in part by my CIHR Know and Dissemination grant, co-organized with Dr. Brianne Wood of the Northern Or School of Medicine. Thunder Bay, ON, Canada	2023 ledge ntario
	<b>The AI for Public Health Practice Retreat</b> Workshop funded by my CIHR Knowledge and Dissemination grant, organize public health practitioners and AI researcher to discuss challenges and opportu for AI within the practice of public health. London, ON, Canada	2022 ed for nities
	<b>Specialized Vocabulary and Discourse</b> Invited talk at the 2022 AI4PH Summer Institute Montreal, QC, Canada	2022
	<b>Machine Learning for Analysing Social Media Data for Public Health</b> Invited talk at the Canadian Industrial and Applied Mathematics (CAIMS) 2022 C Kelowna, BC, Canada (virtual)	2022 onference
	<b>Structured Treatment Spaces in Dynamic Treatment Regimes</b> Contributed talk at the Statistics 2021 Canada Conference Montreal, QC, Canada (virtual)	2021
	<b>Bayesian Pharmacokinetic Models for Dose Personalization</b> Contributed talk at the Joint Statistical Meetings Philadelphia, USA (virtual)	2020

Introduction to AI, and scoping review on AI in Primary Health Care Invited talk with Jacqueline Kueper at Artificial INTELLIGENce for efficient comm based primary healTh CARE (INTELLIGENT-CARE) Workshop Québec, QC, Canada	2019 nunity
<b>Characterizing Outcome Distributions of Dynamic Treatment Regimes</b> Contributed talk in Emerging Challenges in Precision Medicine — Topic Contril Papers at the Joint Statistical Meeting Denver, CO, USA	2019 buted
<b>Machine Learning and Opportunities for Health Promotion</b> Invited talk at the IPPH-CIFAR Workshop on AI for Public Health Equity Toronto, ON, Canada	2019
<b>AI Tools to Support Population Health Stakeholders</b> Invited talk at the Symposium on Exploring the Role of Artificial Intelligence in Po Health Risk Assessment Toronto, ON, Canada	2018 opulation
<b>Characterizing Outcome Distributions of Dynamic Treatment Regimes</b> Invited talk at the Statistical Society of Canada Annual Meeting Montreal, QC, Canada	2018
<b>Risk and Reward: Challenges and opportunities</b> <b>in electronic medical record data</b> Invited talk at the Centre de recherches mathématiques Workshop on Risk Modeling, Management and Mitigation in Health Sciences. Montreal, QC, Canada	2017
<b>Evaluating Sequences of Treatments using Big and Small Data</b> Invited talk at Lawson Research Mental Health Group Retreat. London, ON, Canada	2017
Smart, Healthy Campus: Building leadership and psychological resilience in undergraduate students Presentation with Dr. Kevin Shoemaker. Bond University/Western University Collaboration Initiative Gold Coast, QLD, Australia	2017
<b>Multi-objective Markov Decision Processes for Decision Support</b> Contributed talk (15% acceptance) at RLDM, The Multi-disciplinary Conferen Reinforcement Learning and Decision Making (extended abstract available)	2015 ce on
<b>Set-Valued Dynamic Treatment Regimes for Competing Outcomes</b> Invited talk, Toyota AI Seminar Series at the University of Michigan	2015
<b>Set-Valued Dynamic Treatment Regimes for Competing Outcomes</b> Contributed talk, International Symposium on Business and Industrial Statistic Conference of the ASA Section on Statistical Learning and Data Mining	2014 s and
<b>Linear Fitted-Q Iteration with Multiple Reward Functions</b> Contributed talk, 23rd International Conference on Automated Planning and Sche (ICAPS), Journal Presentation track	2013 eduling
<b>Multi-Objective RL for Decision Support</b> Invited talk at the Planning and Learning Workshop at the 23rd International Cont on Automated Planning and Scheduling (ICAPS)	2013 ference

	<b>The Reward Hypothesis, the Rationality Assumption, and Decision Support</b> Invited talk, University of Alberta AI Seminar	2013
	<b>Optimality and Preference in Dynamic Treatment Regimes</b> Invited talk, University of Washington Center for Statistics and the Social Science	2013 es
	<b>Possible Futures: Complexity in Sequential Decision-Making</b> Invited talk, Waterloo Institute for Complexity & Innovation	2013
	The Role of Active Learning in Sequential Decision-Making Contributed talk, Joint Statistical Meeting	2012
	Supporting Preference-aware Sequential Medical Decision Making Contributed talk, Workshop on Meaningful Use of Complex Medical Data	2012
	<b>Inverse Preference Elicitation for Sequential Decision Making</b> Invited talk, INFORMS Healthcare Conference in Montreal, QC	2011
	<b>Reward Preferences in Reinforcement Learning</b> Invited talk, Université de Liège	2011
	<b>Learning and Planning from Batch Time Series Data</b> Principal organizer. Workshop at Neural Information Processing Systems	2010
	Gaussian Process Response Surface Optimization Invited talk, INFORMS Computing Society meeting in Austin, TX	2010
	<b>Gaussian Process Response Surface Optimization</b> Invited talk, NIPS Workshop on Adaptive Sensing, Active Learning and Experimental Design: Theory, Methods and Applications	2009
	Adaptive Treatment Strategies Invited talk at the Wayne State University Pediatric Prevention Research Center	2009
	<b>Bayesian Global Optimization for Robot Gait Learning</b> Invited talk, Reykjavík University	2007
STUDENT PRESENTATIONS	<b>Identifying priorities for Artificial Intelligence and primary care in Ontario: A r stakeholder engagement event.</b> Trillium Primary Health Care Research Day, 2021 Oct 15. Oral presentation by Kueper JK, Terry AL, Bahniwal R, Beleno R, Brown JB, Da Lger D, Meredith L, McKay S, Pinto A, Ryan BL, Stewart M, Zwarenstein M, La DJ. Virtual Presentation.	nulti- 2021 ang J, izotte
	<b>Comparisons Between Hamiltonian Monte Carlo and Maximum A Posteriori</b> <b>For A Bayesian Model For Apixaban Induction Dose &amp; Dose Personalization</b> Machine Learning for Health Care, Stanford, USA. (virtual) Poster presentation by A. Demetri Pananos (accompanying full paper submission	2020 n.)
	Artificial Intelligence and Primary Care: What research has been done and how do we move forward? Trillium Primary Health Care Research Day. Toronto, ON. Poster presentation by Kueper, J.K.; Terry, A.L.; Zwarenstein, M.; Lizotte, D.J.	2019
	Impact of social determinants of health information on predictive models for chronic kidney disease in primary health care	2018

Society for Medical Decision Making, Montreal, QC. Poster presentation by Jacqueline Kueper (PhD Western) with co-authors	
<b>FRAMR-EMR: Framework for Prognostic Predictive Model Development</b> <b>Using Electronic Medical Record Data With a Case Study in Osteoarthritis Ris</b> North American Primary Care Research Group Conference, Montreal, QC. Oral presentation by Jason Black (MSc Western) with co-authors Dr. Amanda Ter	2017 <b>k</b> ry
Cognition and Motor Function: A Novel Outcome Measure for Studies of Pre-Dementia Syndromes	2017
Canadian Society of Epidemiology and Biostatistics 2017 Conference: From Mole to Population, Banff, AB.	cules
Oral presentation by Jacqueline Kueper (MSc Western) with co-authors Drs. Speechley and Manuel Montero-Odasso	Mark
<b>Predicting Important Patient Domains for Glaucoma Management</b> Canadian Society of Epidemiology and Biostatistics 2017 Conference: From Mole to Population, Banff, AB.	2017 cules
Oral presentation by Lavanya Uruthiramoorthy (MSc Western) with co-authors Monali Malvankar and Cindy Hutnik	Drs.
<b>Health Related Quality of Life of Glaucoma and Glaucoma Suspect Patients</b> Western Ophthalmology Research Day, London, ON.	2016
Oral Presentation by Lavanya Uruthiramoorthy (MSc Western) with co-authors Monali Malvankar and Cindy Hutnik	Drs.
<b>gLOP: the global and Local Penalty for Capturing Predictive Heterogeneity</b> Machine Learning for Healthcare Conference, Los Angeles, CA Poster Presentation by Rhiannon Rose (PhD Western) (full paper available)	2016
<b>gLOP: A Penalized Regression Framework</b> <b>with Applications in Exploratory and Predictive Healthcare Data Analysis</b> Neural Information Processing Systems Workshop on Machine Learning for Healt Montreal, QC.	2015 hcare,
Poster Presentation by Rhiannon Rose (PhD Western) (extended abstract availabl	e)
<b>Modelling the Effect of Mechanical Ventilation</b> Meaningful Use of Complex Medical Data at Children's Hospital Los Angeles Oral Presentation by Chengbo Li (MMath Waterloo)	2013
<b>Temporal Modelling of Patient-controlled Analgesia</b> Meaningful Use of Complex Medical Data at Children's Hospital Los Angeles Poster Presentation by Rhiannon Rose (MMath Waterloo)	2013
<b>Pattern Recognition and Characterization for Surface Self-Assembly Imaging</b> Waterloo Cheriton Symposium Poster Competition – Honourable Mention Poster Presentation by Robert Suderman (MMath Waterloo)	2013
<b>Pattern Recognition and Characterization for Surface Self-Assembly Imaging</b> Surface Canada Conference Oral Presentation by Robert Suderman (MMath Waterloo)	2013
<b>Bayesian Contact Tracing for Communicable Respiratory Disease</b> Society for Medical Decision Making Poster Presentation by Ayman Shalaby (MMath Waterloo)	2012

Teaching	Instructor - Western		
Experience	CS 4433/9117/9647 - Unstructured Data	W18, V	W19, W20, W21,W23
	MPH 9117 - Public Health Informatics	W17, W18, W19, W	V20, W21, W23, W24
	DS 3000 - Introduction to Machine Learning F	24	
	CS 4414/9114/9637 - Introduction to Data Scie	ence I	F17, F18, F19, F20
	CS 4437/9637 - Introduction to Data Science		W16, W17
	EPIDEMIO 4715/9560 - Design and Analysis	of Clinical Trials	W16
	Instructor - Waterloo		
	I was recognized within University of Waterlo for all of my undergraduate offerings.	oo Computer Science	e as a Top Instructor
	CS 886 - Topics in AI: Applied Machine Learn	ing	W12, F12, S13, F14
	CS 136 - Elementary Algorithm Design and D	ata Abstraction	F11, F12, F13
	CS 135 - Designing Functional Programs		F14
	Instructor - Reykjavík University		
	T-529-ITME - Introduction to Machine learnin	g	S07

SUPERVISION Postdoctoral Supervision

Jacqueline Kueper (PhD Epidemiology and Biostatistics and Computer Science) 9/2022–8/2023 Dr. Kueper is continuing her line of research on artificial intelligence methods in primary health care. She is working closely with the Alliance for Healthier Communities to develop and test an AI decision support tool using their electronic health record holdings.

Ethan Jackson (PhD Computer Science), "Predictive modelling long-term care" 1/2019–4/2019

Dr. Jackson assisted with the successful preparation and submission of a collaborative grant with PointClickCare, a leading provider of electronic health record software to the long-term care sector, and he worked with PCC staff to construct a first round of predictive models and evaluations for the project. Although Dr. Jackson was unable to complete the project he is now working at the Vector Institute with a focus on health partnerships.

Katherine Mathers (PhD Biology), "Predictive modelling in long-term care" 5/2019–8/2019

Dr. Mathers stepped into the aforementioned project upon the departure of Dr. Jackson. Building on her outstanding research record in physiology and biochemistry, applied to metabolic regulation during hibernation and pregnancy, she continued the modelling work through to the end of the project and is now employed as a full-time member of the PCC Data Intelligence team. Dr. Mathers continues to facilitate interaction and collaboration between my research group and PCC as we embark on a larger project.

# **Current Graduate Supervision - PhD**

Victoria Primeau, "Impact of Non-Destructive Drug Checking in Supervised Consumption Sites on Decision-Making by Clients, Staff, and Service Provider Organizations" PhD in Epidemiology

Nathan Phelps, "Reinforcement Learning for Decision Support in Health Care and Environmental Management" PhD in Statistics, *co-supervised* with Dr. Doug Woolford 9/2022– Pedram Ahadinejad, "AI and Visual Analytics in Electronic Medical Record Tools" PhD in Computer Science, *co-supervised* with Dr. Kamran Sedig Started MSc 9/2021, transferred to PhD 8/2022–

Parisa Mokhtari Hesari, "Quantitative intersectionality research in breast cancer" PhD in Epidemiology, *co-supervised* with Dr. Greta Bauer 9/2020–

Steven Hun Lee, "Clustering methods for the epidemiology of mental health" PhD in Epidemiology, *co-supervised* with Dr. Kelly Anderson 9/2020–

Caroline Strickland, "Reinforcement learning methodology for decision support in primary and long-term care" PhD in Computer Science 9/2019–

### **Current Graduate Supervision - MSc**

Ahsan Siddiqui, "Reinforcement Learning in Structured Action Spaces" MSc in Computer Science 9/2024–

Keaton Banik, "Machine Learning for Citizen Science" MSc in Computer Science, *co-supervised* with Dr. Tarun Katapally 9/2024–

Emily Boyko, "The Epidemiology of Tuberculosis: Integrating Clinical, Laboratory, and Population Health Data Sources" MSc in Epidemiology, *co-supervised* with Dr. Jennifer Guthrie 9/2022–

#### **Completed Graduate Supervision - PhD**

Mozhgan Salimiparsa "Visual analytics for health informatics" PhD in Computer Science, *co-supervised* w/Dr. Kamran Sedig 9/2018–12/2023

A. Demetri Pananos, "Bayesian pharmacokinetic models for inference and optimal decision making with applications in personalized medicine" PhD in Biostatistics 9/2017–10/2022

Jacqueline Kueper, "Developing artificial intelligence and machine learning to support primary care research and practice" Combined PhD in Epidemiology and Computer Science 9/2017–7/2022 Awarded Governor General's Gold Medal

Brent Davis, "Disease outbreak surveillance and decision support using social media" PhD in Computer Science, *co-supervised* w/Dr. Kamran Sedig Started MSc 9/2015, transferred to PhD 9/2016–8/2021 Rhiannon Rose, "Improving Prediction of Systemic Statin Exposure Using Concomitant Medications, Non-Linear Modelling, and Novel SNP Discovery" PhD in Epidemiology 9/2014–9/2018

#### **Completed Graduate Supervision - MSc**

Pascale Nevins, "Quantitative and mixed methods for describing the risk and experience of homelessness" MSc in Biostatistics 9/2022–7/2023

Rouzbeh Meshkinnejad, "Neuromodulation for Continual Learning in Artificial Neural Networks" MSc in Computer Science, *co-supervised* with Dr. Yalda Mohsenzadeh 9/2021–1/2023

Erik Christensen, "A Framework for Characterising Performance in Multi-class Classifications with Application in Cancer Single-Cell RNA Sequencing" MSc in Computer Science, *co-supervised with Dr. Parisa Shooshtari* 9/2019–12/2021

Steve Hun Lee, "Impact of Social Determinants of Health on the Cost of Coronary Artery Bypass Graft" MSc in Epidemiology, *co-supervised* w/Dr. Ava John-Baptiste 9/2018–10/2020

Nathan Phelps, "Reinforcement learning in large, structured action spaces: A simulation study of decision support for spinal cord injury rehabilitation" MSc in Computer Science 9/2018–7/2020

Maede Nouri, "A Visual Analytics System for Investigating Multimorbidity Using Supervised Machine Learning" MSc in Computer Science, *co-supervised* w/Dr. Kamran Sedig 9/2018–4/2020

Nima Gheisarzadeh, "Pathways to care for persons with first-episode psychosis" MSc in Epidemiology, *co-supervised* w/Dr. Kelly Anderson 9/2016–8/2019

Jason Black, "Prognostic Predictive Model to Estimate the Risk of Multiple Chronic Diseases: Constructing Copulas Using Electronic Medical Record Data" MSc in Epidemiology 9/2016–9/2018

Elham Harirpoush, "Baseline Assisted Classification of Heart Rate Variability" MSc in Computer Science 9/2016–5/2018

Patrick Kim, "Chronic Disease Risk Prediction Models and their Impact on Behavioural and Health Outcomes: A Systematic Review and Meta-analysis " MSc in Epidemiology, *co-supervised* w/Dr. Amanda Terry 9/2015–12/2017

Lavanya Uruthiramoorthy, "Predicting Important Patient-Reported Outcomes for Glaucoma Management: Cross-Sectional Study"

MSc in Epidemiology, *co-supervised* w/Dr. Monali Malvankar 9/2015–8/2017

Chengbo Li, "Sensitivity Analysis for Causal Inference with Decision Trees" MMath in Computer Science (Waterloo) 9/2012–5/2015

Robert Suderman, "Pattern Understanding for Images of Self-assembled Nanomaterials" MMath in Computer Science (Waterloo) *co-supervised* w/Dr. N. Abukhdeir 9/2012–9/2014

Rhiannon Rose, "gLOP: A Cleaner Dirty Model for Multitask Learning" MMath in Computer Science (Waterloo) 9/2012–9/2014

Michael Cormier, "3D Reconstruction from Single Projections, with Applications to Astronomical Images" MMath in Computer Science (Waterloo) *co-supervised* w/Dr. R. Mann 9/2011–9/2013

Ayman Shalaby, "Bayesian Methods for Syndromic Surveillance" MMath in Computer Science (Waterloo) 9/2011–5/2014 (Part time)

# **Completed Graduate Supervision - MSc Non-Thesis**

Ravninder Bahniwal, "Environmental scan of artificial intelligence applications in primary care" Master of Public Health Practicum 5/2021–8/2021

Research Assistant Supervision (non-degree)	
Arezoo Tahmasebi - Part time research assistant	W16
Undergraduate Supervision	
Tianyue Zhong - Epidemiology 4400Z Thesis	F23-W24
Donna Xue - Computer Science 4490Z Thesis	S22
Natalie Pallisco - Scholar's Electives 3305E Research Project	F20-W21
Thomas (Aleks) Miller - Biology 4999E Research Project (co- w/K. Hill)	F19-W20
Sejin Kim - Medical Health Informatics 4980E Final Project	F19-W20
Daniel Zhang - Epidemiology 4400Z Thesis	F19-W20
Erica Yarmol-Matusiak - Scholar's Electives 2200E Research Project	F18-W19
Michael Lambert - Epidemiology 4400Z Thesis	F18-W19
Cole Fisher - Computer Science 4490Z Thesis	W17-F17
Diana Varyvoda - Computer Science 4490Z Thesis	F17-W18
Jeremy Huang - Computer Science 4490Z Thesis	F16-W17
Maria Jahja - Visiting Research Assistant	S16
Jason Black - Medical Health Informatics 4980E Final Project	F15-W16
Shannon Brown - Computer Science 3380B Final Project	W15
External PhD Examiner	
Alox Koarnoy External Examiner for PhD (Computing Science)	2023
under Drs. Patrick Pilarsky and Rich Sutton, University of Alberta	2023
Thesis Reading and Committee Membership	
Isabella Aversa - Examiner for MSc (Epidemiology) under Dr. G. Bauer	2022

Jacob Hunte - Examiner for PhD (CS) under Dr. H. Lutfiyya	2022
John Demelo - Examiner for PhD (CS) under Dr. K. Sedig	2021
Nicky Bayat - Examiner for MSc (CS) under Dr. Y. Mohsenzadeh	2020
Zhe Li - Examiner for PhD (Epidemiology) under Dr. A. John-Baptiste	2020
Eada Novilla-Surette - Examiner for MSc (Health Int. Sci.) under Dr. R. Booth	2020
Sadiq Raji - Examiner for PhD (Health Inf. Sci.) under Dr. C. Gibson	2020
Mahtab EzzatiKarami - Examiner for MSc (CS) under Dr. N. Madhavji	2020
V. Anemily Sippola - Examiner for MSc (CS) under Dr. R. Mercer	2020
Sarah Singh - Examiner for PhD (Epidemiology) under Dr. S. Frisbee	2020
Moutasem Zakkar - C'tee Member for PhD (Public Health and Health Systems)	2020
under Dr. Craig Janes, U. of Waterloo	0000
Connor Chato - Examiner for MSc (Pathology) under Dr. Art Poon	2020
Parinaz Estahani - Examiner for MSc (CS) under Dr. Kamran Sedig	2020
Gurjit Randhawa - Examiner for PhD (CS) under Dr. Lila Kari	2020
Matthias Babin - Examiner for MSc (CS) under Dr. Mike Katchabaw	2020
Elham Rahmani - Examiner for MSc (CS) under Dr. Nazim Madhavji	2020
Sudipta Roy - Examiner for MSc (CS) under Dr. Bob Mercer	2020
Amir HaghighatiMaleki - Examiner for MSc (CS) under Dr. Kamran Sedig	2020
Yuanyuan Han - Examiner for MSc (CS) under Dr. Charles Ling	2019
Muhammad Rifayat Samee - Examiner for MSc (CS) under Dr. Bob Mercer	2019
Jonathan Tan - Examiner for MSc (CS) under Dr. Mike Katchabaw	2019
Jumayel Islam - Examiner for MSc (CS) under Drs. Bob Mercer, Lu Xiao	2018
Hae Young Jung - Examiner for MSc (Biostat) under Dr. Yun-Hee Choi	2018
Stephen Solis-Reyes - Examiner for MSc (CS) under Dr. Lila Kari	2018
Ryan Chan - Examiner for MSc Nursing under Dr. Richard Booth	2018
Emma Farago - Examiner for MSc Engineering under Dr. Ana Luisa Trejos	2018
Jun Wang - Examiner for MSc (CS) under Dr. Charles Ling	2018
Naresh Eeda - Examiner for MSc (CS) under Dr. Nazim Madhavji	2017
Efstathia Kiatos - Examiner for MSc (Epi) under W Hodge, M Malvankar	2017
Oluwakemi Ola - Internal Examiner for PhD (CS) under K Sedig	2017
Ayan Chaudhury - Internal Examiner for PhD (CS) under J Barron	2017
Jacqueline Kueper - C'tee for MSc (Epi) under M Speechley, M Montero-Odasso	2017
Muhammad S. Ahmed - Examiner for MSc (CS) under L Ilie	2017
Dimo Angelov - Examiner for MSc (CS) under L Ilie, P Rogan	2017
Annette Azad - Examiner for MSc (CS) under M Bauer	2017
Leonard Guizzetti - Examiner for MSc (Epi) under GY Zhou, B Feagan	2017
Shuang Ao, Internal Examiner for PhD (CS) under CX Ling	2017
Mazen Melibari - Internal Examiner for PhD (CS) under P Poupart	2016
Mehrsa Golestaneh - Committee member for PhD (CS) under M Daley	2016
Aycha Tammour - University Examiner for PhD (Astronomy) under S Gallagher	2016
John Doucette - Committee member for PhD (CS) under R Cohen	2016
Farheen Omar - Committee member for PhD (CS) under P Poupart	2016
Sumeet Kalia - Reader for MSc (Biostat) under A Donner, N Klar	2015
Shrinu Kushagra - Reader for MMath (CS) under S Ben-David	2014
Dan Recoskie - Reader for MMath (CS) under R Mann	2014
Kun Xiong - Reader for MMath (CS) under M Li	2014
Arthur Carvalho - Examiner for PhD (CS) under K Larson	2014
Tameem Adel Hesham - Examiner for PhD (Engineering) under D Stashuk	2014
Xiao Yang - Reader for MMath (CS) under J Hoey	2014
George Zhu - Reader for MMath (CS) under J Hoey	2013
Nika Haghtalab - Reader for MMath (CS) under S Ben-David	2013
Kay Kuvinskiy - Keader for MMath (CS) under P van Beek	2013
Igor Kiselev - Keader for MMath (CS) under P Poupart	2013
Arthur Carvalho - Committee member for PhD (CS) under K Larson	2013

Mazen Melibari - Committee member for PhD (CS) under P Poupart	2013
John Doucette - Committee member for PhD (CS) under R Cohen	2013
Daniel Rasmussen - Examiner for PhD (CS/Neuro) under C Eliasmith	2012
Ryan Case - Reader for MMath (CS) under S Keshav	2012
Fatemeh Dorri - Reader for MMath (CS) under A Ghodsi	2012
Yuxin Yu - Reader for MMath (CS) under K Larson	2011

# ACADEMIC **Co-Organizer, Summer Institute on AI and Society, Governance, and Ethics** 2019 SERVICE With my co-organizers Drs. Alona Fyshe and Ted Parson. A summary of the outputs of the workshop is given in our commentary [92].

# Program Leader, Statistical and Mathematical Sciences Institute (SAMSI) Program on Precision Medicine 2018–2019

The goal of the year-long program was to bring together applied mathematicians, statisticians, computer scientists, and domain scientists to foster advances in methodology for precision medicine, with a particular emphasis on sequential decision-making. A summary is here:

https://www.samsi.info/programs-and-activities/year-long-research-programs/program-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-statistical-mathematical-computational-methods-precision-medicine-pmed/samsi-sam

# **Senior Conference Organization**

Senior Prg. Ctee., Intl. Joint Conf. on Artificial Intelligence 201	16, 2017, 2019, 2020
Snr. PC/Metareviewer, Machine Learning in Health Care Conference	ce 2017–2022
Demonstrations Chair, American Association for Artificial Intelligen	nce 2015

#### **Program Committee Member**

ACM Conference on Health, Inference, and Learning	2020
American Association for Artificial Intelligence Conference (AAAI)	2008–2015
Artificial Intelligence and Statistics (AISTAT)	2011
Benelearn	2020
International Conference on Automated Planning and Scheduling (ICAPS)	2012-2013
International Conference on Machine Learning (ICML)	2008–2019
International Joint Conference on Artificial Intelligence (IJCAI) 2007	7,2009,2015
Machine Learning for Health Care	2016-2020
Multi-disciplinary Conf. on Reinforcement Learning and Decision Making	2015, 2017
Neural Information Processing Systems Conference 2007–2013,2015–2016	5,2019,2020
Uncertainty in Artificial Intelligence (UAI)	2012-2016
Workshop on Data Integration and Applications	2015,2016

# Journal Reviewer

Artificial Intelligence in Medicine, Artificial Intelligence Journal, Biometrics, Information Sciences, BMC Health Services Research, Informatics, Journal of Artificial Intelligence Research, Journal of Medical Internet Research, Journal of the American Statistical Association (Theory and Methods), Journal of Causal Inference, Journal of Data Mining and Knowledge Discovery, Journal of Machine Learning Research, Machine Learning Journal, Neurocomputing, Mayo Clinic Proceedings, Medical Decision Making, Neuroscience, Patterns, Statistical Methods for Medical Research, Statistics and Computing, Statistics in Medicine

#### **Grant Reviewer**

MITACS (Canada), Natural Sciences and Engineering Research Council (Canada), Technology Foundation STW (Netherlands), Digital Technology Supercluster (Canada),

Member of the CIHR College of Reviewers

UNIVERSITY SERVICE	Administrative Roles Graduate Chair, Computer Science Associate Director of the Master of Data Analytics Program Scholarship Committee Chair, Epidemiology and Biostatistics	2022– 2016–2022 2020–2021
	<b>University Service - Western</b> Executive Committee, Ctr. for Research on Health Equity and Social Inclu Research & Advisory Committee, Bone & Joint Institute	sion 2022– 2022–
	Departmental Service - WesternAppointments Committee (Computer Science)MPH Admissions CommitteeMMASc Admissions CommitteeJoint Appointments Committee (Computer Science, Stats. & Act. Sci.)Scholarship Committee (Epidemiology & Biostatistics)Scholarship Committee (Computer Science)Data Analytics Program Curriculum Committeeco-chair with Dr. Douglas Woolford	2015–2020 17,2019,2021 2016 2015–2016 2015–2021 2015–2021 2015–2016
	<b>Departmental Service - Waterloo</b> Women in Computer Science Committee Outreach Committee Graduate Studies Committee	2013–2014 2012–2013 2011–2012
	<b>University Service - Waterloo</b> University of Waterloo Chronic Disease Prevention Initiative Networking Committee	2011–2013
Outreach	<b>Pint of Science</b> Lecture on "The Past and Future of AI"	2019
	Association of Commonwealth Universities Summer School Lecture on "Big Data: Opportunities and Pitfalls"	2015
	Waterloo Centre for Education in Mathematics and Computing Lecture on "Teaching Computers to Make Decisions." Explored possibilities for bringing machine learning to high school classre	2014 poms
	<b>CS4U Day at Waterloo: Teaching Computers to Make Decisions</b> Introduced high school students to decision trees and feature construction University of Waterloo David R. Cheriton School of Computer Science	2013 1.
	<b>Grade 8 Science: "Robots are Awesome"</b> Introduced students to basic concepts about robots and intelligent agents. Richard S. Fowler Catholic Junior High School, St. Albert, AB	2007
	<b>Smithsonian Folklife Festival</b> Used hands-on demonstrations to illustrate the potential for learning in re CS Representative to the Alberta at the Smithsonian programme, Washing	2006 obots. gton, DC.
	<b>Women in Information Technology: Leap Toward the Future</b> Helped promote career paths in information technology for young wome In conjunction with the Canadian Information Processing Society.	2006 n.

PERSONAL Citizenship: Canadian INFORMATION Languages: English (native), French (conversational - reading, listening, speaking)