

CURRICULUM VITAE

Kuan Liu

Jun 25, 2021

BIOGRAPHICAL INFORMATION

Permanent resident of Canada since May 21, 2014

EDUCATION

PhD in Biostatistics, *University of Toronto*, Toronto, Ontario 2015-2021
Advisor: Dr. Eleanor Pullenayegum
Dissertation: Bayesian causal inference with longitudinal data

MMath in Statistics-Biostatistics, *University of Waterloo*, Waterloo, Ontario 2011-2012
Advisor: Dr. Christian Boudreau
Master research project: Gamma frailty models for competing risks

BSc Honour in Statistics, *University of Alberta*, Edmonton, Alberta 2007-2011

PROFESSIONAL EXPERIENCE

Assistant Professor in Health Services Research (outcome and evaluation) Jul 2021-Present
Institute of Health Policy, Management and Evaluation, University of Toronto

Biostatistics Analyst (Part-time) Sep 2020-Jun 2021
Child Health Evaluative Sciences, The Hospital for Sick Children

Biostatistics Practicum Student 2016-2018
Biostatistics Research Unit, Toronto General Hospital, University Health Network

Biostatistician (Casual) 2016-2017
Department of Medical Imaging, Faculty of Medicine, University of Toronto

Research Analyst (Full-time) 2013-2015
Institute for Clinical Evaluative Sciences, Western Satellite Site

Undergraduate Summer Research Internship May-Aug 2011
Department of Pediatric, Faculty of Medicine and Dentistry, University of Toronto

Undergraduate Summer Research Internship May-Jun 2010
Faculty of Forest and Conservation Science, University of British Columbia

Undergraduate Summer Research Internship May-Jun 2009
Department of Earth and Environmental Sciences, University of British Columbia Okanagan

DOCTORAL RESEARCH SCHOLARSHIPS

Doctoral Award-Frederick Banting and Charles Best Canada Graduate Scholarships (CGS-D)
Canadian Institutes of Health Research

Rating and ranking within committee: 4.58, 17th

Funding period: Sep 2017-Aug 2020; \$35,000 per fiscal year

Research Training Competition (Restracomp) Scholarship, PhD Trainee-category B
The Hospital for Sick Children

Rating and ranking within category: 4.12, 1st

Funding period: Sep 2016-Aug 2017; \$24,000 per fiscal year

HONOURS AND AWARDS

• Research Awards

The 2020 Beverly Antle Trainee Award Jun 2020
Child Health Evaluative Sciences, The Hospital for Sick Children

University of Toronto COVID-19 Student Engagement Award Jun 2020
Investigators: **Kuan Liu** (Lead), Rose Garrett, Alexandra Bushby,
Thai-Son Tang, Maxwell Garrett and Laura Garrett
Faculty advisors: Dr. Anna Heath and Dr. Eleanor Pullenayegum
COVID-19 student research viewable at [Link](#)

• Data Challenge Competitions

Top 8 finalists, the 2018-2019 National Policy Challenge Jun 2019
Canadian Research Data Centre Network, SAS Canada and Statistics Canada
Spatial analysis of cannabis and tobacco consumption among Canadian youth and adults
Kuan Liu (Lead), Dominika Bhatia and Shahriar Shams
Presentation slides accessible via [Link](#)

First prize, the 2016 Case Studies in Data Analysis Competition May 2016
The Statistical Society of Canada
Predicting flu cases using dynamic regression with Google Flu Trend
Mohammad Khan, Sangook Kim, **Kuan Liu** and Michael Moon
Presentation poster accessible via [Link](#)

First prize, the 2015 ImagineNation Data Impact Challenge May 2015
Canada Health Infoway
Repeated diagnostic imaging studies in Ontario
Blayne Welk, **Kuan Liu**, Ahmed Al-Jaishi, Eric McArthur, Arsh Jain and Michael Ordon

• Conference Presentation Awards

Student Best Poster Presentation Award Dec 2020
The 30th International Biometric Conference

Student Best Poster Presentation Award Jul 2018
The 29th International Biometric Conference, Barcelona, Spain

Paul Corey Student Poster Presentation Award Jun 2018
Dalla Lana School of Public Health Biostatistics Research Day, Toronto, Canada

• **Conference Travel Awards**

The 2019 Canadian Statistics Student Conference, Calgary, Canada May 2019

The 2019 Atlantic Causal Inference Conference, Montreal, Canada May 2019

School of Graduate studies, University of Toronto Mar 2019

For attending the 2019 Eastern North American Region

International Biometric Society Annual Meeting, Philadelphia, USA

The 46th Statistical Society of Canada Annual Meeting, Montreal, Canada May 2018

• **Academic Merits and Study Body Services Award**

The John Hsieh Award, DSLPH, University of Toronto Aug 2020

Statistics and Actuarial Science Chair's Award, University of Waterloo Nov 2011 & Jun 2012

Faculty of Science, Dean's Honor Roll List, University of Alberta 2008-2010

Registrar's International Student Scholarship, University of Alberta 2007-2011

TEACHING EXPERIENCE

STAB22 Statistics I Instructor, University of Toronto Scarborough Fall 2020

THE500 Teaching in Higher Education (Certified) Winter 2020

Teaching certification course, University of Toronto

Teaching Assistant, University of Toronto

CHL5201 Biostatistics I Fall 2016-2019

CHL5202 Biostatistics II Winter 2017-2020

CHL5209 Survival Analysis Winter 2019 & Winter 2020

CHL5222 Analysis of Correlated Data Spring/Summer 2019

STA130 An Introduction to Statistical Reasoning and Data Science Winter 2017

Teaching Assistant, University of Waterloo Fall 2011 & Winter 2012

STAT 202 Introductory Statistics for Scientists

STAT 230 Probability

STAT 231 Statistics

STAT 330 Mathematical Statistics

SERVICES

Biostatistics Section Editor University of Toronto Journal of Public Health	Sep 2019-Jan 2021
Student Representative, Biostatistics Faculty Search Committee Dalla Lana School of Public Health, University of Toronto	Jan 2020-Apr 2020
Co-President, Biostatistics Union of Graduate Students Dalla Lana School of Public Health, University of Toronto	Sep 2017-Aug 2018
PhD Student Representative - Biostatistics, Dalla Lana School of Public Health Students' Association, University of Toronto	Sep 2016-Aug 2017
Conference Co-Chair The 2017 Canadian Statistics Student Conference, Statistical Society of Canada	Jun 2016-Jul 2017
Fundraising Chair, Biostatistics Union of Graduate Students Dalla Lana School of Public Health, University of Toronto	Sep 2015-Aug 2016
Conference Scientific Program Lead The 2016 Canadian Statistics Student Conference, Statistical Society of Canada	Jun 2015-Jun 2016

REVIEWER

Pharmacoepidemiology and Drug Safety	2020
Journal of the American Medical Association Cardiology	2015

PUBLICATIONS

Google Scholar Profile [Link](#)
ResearchGate Profile [Link](#)

PEER-REVIEWED PUBLICATIONS

1. **Liu K**, Saarela O, George Tomlinson, Feldman BM, Pullenayegum E. A Bayesian latent class approach to causal inference with longitudinal data. (Manuscript Submitted)
2. Trivedi V, Chaudhuri D, Jinah R, Piticaru J, Agarwal A, **Liu K**, et al. The Utility of the Rapid Shallow Breathing Index in Predicting Successful Extubation: A Systematic Review and Meta-analysis. *CHEST*, (Accepted).
3. **Liu K**, Tomlinson G, Reed AM, Huber AM, Saarela O, Bou-Tabaku SM, et al. (2021). Pilot study of the juvenile dermatomyositis consensus treatment plans: A CARRA Registry study. *Journal of Rheumatology*, 48(1): 114-122. doi: [10.3899/jrheum.190494](https://doi.org/10.3899/jrheum.190494)
4. Zhang X, Liu S, Wang J, Huang Y, Freeman Z, Fu S, [et al, including **Liu K**]. (2020) Local community assembly mechanisms shape soil bacterial β -diversity patterns along latitudinal gradients in eastern China. *Nature Communications*, 11(1): 1-10. doi: [10.1038/s41467-020-19228-4](https://doi.org/10.1038/s41467-020-19228-4)

5. **Liu K**, Saarela O, Feldman BM, Pullenayegum E. (2020). Estimation of causal effects with repeatedly measured outcomes in a Bayesian framework. *Statistical Methods in Medical Research*, 29(9): 2507-2519. doi: [10.1177/0962280219900362](https://doi.org/10.1177/0962280219900362)
6. Nater A, Chuang J, **Liu K**, Quraishi NA, Pasku D, Wilson JR, et al. (2020). A personalized medicine approach for the management of spinal metastases with cord compression: development of a novel clinical prediction model for postoperative survival and Quality of Life. *World Neurosurgery*, 140: 654-663. doi: [10.1016/j.wneu.2020.03.098](https://doi.org/10.1016/j.wneu.2020.03.098)
7. Harris DA, Soucy J-PR, Kinitz DJ, **Liu K**, Rajendran AA, Sturrock SL, et al. (2020). Four dates, one future: Founding editorial for the University of Toronto Journal of Public Health. *University of Toronto Journal of Public Health*, 1(1): 1–5. doi: [10.33137/utjph.v1i1.34435](https://doi.org/10.33137/utjph.v1i1.34435)
8. Burns KE, Straus SE, **Liu K**, Rizvi L, Guyatt G. (2019). Gender differences in grant and personnel award funding rates at the Canadian Institutes of Health Research based on research content area: A retrospective analysis. *PLoS Medicine*, 16(10). doi: [10.1371/journal.pmed.1002935](https://doi.org/10.1371/journal.pmed.1002935)
9. Jing Y, Wang Y, Liu S, Zhang X, Wang Q, **Liu K**, et al. (2019). Interactive effects of soil warming, throughfall reduction, and root exclusion on soil microbial community and residues in warm-temperate oak forests. *Applied Soil Ecology*, 142: 52-58. doi: [10.1016/j.apsoil.2019.05.020](https://doi.org/10.1016/j.apsoil.2019.05.020)
10. Simkin P, Rattansingh A, **Liu K**, Hudson JM, Atri M, Jang H-J, et al. (2019). Reproducibility of 2 liver 2-dimensional shear wave elastographic techniques in the fasting and postprandial states. *Journal of Ultrasound in Medicine*, 38(7): 1739-1745. doi: [10.1002/jum.14862](https://doi.org/10.1002/jum.14862)
11. Dave S, **Liu K**, Clark R, Garg AX, Shariff SZ. (2018). A retrospective population-based cohort study to evaluate the impact of an older sibling with undescended testis and hypospadias on the known maternal and fetal risk factors for undescended testis and hypospadias in Ontario, Canada, 1997-2007. *Journal of Pediatric Urology*, 15(1): 41.e1-41.e9. doi: [10.1016/j.jpuro.2018.09.021](https://doi.org/10.1016/j.jpuro.2018.09.021)
12. MacNeil SD, Patel K, **Liu K**, Shariff SZ, Yoo J, Nichols A, et al. (2018). Survival of patients with subglottic squamous cell carcinoma. *Current Oncology*, 25(6): e569–e575. doi: [10.3747/co.25.3864](https://doi.org/10.3747/co.25.3864)
13. Dave S, **Liu K**, Garg AX, Shariff SZ. (2018). Secular trends in the incidence and timing of surgical intervention for congenital undescended testis and surgically treated hypospadias in Ontario, Canada between 1997 and 2007. *Journal of Pediatric Urology*, 14(6): 552.e1-552.e7. doi: [10.1016/j.jpuro.2018.07.003](https://doi.org/10.1016/j.jpuro.2018.07.003)
14. Lazo-Langner A, **Liu K**, Shariff SZ, Garg AX, Ray JG. (2018). Immigration, region of origin, and the epidemiology of venous thromboembolism: A population-based study. *Research and Practice in Thrombosis and Haemostasis*, 2(3): 469-480. doi: [10.1002/rth2.12113](https://doi.org/10.1002/rth2.12113)
15. Gnannt R, Waespe N, Temple M, Amirabadi A, **Liu K**, Brandão LR, et al. (2018). Increased risk of symptomatic upper-extremity venous thrombosis with multiple peripherally inserted central catheter insertions in pediatric patients. *Pediatric Radiology*, 48(7): 1013-1020. doi: [10.1007/s00247-018-4096-x](https://doi.org/10.1007/s00247-018-4096-x)

16. Zhang M, Liu N, Harper R, Li Q, **Liu K**, Wei X, et al. (2017). A global review on hydrological responses to forest change across multiple spatial scales: Importance of scale, climate, forest type and hydrological regime. *Journal of Hydrology*, 546: 44-59. doi: [10.1016/j.jhydrol.2016.12.040](https://doi.org/10.1016/j.jhydrol.2016.12.040)
17. Welk B, **Liu K**, Winick-Ng J, Shariff SZ. (2017). Urinary tract infections, urologic surgery, and renal dysfunction in a contemporary cohort of traumatic spinal cord injured patients. *Neurourology and Urodynamics*, 36(3): 640-647. doi: [10.1002/nau.22981](https://doi.org/10.1002/nau.22981)
18. Liu Y, Liu S, Wan S, Wang J, Wang H, **Liu K**. (2017). Effects of experimental throughfall reduction and soil warming on fine root biomass and its decomposition in a warm temperate oak forest. *Science of the Total Environment*, 574: 1448-1455. doi: [10.1016/j.scitotenv.2016.08.116](https://doi.org/10.1016/j.scitotenv.2016.08.116)
19. Welk B, **Liu K**, Shariff SZ. (2016). The use of urologic investigations among patients with traumatic spinal cord injuries. *Research and Reports in Urology*, 8: 27-34. doi: [10.2147/RRU.S99840](https://doi.org/10.2147/RRU.S99840)
20. Welk B, **Liu K**, Al-Jaishi A, McArthur E, Jain A, Ordon M. (2016). Repeated diagnostic imaging studies in Ontario and the impact of health information exchange systems. *Healthcare Quarterly*, 19(1): 24-28. doi: [10.12927/hcq.2016.24613](https://doi.org/10.12927/hcq.2016.24613)
21. Vinden C, Malthaner R, McGee J, McClure JA, Winick-Ng J, **Liu K**, et al. (2016). Teaching surgery takes time: The impact of surgical education on time in the operating room. *Canadian Journal of Surgery*, 59(2): 87-92. doi: [10.1503/cjs.017515](https://doi.org/10.1503/cjs.017515)
22. Liu AR, Garg AX, **Liu K**, Shariff SZ, Jain AK, Weir MA. (2016). Increased risk of adverse renal outcome following polyethylene glycol bowel preparation compared to sodium picosulfate. *The Journal of Clinical Pharmacology*, 56(8): 983-987. doi: [10.1002/jcph.688](https://doi.org/10.1002/jcph.688)
23. Hu Z, Liu S, Liu X, Fu L, Wang J, **Liu K**, et al. (2016). Soil respiration and its environmental response varies by day/night and by growing/dormant season in a subalpine forest. *Scientific Reports*, 6:37864. doi: [10.1038/srep37864](https://doi.org/10.1038/srep37864)
24. Clemens KK, **Liu K**, Shariff SZ, Schernthaner G, Tangri N, Garg A. (2016). Secular trends in antihyperglycaemic medication prescriptions in older adults with diabetes and chronic kidney disease: 2004-2013. *Diabetes, Obesity and Metabolism*, 18(6): 607-614. doi: [10.1111/dom.12658](https://doi.org/10.1111/dom.12658)
25. Burneo JG, Shariff SZ, **Liu K**, Leonard S, Saposnik G, Garg AX. (2016). Disparities in surgery among patients with intractable epilepsy in a universal health system. *Neurology*, 86(1): 72-78. doi: [10.1212/WNL.0000000000002249](https://doi.org/10.1212/WNL.0000000000002249)
26. Vasudev A, Shariff SZ, **Liu K**, Burhan AM, Herrmann N, Leonard S, et al. (2015). Trends in psychotropic dispensing among older adults with dementia living in long-term care facilities: 2004-2013. *The American Journal of Geriatric Psychiatry*, 23(12): 1259-1269. doi: [10.1016/j.jagp.2015.07.001](https://doi.org/10.1016/j.jagp.2015.07.001)
27. MacNeil SD, **Liu K**, Garg AX, Tam S, Palma D, Thind A, et al. (2015). A population-based study of 30-day incidence of ischemic stroke following surgical neck dissection. *Medicine*, 94(33). doi: [10.1097/MD.0000000000001106](https://doi.org/10.1097/MD.0000000000001106)
28. MacNeil SD, **Liu K**, Shariff SZ, Thind A, Winquist E, Yoo J, et al. (2015). Secular trends in the survival of patients with laryngeal carcinoma, 1995-2007. *Current Oncology*, 22(2): e85. doi: [10.3747/co.22.2361](https://doi.org/10.3747/co.22.2361)

29. Hildebrand AM, **Liu K**, Shariff SZ, Ray JG, Sontrop JM, Clark WF, et al. (2015). Characteristics and outcomes of AKI treated with dialysis during pregnancy and the postpartum period. *Journal of the American Society of Nephrology*, 26(12): 3085-3091. doi: [10.1681/ASN.2014100954](https://doi.org/10.1681/ASN.2014100954)
30. Fraser LA, **Liu K**, Naylor KL, Hwang YJ, Dixon SN, Shariff SZ, et al. (2015). Falls and fractures with atypical antipsychotic medication use: A population-based cohort study. *Journal of the American Medical Association Internal Medicine*, 175(3): 450-452. doi: [10.1001/jamainternmed.2014.6930](https://doi.org/10.1001/jamainternmed.2014.6930)
31. Clemens KK, Shariff SZ, **Liu K**, Hramiak I, Mahon JL, McArthur E, et al. (2015). Trends in antihyperglycemic medication prescriptions and hypoglycemia in older adults: 2002-2013. *PLoS ONE*, 10(9): e0137596. doi: [10.1371/journal.pone.0137596](https://doi.org/10.1371/journal.pone.0137596)
32. Luan J, Liu S, Chang SX, Wang J, Zhu X, **Liu K**, et al. (2014). Different effects of warming and cooling on the decomposition of soil organic matter in warm-temperate oak forests: a reciprocal translocation experiment. *Biogeochemistry*, 121(3): 551-564. doi: [10.1007/s10533-014-0022-y](https://doi.org/10.1007/s10533-014-0022-y)
33. Radhakrishnan DK, Dell SD, Guttmann A, Shariff SZ, **Liu K**, To T. (2014). Trends in the age of diagnosis of childhood asthma. *Journal of Allergy and Clinical Immunology*, 134(5): 1057-1062. doi: [10.1016/j.jaci.2014.05.012](https://doi.org/10.1016/j.jaci.2014.05.012)
34. Welk B, Tran KC, **Liu K**, Shariff SZ. (2014). The pattern of urologic care among traumatic spinal cord injured patients. *Canadian Urological Association Journal*, 8: 11-12. doi: [10.5489/cuaj.2403](https://doi.org/10.5489/cuaj.2403)
35. Weir MA, Fleet JL, Vinden C, Shariff SZ, **Liu K**, Song H, et al. (2014). Hyponatremia and sodium picosulfate bowel preparations in older adults. *American Journal of Gastroenterology*, 109(5): 686-694. doi: [10.1038/ajg.2014.20](https://doi.org/10.1038/ajg.2014.20)
36. Welk B, Loh E, Shariff SZ, **Liu K**, Siddiqi F. (2014). An administrative data algorithm to identify traumatic spinal cord injured patients: a validation study. *Spinal Cord*, 52(1): 34-38. doi: [10.1038/sc.2013.134](https://doi.org/10.1038/sc.2013.134)
37. Luan J, Liu S, Zhu X, Wang J, **Liu K**. (2012). Roles of biotic and abiotic variables in determining spatial variation of soil respiration in secondary oak and planted pine forests. *Soil Biology and Biochemistry*, 44(1): 143-150. doi: [10.1016/j.soilbio.2011.08.012](https://doi.org/10.1016/j.soilbio.2011.08.012)

PRESENTATIONS

Oral Presentations

1. A Bayesian latent class approach to causal inference with longitudinal data, 2021 Statistics and Mathematics Applied to Cancerology Day (Statistics, Philosophy, and Health), June 2021.
2. A Bayesian latent class approach to causal inference with longitudinal data, 2021 Annual Meeting of the Statistics Society of Canada, June 2021.
3. Bayesian causal inference with longitudinal data, Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, Canada, October 2020.

4. Spatial analysis of cannabis and tobacco consumption among Canadian youth and adults, 2015 Canadian Research Data Centre Network National Policy Challenge Meeting, Ottawa, Canada, June 2019.
5. On Bayesian estimation of causal effect with a latent confounder class, 2019 Canadian Statistics Student Conference, Calgary, Canada, May 2019.
6. Estimation of causal effects with longitudinal data in a Bayesian framework, 2019 Eastern North American International Biometric Society Annual Meeting, Philadelphia, USA, March 2019.
7. Estimation of causal effects with longitudinal data in a Bayesian framework, Putting Women Into the Equation: Changing Dynamics in Research, The Fields Institute for Research in Mathematical Sciences, Toronto, Canada, November 2018.
8. Estimation of causal effects with longitudinal data in a Bayesian framework, 46th Annual Meeting of the Statistics Society of Canada, Montreal, Canada, June 2018.
9. Assessing the efficacy of current consensus treatments on juvenile dermatomyositis using a complex multi-centre pilot registry, 2017 Canadian Statistics Student Conference, Winnipeg, Canada, June 2017.

Poster Presentations

1. A Bayesian latent class approach to causal inference with longitudinal data, 30th International Biometric Conference, July 2020.
2. A Bayesian latent class approach to causal inference with longitudinal data, Biostatistics Research Day, Dalla Lana School of Public Health, University of Toronto, June 2020.
3. Estimation of causal effects with longitudinal data in a Bayesian framework, Atlantic Causal Inference Conference 2019, Montreal, Canada, May 2019.
4. Estimation of causal effects with longitudinal data in a Bayesian framework, 29th International Biometric Conference, Barcelona, Spain, July 2018.
5. Estimation of causal effects with longitudinal data in a Bayesian framework, Biostatistics Research Day, Dalla Lana School of Public Health, University of Toronto, June 2018.
6. Predicting flu cases using dynamic regression with Google Flu Trends, 44th Annual Meeting of the Statistical Society of Canada, St. Catharines, Canada, May 2016.

PROFESSIONAL MEMBERSHIPS

Member, International Society for Bayesian Analysis	2021-Present
Member, Caucus for Women in Statistics	2019-Present
Member, Eastern North American Region, International Biometric Society	2017-Present
Member, International Biometrics Society	2017-Present
Member, Statistical Society of Canada	2011-Present