

Curriculum Vitæ – Shirin Golchi

March 2, 2021

A. IDENTIFICATION

Name: Shirin Golchi

Address: Department of Epidemiology, Biostatistics, and Occupational Health (EBOH)
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B. EDUCATION

2014 Ph.D. (Statistics)

Simon Fraser University, Vancouver BC, Canada

Ph.D. thesis title: Bayesian Computational Methods and Applications

President's PhD Scholarship

Graduate Fellowship

2009 Master of Science (Statistics)

Allameh Tabatabaie University, Tehran, Iran

M.Sc. thesis title: Inverse Sampling and Adaptive Cluster Sampling

2002 Bachelor of Science (Statistics)

University of Tehran, Tehran, Iran

C. APPOINTMENTS

2019 – present	Assistant Professor, Department of Epidemiology, Biostatistics, and Occupational Health, McGill University
2017 – present	Adjunct Professor, Department of Statistics and Actuarial Science, Simon Fraser University
2017 – 2019	Senior Statistician, MTEK Sciences
2015 – 2017	Postdoctoral Research Fellow, Unit 5 - Statistics, University of British Columbia – Okanagan campus
2014 – 2015	Postdoctoral Research Officer, Department of Statistics, Columbia University
2006 – 2009	Statistical Researcher, Statistical Research and Training Centre of Iran

D. SPECIAL HONOURS, AWARDS, RECOGNITION

Recognitions

2020 The Lawrence Joseph Award for Teaching Excellence in Epidemiology, EBOH, McGill University

E. TEACHING

1. EBOH, McGill University

Course title	Course no.	In-class hours	Credits	Year	No. students
Data Analysis for Health Sciences	EPIB 621	52	4	2021	70
Design of Randomized Clinical Trials	EPIB 635	39	3	2020	13
Data Analysis for Health Sciences	EPIB 621	52	4	2020	71
Substantive Epidemiology (Clinical Trials)	EPIB 642	13	1	2019	2

2. Elsewhere

Year	Course Title	Location	credit	No. Students
2012	Introduction to Probability and Statistics STAT 270	Simon Fraser University	4	200

3. Research Trainees Supervised **Indicates primary or sole supervisor.*

Graduate students: Doctoral degree supervision

2020-	*James Joseph Willard, Ph.D. Biostatistics (Co-supervisor: Erica Moodie)
2020-	Junwei Shen, Ph.D. Biostatistics (Co-supervisor: Erica Moodie)

Thesis committee member

2021-

Paritosh Kumar Roy, Ph.D. Biostatistics (Supervisors: Alexandra Schmidt)

F. Other Contributions

1. Journals

Reviewer of Journal Articles

Technometrics, Computational Statistics and Data Analysis, SIAM/ASA Journal of Uncertainty Quantification, Statistica Sinica, American Journal of Epidemiology, Nature Communications, Data Base

2. Grant Reviews

Reviewer for Granting Agencies

2020 CIHR
2018 Medical Research Council (United Kingdom)
2015 US Army Research

3. Administrative Responsibilities and Committees

EBOH

2020 Member, Biostatistics Admissions Committee
2019 – 2020 Co-Organizer and chair, Biostatistics Seminar Series

4. Professional Associations

2012 – present Statistical Society of Canada
2012 – present American Statistical Association

G. RESEARCH

1. Research Activities

My primary research interest lies at the interface of Bayesian modelling/computation and clinical trials with a specific focus on Bayesian adaptive clinical trial designs. My current research program comprises the following components: (a) development of automated design optimization procedures for efficient exploration of a wide range of assumption and trial design parameters at the planning stage; (b) Analysis techniques for utilizing external data and expert knowledge; (c) software development to facilitate transparent communications in clinical trials collaborations.

2. Grants Obtained

*As Principal Investigator: Title, total (years). * Indicates sole investigator/applicant.*

1. * Natural Sciences and Engineering Research Council of Canada (NSERC) – Discovery Grant, Modern Techniques in Design and Analysis of Bayesian Adaptive Clinical Trials, \$115,000 (2020–2025)
2. * NSERC – Discovery Launch Supplement, Early Career Researcher, \$12,500 (2020).

As Co-Investigator: Title, PI, total, my share if applicable (years)

1. MITACS Accelerate. New designs for Bayesian adaptive cluster randomized trials for an individualized clinical support tool with capacity to support distance follow up and treatment of depression. Internship Supervisor: Erica Moodie, \$30,000 (2020-2021).
2. CIHR COVID-19 Rapid Research Funding Opportunity. PRevention of COVID-19 with high dose Oral Vitamin D supplemental Therapy in Essential healthCare Teams (PROTECT). Ducharme, Francine M; Tremblay, Cécile L., \$4,224,996 (2020-2021).
3. Bill and Melinda Gates Foundation. Investment ID OPP1192472, Synbiotics for the Early Prevention of Severe Infections in Infants (SEPSIS) trial, Daniel Roth (Hospital for Sick Children, Toronto), \$15,356,759, \$106,000 (2020-2022).

3. Publications

Articles in peer-reviewed journals

1. M. Miocevic, S. Golchi. Bayesian mediation analysis with power prior distributions. Conditional accepted by *Multivariate Behavioral Research* (revisions submitted).
2. S. Golchi, K. Thorlund. (2020) Sequential Monte Carlo for Response Adaptive Randomized Trials. *Biostatistics*. Vol. 21, No. 2, pp. 287–301.
<https://doi.org/10.1093/biostatistics/kxy048>.

3. L. Dron, S. Golchi, G. Hsu, K. Thorlund. (2019). Minimizing control group allocation in randomized trials using dynamic borrowing of external control data: an application to second line therapy for non-small cell lung cancer. *Contemporary Clinical Trials Communications*. 16:100446. doi:10.1016/j.conctc.2019.100446.
4. K. Thorlund, S. Golchi, J. Haggstrom, E. Mills. (2019). Highly Efficient Clinical Trials Simulator (HECT): Software application for planning and simulating platform adaptive trials. *Gates Open Research*. 3:780. doi:10.12688/gatesopenres.12912.2
5. S. Golchi and R. Lockhart. (2018) A Frequency-Calibrated Bayesian Search for New Particles. *Annals of Applied Statistics*. Vol. 12, No. 3, pp. 1939–1968.
<https://doi.org/10.1214/18-AOAS1138>.
6. S. Golchi. (2018) Informative Priors in Bayesian Inference and Computation. *Statistical Analysis and Data Mining: The ASA Data Science Journal*.
<https://doi.org/10.1002/sam.11371>.
7. E. Mills, A. Adhvaryu, P. Jakiela, J. Birungi, S. Okoboi, T. N. W. Chimulwa, J. Wanganisi, T. Achilla, E. Popoff, S. Golchi, D. Karlan. (2018) Unconditional cash transfers for clinical and economic outcomes among HIV-affected Ugandan households. *Aids*. Vol. 32, No. 14, pp. 2023–2031.
8. K. Thorlund, S. Golchi, E. Mills. (2017) Bayesian Adaptive Clinical Trials of Combination Treatments. *Contemporary Clinical Trials Communications*. 8, pp. 227-233.
9. S. Golchi (2016). Informative Priors and Bayesian Computation. *In The Proceedings of IEEE Data Science and Advanced Analysis 2016*.
10. S. Golchi and D.A. Campbell (2016). Sequentially Constrained Monte Carlo. *Computational Statistics and Data Analysis*. 97, pp. 98–113.
11. S. Golchi, D. Bingham, H. Chipman, and D.A. Campbell (2015). Monotone Emulation of Computer Experiments. *SIAM/ASA Journal of Uncertainty Quantification*. 3-1, pp. 370–392.

4. Presentations

Conference Presentations – Invited

1. (upcoming) Assessment of Design Operating Characteristics for Bayesian Adaptive Trials. *Statistical Society of Canada meeting*, June 2020.
2. (upcoming) Individually weighted power priors for data synthesis. *ENAR*, March 2020.
3. Informative Priors based on Individual Patient Data for Analysis of Clinical Trials. *ICSA-Canada Chapter 2019 Symposium*, Kingston, ON, Canada, 2019.
4. Designs of constrained computer experiments. *Conference on Frontiers of Big Data and Statistical Sciences; ICSA Canada Chapter*, Vancouver, 2017.
5. Informative priors and Bayesian computation. *3rd IEEE International Conference on Data Science and Advanced Analytics*, Montreal, October 2016.
6. Space-filling designs for constrained regions. *International conference on design of experiments (ICO-DOE)*, University of Memphis, 2016.
7. Sequentially Constrained Monte Carlo. *Association for Women in Mathematics Research Symposium*, University of Maryland, 2015.

Conference presentations – Contributed and posters

1. Sequential Monte Carlo for Response Adaptive Randomized Trials. *International Biometric Conference*, Barcelona, Spain, 2018.
2. Sequentially Constrained Monte Carlo. *Statistical Society of Canada Meetings*, Toronto, 2014.
3. Monotone Emulation and Uncertainty Quantification (Poster). *Conference on Data Analysis (CoDA)*, Santa Fe, NM, 2014.
4. Monotone Computer Experiments. *Joint Statistical Meetings*, Montreal, 2013.
5. A Decision Theoretic Approach for Hypothesis Testing in Particle Physics. *Statistical Society of Canada Meetings*, Edmonton, 2013.
6. A Parallel Tempering Algorithm to Sample from Constrained Posteriors. *SFU-UBC Joint Workshop*, 2012.

Presentations at Universities or Research Institutes

1. (upcoming) Assessment of Design Operating Characteristics for Bayesian Adaptive Trials. McGill University Health Centre – Glen site, April 2021.
2. Design and Analysis of Modern Clinical Trials. Jewish General Hospital, Epidemiology Seminar Series, September 2020.
3. Design and Analysis of Modern Clinical Trials. Département de mathématiques, Université du Québec à Montréal, March 2020.
4. Computational Techniques for Bayesian Adaptive Randomized Trials. Department of Epidemiology, Biostatistics and Occupational Health, McGill University, November 2018.

5. Constraints, priors, and Bayesian Computation. Department of Statistics and Actuarial Science Seminar, University of Waterloo, January 2017.
6. Sequentially Constrained Monte Carlo. Unit 5 Colloquium Talks, University of British Columbia - Okanagan, 2015.
7. Bayesian Inference for Social Networks using Aggregated Relational Data. eScience Institute, University of Washington, 2015.
8. Monotone Function Estimation for Computer Experiments. University of Victoria, Department of Mathematics and Statistics Seminar Series, 2013.