UNIVERSITY OF VICTORIA - CURRICULUM VITAE

Last Update: February, 2024

Name: Farouk S. Nathoo
Faculty: Science
Department: Mathematics and Statistics
Webpage: www.math.uvic.ca/~nathoo

1. EDUCATION and TRAINING

Degree	Field	Institution	Date Obtained
BSc	Combined Honors in Mathematics and Statistics	British Columbia	April 1998
MMath	Statistics	Waterloo	April 2000
Ph.D.	Statistics	Simon Fraser	February 2006

2. POSITIONS HELD PRIOR to APPOINTMENT at UVic

Position held	Organization	Department	Period
Research Assistant	Simon Fraser University	Statistics and Actuarial Science	September 2003 to December 2005
Statistical Consultant	Children's and Women's Health Centre of British Columbia	Clinical Research Support	September 2002 to August 2003
Actuarial Trainee	Hewitt Associates	Group Benefits	September 2000 to December 2000
Statistical Analyst	British Columbia Cancer Agency	Cancer Control Research	May 1999 to August 1999
Research Assistant	University of Waterloo	Statistics and Actuarial Science	January 1999 to April 1999
Research Assistant	University of British Columbia	Statistics	May 1998 to August 1998
Research Assistant	University of British Columbia	Statistics	May 1997 to August 1997

3. APPOINTMENTS at the UNIVERSITY of VICTORIA

Period	**Rank**	**Academic unit**
January 2006 to June 2011	Assistant Professor	Mathematics and Statistics
July 2011 to June 2020	Associate Professor	Mathematics and Statistics
July 2020 - to Present	Professor	Mathematics and Statistics
November 2013 to October 2023	Tier 2 Canada Research Chair in Biostatistics	Mathematics and Statistics
October 2020 to December 2020	Acting Associate Chair	Mathematics and Statistics

OTHER APPOINTMENTS

Period	**Rank**	**Academic unit**
September 2015 to August 2020	Adjunct Professor	Department of Statistics and Actuarial Science, Simon Fraser University
July 1 to December 31	Visiting Scientist (sabbatical)	Deeley Research Centre - BC Cancer

4. MAJOR FIELD(S) of SCHOLARLY or PROFESSIONAL INTEREST

Biostatistics, Statistical Methods for the Analysis of Neuroimaging Data, Bayesian Methods, Variational Bayes, Spatial and Spatiotemporal Data, Statistical Modeling and Computational Methods, Cancer Bioinformatics.

5. EDITORIAL APPOINTMENTS

- Guest Co-Editor, *Statistical Methods in Medical Research* – Special Issue entitled *Spatial Statistics for Neuroimaging*. Published in August 2013.
- Guest Co-Editor: Special Issue of *Entropy* on Big Data Analytics and Information Science for Business and Biomedical Applications, 2019 - 2021.
- Guest Co-Editor, *Canadian Journal of Statistics*, Special Issue on Neuroimaging Data Analysis, 2019 - 2021.
- Guest Co-Editor: Special Issue of *Entropy* on Big Data Analytics and Information Science for Business and Biomedical Applications, Volume II, 2021 – 2023; Volume III, 2023.
- Associate Editor, *Canadian Journal of Statistics*, 2016 – 2019; 2019 – 2022; 2022 – 2025.
- Topic Editor: *Entropy*, 2021 - 2023.

- Review Editor, Frontiers in Neuroinformatics, 2023 – Present.
- Guest Co-Editor for Special Topic Issue of *Frontiers in Neuroinformatics* (2023) "Emerging Trends in Large-Scale Data Analysis for Neuroscience Research".

6. RESEARCH GRANTS and FELLOWSHIPS

a. Operating grants

Agency	Title	Grant holders	Years	Amount awarded or requested
University of Victoria	Start-up grant	Farouk S. Nathoo	2006	$30,000
NSERC	Discovery Grant	Farouk S. Nathoo	2006-2009	$12,000 per annum, 3 years
NSERC	Discovery Grant	Farouk S. Nathoo	2009-2014	$16,000 per annum, 5 years
GEOIDE	Strategic Investment Initiative	Bill Reed and Farouk S. Nathoo	2009-2012	$20,000 per annum, 3 years
NSERC	Tier 2 Canada Research Chair	Farouk S. Nathoo	2013-2018	$100,000 per annum, 5 years
NSERC	Tier 2 Canada Research Chair (Renewed)	Farouk S. Nathoo	2018-2023	$100,000 per annum, 5 years
NSERC	Discovery Grant	Farouk S. Nathoo	2014 - 2019	$14,000 per annum, 5 years
NSERC	Engage Grant	Farouk S. Nathoo	2015	$20,000
NSERC	Engage Grant	Farouk S. Nathoo	2015	$25,000
CANSSI	Collaborative Research Team (CRT)	Farouk S. Nathoo and Linglong Kong (CRT co-leaders)	2016-2019	$180,000
Island Health	Seed Grant	Co-PI: Christine Lee and Kennard Tan; Co-Investigators: Farouk Nathoo and Peter Kim	2016	$5,000
Island Health	Collaborative Grant	Co-PI: Christine Lee and Farouk Nathoo; five Co-Investigators	2016	$15,000
University of Victoria	Internal Research Grant	Farouk Nathoo	2017	$7,000
IDRC and NRF	South Africa - Canada Research Chairs Mobility Initiative	Farouk Nathoo and Andries Engelbrecht	2017 - 2019	$40,000 (CRC share is 50%)

CANSSI	Health Sciences Collaborating Centre	PI: Mary Lesperance; Co-Investigators: Farouk Nathoo and two others	2017-2020	$10,000
MITACS	Accelerate (project with BPI INC.)	Farouk S. Nathoo (Internship for PhD Student Yin Song)	2018	$30,000
MITACS	Accelerate (project with FIND Innovation Labs)	Farouk S. Nathoo (Internship for PhD Student Shan Shi; External Project PI is Sandy Rutherford)	2019	$17,500
NSERC	Discovery Grant	Farouk S. Nathoo	2020 - 2025	$31,000 per annum, 5 years
CIHR	Project Grant	Brad Nelson (Principal Applicant) and Farouk Nathoo (Co-Applicant)	2023 - 2028	$196,605 per annum, 5 years

b. Infrastructure grants

Agency	Equipment	Grant holders	Start	Amount awarded or requested
NSERC	Computing Cluster	With Julie Zhou and seven others	2007	$80,900
NSERC	Computing Equipment	With Mary Lesperance and seven others	2009	$71,100

c. Workshop grants

Agency	Title	Grant holders	Start	Amount awarded or requested
CANSSI	Workshop grant HDDA-VI	Ejaz Ahmed and Farouk S. Nathoo	2016	$10,000
NSF	Workshop grant (UVic Applied Topology and High-Dimensional Data	Ryan Budney, S. Ejaz Ahmed, Farouk S. Nathoo	2015	$10,000

	Workshop)			
PIMS	Workshop grant (GEOMED 2011)	Farouk S. Nathoo and C.B. Dean	2011	$15,000
MITACS	Workshop grant (GEOMED 2011)	Farouk S. Nathoo and C.B. Dean	2011	$10,000
GEOIDE	Workshop grant (GEOMED 2011)	Farouk S. Nathoo and C.B. Dean	2011	$4,050

c. Honours, fellowships, and scholarships

Date	**Details**
2018	Tier 2 Canada Research Chair in Biostatistics Renewal (2018-2023; total value of 500K)
2013	Tier 2 Canada Research Chair in Biostatistics (2013-2018; total value of 500K)
2015	Graduate Student Advisee Honor: Co-advisor (with M. Lesperance) for 2015 Statistical Society of Canada Student Conference CANSSI-sponsored Best Paper Award Winner Keelin Greenlaw. This award was based on Greenlaw's MSc research.
2012	Graduate Student Advisee Honor: Advisor for Statistical Society of Canada Student Research Presentation Award Winner, Salimah Ismail. This award was based on Ismail's MSc research where I was sole supervisor.
2008	Graduate Student Advisee Honor: Advisor for International Environmetrics Society Best Poster Award Winner, Yolanda Li. This award was based on Li's MSc research where I was sole supervisor.
2004 to 2005	GEOIDE PhD Research Scholarship
2002 to 2004	Simon Fraser University Graduate Fellowship
2000	Ontario Graduate Scholarship
1999	University of Waterloo, Outstanding Academic Performance Award. Awarded for the highest standing obtained during the first year of the Statistics Masters program.
1999	University of Waterloo, Mathematics Faculty Graduate Scholarship
1998	University of Waterloo, Graduate Entrance Scholarship
1998	University of British Columbia, Nash Medal in Statistics. Awarded upon graduation for the highest standing obtained in the undergraduate Statistics program.

6. PUBLICATIONS and PRESENTATIONS

a. Articles published in refereed journals (list all articles published, accepted for publication, in press, or submitted; include reviews). My HQP are indicated with '*'; other HQP are not indicated.

Books

1. Farouk S. Nathoo and S. Ejaz Ahmed. "Big Data Analytics and Information Science for Business and Biomedical Applications (Co-Edited Book), MDPI Publishing, 2022". ISBN 978-3-0365-3193-9 (Hbk); ISBN 978-3-0365-3192-2 (PDF). https://doi.org/10.3390/books978-3-0365-3192-2. Open Access: https://www.mdpi.com/books/pdfview/book/4975

2. S. Ejaz Ahmed and Farouk S. Nathoo. "Big Data Analytics and Information Science for Business and Biomedical Applications Volume II (Co-Edited Book), MDPI Publishing, 2022".ISBN 978-3-0365-5549-2 (Hbk); ISBN 978-3-0365-5550-8 (PDF). https://doi.org/10.3390/books978-3-0365-5550-8 (registering DOI). Open Access: https://www.mdpi.com/books/pdfview/book/6388

Publications (trainees indicated with *)

51. Nancy Guo*, Aijun Yang*, Fabiha Binte Farooq*, Shreena Kalaria*, Elena Moss, Lindsay DeVorkin, Mary Lesperance, Francois Benard, Don Wilson, Anna V. Tinker, Farouk S. Nathoo, Phineas T. Hamilton, Julian J. Lum. (2023). CD8+ T cell infiltration is associated with improved survival and negatively correlates with hypoxia in clear cell ovarian cancer. ***Scientific Reports***, doi: 10.1038/s41598-023-30655-3.

50. Beaulac*, C., Wu, S., Gibson, E., Cao, J., Miranda, M., Rocha*, L., Beg, M.F., Nathoo, F.S. (2023). Neural Network Disease Classification Based Feature Extraction for Imaging Genetics. ***BMC Bioinformatics***, https://doi.org/10.1186/s12859-023-05394-x.

49. Wei*, Zhengxiao, Farouk S. Nathoo, and Michael EJ Masson. (2023). "Investigating the relationship between the Bayes factor and the separation of credible intervals." ***Psychonomic Bulletin & Review***: DOI: 10.3758/s13423-023-02295-1.

48. L. Barnhardt, F.S.Nathoo, J. Rauw. (2022). Improving Rates of Germline BRCA Mutation Testing for Ovarian Cancer Patients on Vancouver Island, British Columbia, Canada: Implementation of a Local Consenting Seminar- a Quality Improvement Project. ***Journal of Oncology Practice***, DOI: 10.1200/OP.22.00341.

47. Wei*, Z., Yang*, A., Rocha*, L., Miranda, M., Nathoo, F.S. A review of Bayesian hypothesis testing and its practical implementation. ***Entropy*** **2022**, *24*(2), 161; https://doi.org/10.3390/e24020161.

46. Ge, S., Wang, S., Nathoo, F.S., Wang, L. Online Bayesian Learning for Mixtures of Spatial Spline Regressions with Mixed-Effects. ***Journal of Statistical Computation and Simulation***, *https://doi.org/10.1080/00949655.2021.2002329*.

45. Eugene A. Opoku*, Farouk Nathoo, S. Ahmed. Sparse Estimation Strategies in Linear Mixed Effect Models for High-dimensional Data Application (2021) ***Entropy***, DOI: 10.3390/e23101348.

44. Nathoo, F.S. Bayesian Methods for Imaging Genetics. (2021) ***Journal of Brain, Behaviour and Cognitive Sciences***, 4(4),1.

43. Nathoo, F.S., Kong, L., Yi, G.Y. (2021) Special Issue on Neuroimaging data analysis: Guest Editors' Introduction. ***Canadian Journal of Statistics***, https://doi.org/10.1002/cjs.11613.

42. Eugene A. Opoku*, S. Ahmed, Yin Song*, Farouk Nathoo. (2021). Ant Colony System Optimization for Spatiotemporal Modelling of Combined EEG and MEG Data. ***Entropy***, 23(3), 329. *This paper was highlighted on the main page of Entropy as a title story*.

41. *Song, Y., Ge, S., Cao, J., Wang, L., Nathoo, F.S. (2021). A Bayesian Spatial Model for Imaging Genetics. ***Biometrics***. ;1–12. https://doi.org/10.1111/biom.13460 . An R package 'bgsmtr' implementing the methods from this paper is available on CRAN here.

40. Yunlong Nie, *Eugene Opoku, *Laila Yasmin, *Yin Song, John Wang, Sidi Wu, Vanessa Scarapicchia, Jodie Gawryluk, Liangliang Wang, Jiguo Cao, Farouk S. Nathoo. (2020). Spectral Dynamic Causal Modelling of Resting-State fMRI: Relating Effective Brain Connectivity in the Default Mode Network to Genetics. ***Statistical Applications in Genetics and Molecular Biology***, DOI: https://doi.org/10.1515/sagmb-2019-0058.

39. *Opoku, E., Ahmed, E., Nelson, T., Nathoo, F.S. (2020). Parameter and Mixture Component Estimation in Spatial Hidden Markov Models: A Comparative Analysis of Computational Methods. In International Conference on Management Science and Engineering Management (pp. 340-355). Springer, Cham.

38. *Song, Y., Nathoo, F.S., Babul A. (2019), A Potts-Mixture Spatiotemporal Joint Model for Combined MEG and EEG Data. ***Canadian Journal of Statistics***, DOI: 10.1002/cjs.11519.

37. Nathoo, F.S., Kong, L., Zhu, H. (2018). A Review of Statistical Methods in Imaging Genetics. ***Canadian Journal of Statistics***, DOI: 10.1002/cjs.11487.

36. *Teng, M., Nathoo, F.S., Johnson, T.D. (2018). Bayesian Analysis of fMRI data with Spatially-Varying Autoregressive Orders. ***Journal of the Royal Statistical Society: Series C***, DOI https://doi.org/10.1111/rssc.12320.

35. Nathoo, F.S., *Kilshaw, R.E., Masson, M.E.J. (2018). A Better (Bayesian) Interval Estimate for Within-Subject Designs. ***Journal of Mathematical Psychology***, https://doi.org/10.1016/j.jmp.2018.07.005.

34. *Teng, M., Johnson, T.D., Nathoo, F.S. (2018). Time Series Analysis of fMRI Data: Spatial Modeling and Bayesian Computation. ***Statistics in Medicine***, DOI: 10.1002/sim.7680.

33. *Shi S. and Nathoo, F.S., Feature Learning and Classification in Neuroimaging: Predicting Cognitive Impairment from Magnetic Resonance Imaging (2018). ***Proceedings of the 4th International Conference on Big Data and Information Analytics***.

32. *Greenlaw, K., Szefer, E., Graham, J., Lesperance, M.L., Nathoo, F.S. (2017). A Bayesian Group Sparse Mutli-Task Regression Model for Imaging Genetics. ***Bioinformatics***, DOI: 10.1093/bioinformatics/btx215. An R package '*bgsmtr*' implementing the methods from this paper is available on CRAN here.

31. Szefer, E., Lu, D., Nathoo, F.S., M.F. Beg, Graham, J., (2017). Multivariate association between single-nucleotide polymorphisms in Alzgene linkage regions and structural changes in the brain: discovery, refinement and validation. ***Statistical Applications in Genetics and Molecular Biology***, DOI: https://doi.org/10.1515/sagmb-2016-0077.

30. *Teng, M., Nathoo, F.S., Johnson, T.D. (2017). Bayesian Computation for Log Gaussian Cox Processes: A Comparative Analysis of Methods. ***Journal of Statistical Computation and Simulation***, DOI: 10.1080/00949655.2017.1326117.

29. Bourbonnais ML, Nelson TA, Stenhouse GB, Wulder MA, White JC, Hobart GW,Hermosilla T, Coops NC, Nathoo F.S., Darimont C. (2017). Characterizing spatial-temporal patterns of landscape disturbance and recovery in western Alberta, Canada using a functional data analysis approach. ***Ecological Informatics***, DOI: 10.1016/j.ecoinf.2017.04.010.

28. *Song, Y., Nathoo, F.S., Masson, M.E.J. (2017). A Bayesian approach to the mixed effects analysis of repeated measures accuracy studies. ***Journal of Memory and Language***, DOI: 10.1016/j.jml.2017.05.002. *In 2017 this paper appeared on the list of 'Most Downloaded Journal of Memory and Language Articles.*

27. Moss, A., Juarez-Colunga, E., Nathoo, F.S., Wagner, B., Sagel, S. (2016) Comparison of Change Point Models: A Simulation and Case Study in Modeling Lung Function in Children with Cystic Fibrosis. ***Statistics in Medicine***, DOI: 10.1002/sim.6845.

26. *Croteau, N., Nathoo, F.S., Cao, J., Budney, R. (2016) High-dimensional classification for brain decoding. ***Big and Complex Data Analysis: Statistical Methodologies and Applications***, *Springer, Edited Volume*.

25. Nathoo, F.S., *Greenlaw, K., Lesperance, M.L. (2016). Regularization parameter selection for a Bayesian multi-level group lasso regression model with application to imaging genomics. ***Pattern Recognition in Neuroimaging (PRNI), 2016 International Workshop on. IEEE***, *2016*. DOI: 10.1109/PRNI.2016.7552328.

24. Lesperance, M.L., *Sabelnykova V., Nathoo F.S., Lau, F., Downing, G.M. (2015) A Joint Model for Interval-Censored Functional Decline Trajectories Under Informative Observation. ***Statistics in Medicine***, DOI: 10.1002/sim.6582.

23. Nathoo, F.S. and Masson, E.J. M. (2015), Bayesian Alternatives to Null-Hypothesis Significance Testing for Repeated Measures Designs. ***Journal of Mathematical Psychology***, http://dx.doi.org/10.1016/j.jmp.2015.03.003. *As of September, 2015, this paper is on the list of 'Most Downloaded Journal of Mathematical Psychology Articles'*. This paper is also one of the most cited **one of the most cited *Journal of Mathematical Psychology* articles** (most cited articles published since 2015). The list of most cited articles is here.

22. Fitterer, J., Nelson, T.A., and Nathoo, F.S. (2014). Predictive crime mapping. ***Police Practice and Research***, DOI: 10.1080/15614263.2014.972618.

21. Robertson, C., Long, J.A., Nathoo, F.S., Nelson, T.A., and Plouffe, C.C.F. (2014). Assessing quality of spatial models using the structural similarity index and posterior predictive checks. ***Geographical Analysis***, 46, 53-74.

20. Nathoo, F.S. and Babul, A. (2014), Statistical Modeling of Electromagnetic Neuroimaging data (invited note). ***Notes of the Canadian Mathematical Society***, 46, no 2, 13-14.

19. Nathoo, F.S., Babul, A., Moiseev, A. Virji-Babul, N., Beg, M.F. (2013). A Variational Bayes Spatiotemporal Model for Electromagnetic Brain Mapping. ***Biometrics***, DOI: 10.1111/biom.12126.

18. Long, JA, Nelson, TA, Nathoo, F.S. (2013). Towards a kinetic based probabilistic time geography. ***International Journal of Geographical Information Science***. DOI: 10.1080/13658816.2013.818151.

17. Nathoo, F.S., Lawson, A.B., Dean, C.B. (2012). Guest editors' introduction to the special issue on spatial statistics for neuroimaging. ***Statistical Methods in Medical Research***, DOI: 10.1177/0962280212448971.

16. Nathoo, F.S., Lesperance, M.L., Lawson, A.B., Dean, C.B. (2012). "Comparing Variational Bayes with Markov Chain Monte Carlo for Bayesian Computation in Neuroimaging." ***Statistical Methods in Medical Research***, DOI: 10.1177/0962280212448973.

15. *Ismail, S., Sun, W., Nathoo, F.S., Babul, A., Moiseev, A., Beg, M.F. Virji-Babul, N. (2012). "A Skew-t Space-Varying Regression Model for the Spectral Analysis of Resting State Brain Activity." ***Statistical Methods in Medical Research***, DOI: 10.1177/0962280212448974.

14. Nathoo, F.S., and Ghosh, P. (2012). "Skew-Elliptical Spatial Random Effect Modeling for Areal Data with Application to Mapping Health Utilization Rates." ***Statistics in Medicine***, DOI: 10.1002/sim.5504.

13. Long, J.A., Robertson, C., Nathoo, F.S., and Nelson, T.A. (2012). "A Bayesian Space-Time Model for Discrete Spread Processes on a Lattice." ***Spatial and Spatio-Temporal Epidemiology***, DOI: 10.1016/j.sste.2012.04.008.

12. Morrison, K.T., Nelson, T.A., Nathoo, F.S., Ostry A.S. (2011). "Application of Bayesian spatial smoothing models to assess agricultural self-sufficiency." ***International Journal of Geographical Information Science***, DOI:10.1080/13658816.2011.633491.

11. Robertson, C., Sawford, K., Gunawardena, S., Nelson, T.A., Nathoo, F.S., Stephen, C. (2011). "A hidden Markov model for analysis of frontline veterinary data for emerging zoonotic disease surveillance." ***PLoS ONE*** 6(9): e24833. doi:10.1371/journal.pone.0024833.

10. Swartz, T. B., Tennakoon, A., Nathoo, F.S., Tsao, M., *Sarohia, P. (2011). "Playoff Series: Psychological Ups and Downs." ***Journal of Quantitative Analysis in Sports***, Vol. 7: Iss. 4, Article 3. DOI: 10.2202/1559-0410.1372.

9. Virji-Babul, N., Watt, K., Nathoo, F.S. and Johnson, P (2011). "Dynamic facial expression recognition in Down syndrome." ***Physical and Occupational Therapy in Pediatrics***, DOI: 10.3109/01942638.2011.653626.

8. Ghosh, P., Nathoo F.S., Gonenn, M., and Tiwari, R.C. (2010). "Assessing noninferiority in a three-arm trial using the Bayesian approach." ***Statistics in Medicine***, 30, 1795-1808.

7. Nathoo, F.S. (2010). "Joint spatial modeling of recurrent infection and growth with processes under intermittent observation." ***Biometrics***, 66, 336-346.

6. Nathoo, F.S. (2010). "Space-time regression modeling of tree growth using the skew-t distribution." ***Environmetrics***, DOI: 10.1002/env.1057.

5. Nathoo, F.S. and Dean, C.B. (2008). "Spatial multi-state transitional models for longitudinal event data." ***Biometrics***, 64, 271-279.

4. Dean, C.B., Nathoo, F.S. and Nielson, J.D. (2007). "Spatial and mixture models for recurrent event processes." ***Enivronmetrics***, 18, 713-725.

3. Nathoo, F.S. and Dean, C.B. (2007). "A mixed mover-stayer model for spatio-temporal two-state processes." ***Biometrics***, 63, 881-891.

2. Nathoo, F.S., Ainsworth, L., Gill, P. and Dean, C.B. (2006). "Codling moth incidence in Okanagan orchards." ***Canadian Journal of Statistics***, 34, 493-530.

1. Nathoo, F.S. and Dean, C.B. (2005). "Spatial multi-state models with application to revascularization intervention in Quebec." ***Geomatica***, 59, 335-343.

b. Other publications

1. **Nathoo, F.S.** 2005. Methods for the analysis of spatio-temporal multi-state processes. Ph.D. Thesis, Department of Statistics and Actuarial Science, Simon Fraser University.
2. **Nathoo, F.S.**, 2000. Identification of cancer risk factors through occupational exposure in British Columbia. MSc. Research paper, Department of Statistics and Actuarial Science, University of Waterloo.
3. **Nathoo, F.S.**, 1998. Modelling NBA playoff outcomes: An application of relevance weighted likelihood theory. Technical Report. Department of Statistics, University of British Columbia.

c. Presentations at conferences or institutions

2024

1. Invited Talk, BIRS Workshop on Censored Covariates, Banff International Research Station
2. Invited Talk, Department of Epidemiology, Biostatistics and Occupational Health, McGill University

2023

1. Invited Talk, Statistics Seminar, Department of Mathematics and Statistics, Carleton University
2. Invited Talk, Session on AI Related Research at UVIC
3. Invited Talk, ISBIS 2023 Satellite Conference, Brock University
4. Invited Talk, Thompson Rivers University, Data Science Seminar
5. Invited Talk, Economics Seminar, Department of Economics, UVIC

2022

1. Invited Talk, The Fifth ICSA-Canada Chapter Symposium, Banff, July 2022
2. Invited Talk, Statistics Conference in Genomics, Pharmaceutical Science, and Health Data Science, UVIC, August 2022
3. Guest lecture, STAT 464 (Statistical Computing), UVIC, Fall 2022. I was invited by the instructor to give a talk to the class on ant colony system optimization.

2021

1. Invited Talk, University of Victoria, Bioinformatics Reading Group
2. Seminar, University of Texas, School of Public Health, February, 2021
3. Seminar, Western University, March, 2021
4. Invited Lecture for Third Grade Students, 'Gumballs: An Introduction to Probability, Prediction and Sampling', Frank Hobbs Elementary School, November, 2021

2020

1. Keynote talk, Precision Health + Data Science Showcase, University of Victoria March, 2020.
2. Invited talk, Joint Statistical Meetings - Virtual Conference, August 2020.
3. Invited talk, Queens University, Department of Mathematics and Statistics Colloquium -Virtual Presentation, October 2020.
4. Invited talk, Virtual Presentation CMStatistics 2020, December 2020.

2019

5. Invited talk, University of Victoria Cognition and Brain Science Seminar, January, 2019.
6. Invited talk, Matrix Institute Seminar Series, University of Victoria, January 2019.
7. Invited talk, BIRS Workshop on Statistical Analysis of Large Administrative Health Databases: Emerging Challenges and Strategies, February 2019.
8. Invited talk, SSC 2019 Meeting, Calgary, Alberta, May, 2019.
9. Invited Discussant, Invited Session 'Making an Impact in Neuroscience: Advances in Statistical Methods for Brain Imaging', Joint Statistical Meetings, Denver Colorado, July, 2019.
10. Invited talk, ICSA-China, in Nainkai University, China, July, 2019.
11. Invited talk, CMStatistics, London, UK, December, 2019.

2018

1. Invited talk, SSC 2018 Meeting, Montreal, Quebec, June 2018.
2. Invited talk, WNAR 2018, Edmonton, Alberta, June 2018.
3. Invited talk, Joint Statistical Meetings, Vancouver, B.C., August 2018.
4. Invited talk, CANSSI Grand Opening Event, Simon Fraser University, December 2018.
5. Nathoo, F. S., Kilshaw, R. E., & Masson, M. E. J. (2018, November). *A Bayesian alternative to within-subject confidence intervals*. Annual meeting of the Psychonomic Society, New Orleans, LA.
6. Invited talk, 4th International Conference on Big Data and Information Analytics, Houston, TX, confirmed for December 2018.

2017

1. Invited talk, CANSSI Workshop on Medical Physics and Statistics, Fields Institute, Toronto, April 2017.
2. Invited talk, SSC 2017 Meeting, Manitoba, Winnipeg, June 2017.
3. Two Invited talks, Les Sixiemes Recontres R, Anglet, France, June 2017.
4. Invited talk, 61st World Statistics Congress, ISI, Marrakech, Morocco, confirmed for July 2017 (presentation subsequently cancelled due to a time conflict with a family event).
5. Invited talk, Joint Statistical Meetings, Baltimore Maryland, August 2017.
6. Invited talk, Brain and Mind Institute, Western University, November 2017.
7. Invited talk, Department of Statistical Science, University of Toronto, November 2017.
8. Invited talk, 'Introduction to Data Science', UVic *Let's Talk Science* program for high-school students, November 2017.

2016

1. Invited talk, BIRS Workshop on Mathematical and Statistical Challenges in Neuroimaging Data Analysis, Banff, Alberta, confirmed for February 2016.
2. Invited talk, ENAR 2016 Spring Meeting, Austin, Texas, March 2016.
3. Invited talk, ISBA 2016 World Meeting, Sardinia, Italy, June 2016.
4. Contributed talk, Workshop on Pattern Recognition and Neuroimaging, Trento, Italy, June 2016.

5. Invited talk, SSC 2016 Meeting, St. Catharines ON, June 2016.
6. Two Invited talks, International Biometric Conference (IBC), Victoria BC, July 2016.
7. Invited talk, Department of Statistics and Actuarial Science, SFU, October 2016.
8. Invited talk, Department of Statistics, UBC, November 2016.
9. Invited talk, Department of Biostatistics, University of Michigan, November 2016.
10. Invited Reading Group Presentation, Department of Biostatistics, University of Michigan, November 2016.
11. Invited talk, Department of Psychology Cognition and Brain Science Seminar, UVic, November 2016.

2015

1. Invited talk, Fields Institute Workshop on complex spatiotemporal data structures: methods and applications, April 2015.
2. Invited talk, Workshop on Imaging, Department of Biostatistics, University of Michigan, May 2015.
3. Invited talk, 2015 Statistical Society of Canada Annual Meeting, Halifax, June.
4. Invited talk, 2015 Society for Applied Research in Memory and Cognition (symposium on Bayesian Data Analysis in Applied Cognitive Contexts), Victoria BC, June 2015.
5. Invited talk, 2015 Joint Statistical Meetings, Seattle, August 2015.
6. Invited talk, PIMS Workshop on Applied Topology and High-Dimensional Data Analysis, Victoria BC, August 2015.

2014

1. Invited Talk, 2014 Statistical Society of Canada Meeting, invited session entitled 'New Methods for Analyzing Brain Imaging Data'.
2. Invited Talk, The 3rd Institute of Mathematical Statistics, Asia Pacific Rim Meeting, topic contributed session entitled 'Statistical Challenges in Big Imaging Data Analysis', July 2014.
3. Invited Talk, Banff International Research Station (BIRS) workshop Perspectives on High-Dimensional Data Analysis IV, August, 2014.
4. Invited talk, Department of Mathematics and Statistics, University of Alberta, November, 2014.
5. Invited talk, Department of Statistics and Actuarial Science, SFU, November, 2014.

2013

1. Invited Talk, Joint Statistical Meetings, Topic contributed session entitled 'Advances in Statistics for Brain Imaging'.
2. Invited Talk, 3rd International Workshop on Perspectives on High-dimensional Data Analysis.
3. Invited Poster Presentation, Banff International Research Station (BIRS) workshop on 'Non-Gaussian Multivariate Statistical Models and their Applications'.

2012

1. Invited Talk, Department of Statistics and Actuarial Science, SFU.
2. Invited Talk, Department of Mathematics and Statistics, UVic.
3. Invited Talk, MITACS Workshop on Mathematics of Brain Imaging, IRMACS, SFU.
4. Invited Talk, The 2nd Institute of Mathematical Statistics Asia Pacific Rim Meeting, Tsukuba, Japan.
5. Invited Talk, ENAR 2012 Spring Meeting, Biometric Society, Eastern North American Region, Washington, DC, USA.
6. Invited Talk, Department of Statistics, UBC.

2011

1. Invited Talk, 7TH GEOMED meeting on Spatial Statistics and Geomedical Systems, Victoria, British Columbia.
2. Contributed Poster (with S. Ismail), 7TH GEOMED meeting on Spatial Statistics and Geomedical Systems, Victoria, British Columbia.
3. Contributed Poster (with A. Argyle), 7TH GEOMED meeting on Spatial Statistics and Geomedical Systems, Victoria, British Columbia.
4. Invited Talk, Conference on statistical modelling of environmental and health data, University of New Brunswick, Fredericton, New Brunswick.

2010

1. Contributed Talk, Joint Statistical Meetings, Vancouver, British Columbia.
2. Invited Talk, Statistical Society of Canada annual meeting, Québec City, Québec.

2009

1. Invited Talk, ICSA Applied Statistics Symposium, San Francisco, California.
2. Invited Panel Discussant: Workshop on Modelling Indirectly of Imprecisely Observed Data, University of Western Ontario.
3. Invited Talk, Workshop on Modelling Indirectly of Imprecisely Observed Data, University of Western Ontario.
4. Invited Talk, GEOMED Conference on Geomedical Systems, Charleston, South Carolina.
5. Invited Talk, Department of Statistics, University of British Columbia.
6. Invited Panel Discussant: Workshop on Emerging Issues in the Analysis of Longitudinal Data, Banff International Research Station (BIRS), Banff, Alberta.
7. Contributed Talk, IMS Annual Meeting of New Researchers in Probability and Statistics, Johns Hopkins University, Baltimore, Maryland.
8. Invited Talk, Department of Mathematics and Statistics, McMaster University.

2008

1. Contributed Talk, International Workshop on Spatio-Temporal Modeling

(METMA4), Sardinia, Italy.
2. Contributed Talk, Joint Statistical Meetings, Denver, Colorado.
3. Contributed Poster (with Y. Li and Steve Taylor), TIES annual meeting, Kelowna, British Columbia. **Winner of the Best Poster Award**.
4. Invited Talk, TIES annual meeting, Kelowna, British Columbia.

2007

1. Invited Talk, Statistical Society of Canada annual meeting, St. John's, Newfoundland.
2. Invited Talk, International Indian Statistical Association, Cochin, India.
3. Invited Talk, Pacific Forestry Centre, Victoria, British Columbia.

2006

1. Invited Talk, Statistical Society of Canada annual meeting, London, Ontario.
2. Invited Talk, BIRS workshop on forests, fires and stochastic modelling, Banff International Research Station.

2005

1. Invited Talk, WNAR/IMS annual meeting, Fairbanks, Alaska.
2. Contributed Talk, Statistical Society of Canada annual meeting, Saskatoon, Saskatchewan.
3. Invited Talk, NPCDS workshop on forest fires and point processes, The Fields Institute, University of Toronto.
4. Invited Talk, Centre for Health and Environment Research, University of British Columbia.
5. Invited Talk, Department of Mathematics and Statistics, University of Victoria.
6. Invited Talk (with C.B. Dean), Joint UBC/SFU statistics seminar, Simon Fraser University.
7. Contributed Poster, GEOIDE annual conference, Québec City, Québec.

2004

1. Contributed Poster, GEOIDE annual conference, Gatineau, Québec.
2. Invited Talk (with T. Niyonsenga), Strategic workshop on geomatics and public health, GEOIDE annual conference, Gatineau, Québec.

7. SERVICE and PROFESSIONAL ACTIVITIES

- President, Business and Industrial Statistics Section of the Statistical Society of Canada, 2023-2024.
- President-Elect, Business and Industrial Statistics Section of the Statistical Society of Canada, 2022-2023.
- Member of the Board of Directors of the Canadian Statistical Sciences Institute, 2018 - 2021. Member of the Executive Committee of the Canadian Statistical Sciences Institute, 2019-2020. Second term on the Board of Directors 2021 - 2024.

- Grant Selection Panel: Committee Member of NSERC Mathematics and Statistics Evaluation Group (EG 1508), 2016-2019.
- Member of the Pierre Robillard Award Committee, Statistical Society of Canada, 2020-2022.
- External Reviewer for a Tenure and Promotion Case at Simon Fraser University, Department of Statistics and Actuarial Science, 2018.
- External Reviewer for a Tenure Case at The University of Texas Health Science Center at Houston (UTHealth) School of Public Health, 2019.
- External Reviewer for a Promotion to Full Professor case at HEC Montreal, 2021.
- External Reviewer for a Tenure and Promotion Case at the University of Alberta, 2022.
- External Reviewer for a Tenure and Promotion Case at Brock University, 2022.
- External Reviewer for a Tenure and Promotion Case at Simon Fraser University, Department of Statistics and Actuarial Science, 2024.

a. University and Faculty Service

- Chair Search Committee, Department of Mathematics and Statistics, Faculty of Science 2019, 2023
- Faculty mentor for a new assistant professor hired in Mathematics and Statistics, 2019
- Appointments and Reappointments Committee, Department of Mathematics and Statistics, Faculty of Science 2018-2019
- Poster Judge, Faculty of Science Honoursfest, 2019
- Mathematics and Statistics representative on the Faculty of Science Committee for Curriculum/ Academic Standards, 2013-2015
- Poster Judge, Faculty of Science Honoursfest, 2013
- Chair of M.A. examination committee, The Faculty of Human and Social Development, 2008
- Chair of MASc examination committee, The Department of Mechanical Engineering, 2011
- Chair of M.A. examination committee, Department of Germanic and Italian Studies, 2020
- Chair of PhD examination committee, Department of Electrical Engineering, 2021
- Inaugural Aspiration Postdoctoral Fellowship Review Committee, 2022
- Chair of MSc examination committee, Department of Computer Science, 2022
- Chair of MSc examination committee, Department of Mathematics and Statistics, 2023

b. Departmental committees and responsibilities

- **Math Biology Competition Selection Committee**, 2006

- **Committee to review and revise the departmental 10-year-plan**, 2007

- **Departmental Computing Cluster**, 2007: I participated in establishing the Euler cluster, a high performance computing cluster that is used for computationally intensive research within the department.

- **Department Safety Coordinator** (jointly with two Staff members), 2008, 2009, 2010, 2011, 2012

- **Department Space Committee**, July 2020 to present

- **Graduate Student Guidelines Document**: With three other members of the Statistics Group, we have drafted a document entitled "The Statistics Graduate Program – Guidelines for New Students" which will be given to all new graduate students in Statistics, starting September 2010.

- **Replacement for MSc thesis defence**, 2010: Served as a stand-in (for Professor William Reed) during the MSc thesis defence for Stanley Wong.

- **Departmental Review Document, 2010/2011**: Served on a team of three faculty members that was responsible for writing the section of the Departmental Review Document covering our Graduate Programs.

- **Statistics Transfer Credit**: June 2006 to December 2006; June 2008 to August 2008; March 2010 to June 2012, 2017, 2023 - Present

- **Ph.D. Comprehensive Exam (Applied Statistics)**, 2008, 2011, 2014, 2021.

- **Ph.D. Comprehensive Exam (Statistical Theory),** 2015, 2017, 2020, 2021, 2023.

- **Department Committee for Promotion and Tenure**, July 2011 – June 2012

- **Department Curriculum Committee,** Jan 2012 to June 2012

- **Chair of the Department Curriculum Committee,** July 2013 to June 2015

- **Organizer and Chair of the Statistics Seminar Series**, 2007, 2008, 2009, 2010, 2013, 2014 (inactive in Fall 2014), 2017, 2019, 2020, 2022

- **Member of Department Graduate Committee (for statistics)**, July 2015 – June 2016, July 2020 to present (exclusive of 6 month study leave in 2021)

- **Member of Ad Hoc Hiring Plan Committee** charged with updating the department hiring plan, 2019

- **Member of the Department Standard Committee** charged with putting together department standards document for teaching, research and service, 2020

- **Department Committee for Promotion and Tenure,** 2022 – 2023

- **Department Committee for EDI,** 2023 - Present

c. Membership and service on international, national and provincial professional bodies and societies

- Member of The Statistical Society of Canada

d. Conference organisation (indicate position in organisation)

- **2023 CMStatistics Conference:** Organizer for an invited session on spatial transcriptomics data analysis.

- **2023 SSC Conference:** Organizer for an invited session on high-dimensional inference at the Statistical Society of Canada Meeting, Carleton University

- **2023:** Organizer for an invited session on machine learning/deep learning at ISBIS 2023 Satellite Conference, Brock University. I am also a member of the **Scientific Program Committee** for this conference.

- **2021 Scientific Program Committee:** 2021 CMStatistics Conference (I also organized an invited session on imaging statistics)

- **2020 Steering Committee:** The Tenth International Conference and Workshop on High Dimensional Data Analysis (ICW-HDDA-X).

- **2020 CMStatistics Conference:** Organizer for an invited session Recent developments in imaging data analysis.

- **2019 CMStatistics Conference:** Organizer for an invited session in imaging genetics.

- **2019 Joint Statistical Meetings:** Organizer and Discussant for an invited session 'Making an Impact in Neuroscience: Advances in Statistical Methods for Brain Imaging'.

- **2019 Statistical Society of Canada Annual Meeting:** Organizer of an invited session 'A Showcase of Student Research from the CANSSI CRT: Joint Analysis of Neuroimaging Data: High-Dimensional Problems, Spatiotemporal Models and Computation.

- **2017 Statistical Society of Canada Annual Meeting:** Co-organizer (with Kong) of an invited session on neuroimaging data analysis showcasing work from our CANSSI Collaborative Research Team.

- **2017 The 7th International Workshop on the Perspectives on High-Dimensional Data Analysis:** Member of the organizing committee (5-day workshop at CMAT,

Guanajuato, Mexico).

- **2017 Annual Meeting of the Organization for Human Brain Mapping (OHBM):** Member of the local organizing committee.

- **2017 Statistical Society of Canada Annual Meeting:** Co-organizer of an invited session on neuroimaging data analysis.

- **2016 The 6th International Workshop on the Perspectives on High-Dimensional Data Analysis:** Member of organizing committee (3-day workshop at the Fields Institute, May 25-27).

- **2016 BIRS Workshop on Mathematical and Statistical Challenges in Neuroimaging Data Analysis:** Member of organizing committee (5-day workshop Jan. 31 – Feb. 6).

- **2016 Statistical Society of Canada Annual Meeting:** Co-organizer of an invited session titled: 'Imaging Genomics – A New Frontier for Statistical Methodology'.

- **2015 UVic Workshop on Applied Topology and High-Dimensional Data Analysis:** Program Co-Chair (with S. Ejaz Ahmed and Ryan Budney)

- **2015 Workshop on Imaging, Department of Biostatistics, University of Michigan:** Organizer of an invited session titled 'High-Dimensional Data Analysis for Neuroimaging'.

- **2015 Statistical Society of Canada Annual Meeting:** Organizer of an invited session titled: 'Big Data and Neuroimaging'.

- **2013 International Workshop on Perspectives on High-dimensional Data Analysis:** Member of the local organizing committee.

- **2013 Joint Statistical Meetings:** Co-organizer of a topic-contributed session entitled 'Advances in Statistics for Brain Imaging'.

- **2013 Statistical Society of Canada Annual Meeting:** Organizer of an invited session entitled 'High Dimensional Data Analysis for Brain Imaging'.

- **GEOMED 2011, Victoria, BC:** Program Co-Chair.

e. Grant proposals reviewed (include site visits)

- Project Reviewer for CIHR Project Grant Competition, Fall 2016 (I was invited but eventually assigned no grants to review).
- Grant Selection Panel: CIHR Catalyst Grant, Peer Review Committee Member, 2013
- Reviewer for the NSERC Discovery Grant Program, 2007, 2008, 2010, 2012, 2013, 2015

- Reviewer for the Canadian Foundation for Innovation (CFI) 2009
- Reviewer for McGill Healthy Brains for Healthy Lives (HBHL) Innovative Ideas program, 2019
- Reviewer for 2019 New Frontiers in Research (NFRF) Exploration competition.
- Reviewer for 2020 CANSSI Collaborative Research Team Letter of Intent
- Reviewer for the Western Research Chair Program (Western University), 2020
- Reviewer for Mitacs Accelerate Program, 2021
- Reviewer for Canada Research Chairs program, 2017, 2021, 2022, 2023
- Reviewer for BIRS, two workshop proposals in 2023

f. Reviews for journals, book reviews, published commentaries

- Referee for *Journal of the American Statistical Association*, 2013, 2015, 2017, 2018, 2021, 2023
- Referee for *American Journal of Biostatistics*, 2015
- Referee for *Biometrics*, 2006, 2011, 2013, 2014, 2015, 2016, 2017, 2018, 2020, 2021 (two papers), 2022, 2023
- Referee for *Behavior Research Methods*, 2020, 2021, 2023
- Referee for *Bioinformatics*, 2018 (two papers), 2020
- Referee for *Brain and Behavior*, 2015
- Referee for *Chaos, Solitons and Fractals*, 2018
- Referee for *Computational Statistics and Data Analysis*, 2018
- Referee for *Communications in Statistics – Theory and Methods*, 2019
- Referee for *Statistics in Medicine,* 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2018, 2019, 2020,2023
- Referee for *Ecology*, 2015
- Referee for *Educational and Psychological Measurement*, 2015
- Referee for *Environmental and Ecological Statistics*, 2013
- Referee for *Environmetrics*, 2011, 2012
- Referee for *Econometrics and Statistics*, 2018
- Referee for *Entropy*, 2020
- Referee for the *Canadian Journal of Statistics,* 2006, 2008, 2011, 2017, 2021(three papers)
- Referee for *Statistical Methods in Medical Research*, 2012
- Referee for *Epidemiology,* 2009
- Referee for *the Journal of the Royal Statistical Society Series C*, 2010, 2023
- Referee for *Computational Statistics and Data Analysis,* 2010, 2012
- Referee for *Theoretical Population Biology*, 2011
- Referee for *Geographical Analysis*, 2014
- Referee for *Genetic Epidemiology*, 2021
- Referee for *Journal of Probability and Statistics*, 2011
- Referee for *Journal of Agricultural, Biological, and Environmental Statistics*, 2012
- Referee for *Journal of Quantitative Analysis in Sports*, 2016
- Referee for *Human Brain Mapping*, 2016, 2018
- Referee for *Journal of Selected Topics in Signal Processing*, 2016
- Referee for *Inverse Problems in Science and Engineering*, 2016
- Referee for *Statistics in Biosciences, 2017*
- Referee for *Statistics and Its Interface*, 2020

- Referee for *Nature Scientific Reports*, 2021, 2022
- Referee for *Neuroimage*, 2018 (two papers), 2020, 2022

UNIVERSITY OF VICTORIA - TEACHING DOSSIER

Last Update: January, 2024

Name: Farouk S. Nathoo
Faculty: Science
Department: Mathematics and Statistics

STUDENT SUPERVISION (students I have directly supervised or co-supervised; all students are under sole supervision unless explicitly noted otherwise)

Undergraduate:

Name	**Research Topic**	**Year Completed (First or last known position)**
Robyn Bates *(Co-supervised with Bill Reed)*	An exploration of Bayesian methods for the generalized normal-Laplace distribution	2006 (PhD student, University of Utah, Salt Lake City)
Philip Rempel	Exploring model misspecification and robustness in joint models for longitudinal and survival data.	2007 (Graduate Student, McGill University)
Eric Cormier	Exploring Markov models for longitudinal binary data	2009 (Assistant Teaching Professor, Mathematics and Statistics, UVic)
Elena Szefer	Statistical Approaches for Combining Group Analysis and Registration of MR Images	2012 (Biostatistician, The EMMES Corporation)
Robin Spilette (*Co-supervised with Naznin-Virji Babul*)	Graph Theoretic Analysis of EEG Data	2014 (Law Student, University of Toronto)
Robyn Kilshaw (*Co-supervised with Mike Masson*)	Bayesian Within-Subject Credible Intervals for Repeated Measures Designs	2018 (PhD student, University of Utah, Salt Lake City)

Cole Sibbald, Co-supervised with Nishant Mehta	Differential Privacy Techniques in Stacked Generalization	2020

Graduate MSc:

Name	**Research Topic**	**Year Completed**
Hong Li	Spatio-temporal modeling of fire frequency and severity from panel data.	2008 (Statistician, Health Canada)
AijunYang	Modeling survival after myocardial infarction using accelerated failure time models and space-varying regression.	2009 (Statistician, Health Canada)
Parminder Sarohia	A study of desperation in sport.	2010 (Actuarial Position, Mercer, Vancouver)
Salimah Ismail	Mixed model and space-varying regression analysis of MEG brain signals.	2012 (TV Production Masters Candidate, Boston University, College of Communication)
Susan Kinniburgh	Spatial and Network models for the spread of raccoon rabies.	2012 (Regular Faculty Member, Mathematics and Statistics, Camosun College)
Veronica Sabelnykova (*Co-supervised with M. Lesperance*)	Bayesian Methods for Joint Modeling of Survival and Longitudinal Data: Applications and Computing	2012 (Statistician, Ontario Institute for Cancer Research)
Priya Grewal	Spatial smoothing and ecological regression analysis of low birth weight in British Columbia.	2012 (unknown)

Keelin Greenlaw (*Co-supervised with Mary Lesperance*)	Bayesian methods for imaging genomics.	2015 (Statistician, Lady Davis Institute for Medical Research, Montreal)
Nicole Croteau	Persistent homology for MEG/EEG classification with application to brain decoding.	2015 (Statistical Consultant, UVic Statistical Consulting Centre)
Nancy Guo	Spatial Analysis of the Tumor Microenvirnment	2021 (Senior Data Scientist at NielsenIQ, Shanghai)
Zhengxiao Wei	Bayesian Within-Subject Inference for Repeated Measures Designs	2022 (Research Associate, UVIC)
Ziyi Lyu	Relating Bayes factors and highest density intervals for regression coefficients in generalized linear models	2023
Fabiha Binte Farooq	External student from Economics working as an RA on a cancer imaging study (I am not the formal supervisor for her degree in economics)	2021 (PhD student, Simon Fraser University)
Shreena Kalaria (Co-supervised with Brad Nelson)	Patterns of Tumour and Immune System Adaptation and Function in Ovarian Cancer: Creating Gene Expression Maps with Spatial Transcriptomics and Spatial Statistics	In Progress
Flora Liu, *Co-supervised with Brad Nelson*	Statistical Inference on Heavy/Light Chain Pairing for B Cell Clonal Families	In Progress
Farbod Esmaeili (*interim supervisor*)	TBD	In Progress

<u>Graduate PhD:</u>

Name	**Research Topic**	**Year Completed**

Angus Argyle	Species Richness Estimation	2012 (Statistician, Statistics Canada, Ottawa)
Ming Teng (*University of Michigan, co-supervised with Tim Johnson*)	Bayesian Computation for Spatial Data and Neuroimaging Data	2017 (Statistician, Morgan Stanley, New York)
Yin Song	Methods for Neuroimaging Data Analysis and Cognitive Science	2019 (Data Scientist, Tutela, Vancouver)
Eugene Opoku (*Co-supervised with Ejaz Ahmed*)	Methods for Neuroimaging Data and High-Dimensional Data	2021 (Methodologist, Statistics Canada)
Aijun Yang (*Co-supervised with Julian Lum*)	Methods for Spatial Transcriptomics and Cancer Research	In Progress
Yasaman Shahhoseni (Co-supervised with Michelle Miranda)	Integration of cortical surface fMRI and MEG to estimate brain functional connectivity with application to the Human Connectome Project	In Progress
Shibai Zhang (Co-supervised with Mark Lewis)	Fitting Stochastic Differential Equation Models to Animal Movement Data	In Progress

<u>Postdoctoral Fellow:</u>

Name	**Research Topic**	**Year Completed**
Li Xing	Regression for Longitudinal Analysis in Imaging Genetics with Bayesian Shrinkage Priors	2019 (Assistant Professor, Mathematics and Statistics, University of Saskatchewan)
Cedric	Neural Networks and Imaging	2021 (Assistant Professor,

Beaulac (Co-supervised with Jiguo Cao and Faisal Beg)	Genetics	L'Université du Québec à Montréal)

Membership on graduate student supervisory committees

Student	Degree	Type of Contribution	Year Degree Awarded
Fan Wu	MSc – Statistics	Supervisory Committee	2008
Karen Li	MSc – Statistics	Supervisory Committee	2009
Tracy Chen	MSc – Statistics	Supervisory Committee	2009
Ryan Stone	MSc – Statistics	Supervisory Committee	2013
Emily Malcom	MSc - Statistics	Supervisory Committee	2014
Simon Odense	MSc - Mathematics	Supervisory Committee	2015
Yan Xu	MSc - Statistics	Supervisory Committee	2017
Colin Robertson	PhD – Geography	Supervisory Committee	2011
Jed Long	PhD – Geography	Supervisory Committee	2013
Amanmeet Garg	PhD – Biomedical Engineering (SFU)	Supervisory Committee	2017
Victor Huang	PhD - Economics	Supervisory Committee	2016
Akina Umemoto	PhD - Neuroscience	Supervisory Committee	2016
Mathieu Bourbonnais	PhD – Geography	Supervisory Committee	2018
Cory Shankman	PhD – Physics and Astronomy	Supervisory Committee	2017
Yue Yin	PhD – Statistics	Supervisory Committee	2017
Fan Wu	PhD – Statistics	Supervisory Committee	2015
Kaitlan Fallow	PhD - Psychology	Supervisory Committee	2021
Eric Mah	MA - Psychology	Supervisory	In Progress

		Committee	
Hamza Iseric	MSc – Computer Science	Supervisory Committee	2021
JianPing Yu	MSc - Statistics	Supervisory Committee	2023
Ranjit Sohal	MSc - Mathematics	Supervisory Committee	2023
Mansoureh Jalilkhany	MSc – Computer Science	Supervisory Committee	2022

d. External Examiner on graduate examination committees

Student	**Degree**	**Type of Contribution**	**Year Degree Awarded**
Colin Robertson	MSc - Geography	External Examiner	2007
Christy Lightowlers	MSc – Geography	External Examiner	2007
Khalif Halani	MSc – Statistics (SFU)	External Examiner	2016
Matthew Joyce	MA - Economics	External Examiner	2017
Maximilian Rabe	MSc - Psychology	External Examiner	2018
Jeffrey Daniel	PhD - Statistics (Guelph)	External Examiner	2019
Lahiru Wickramasingh	PhD - Statistics (University of Manitoba)	External Examiner	2021
Fangya Mao	PhD – Statistics (University of Waterloo)	External Examiner	2022

- I mentored a team of two students participating in the SSC 2023 Case Studies in Data Analysis competition: '*Understanding how Canada's economy might be impacted by climate change*'.
- I co-mentored a team of two students who won the SSC 2022 Case Studies in Data Analysis competition: '*Developing a physician performance model in critical care – Assessing quality and value*'.
- I mentored a team of two students who won the SSC 2009 Case Studies in Data Analysis competition: '*The effects of climate growth on lodgepole pine*'.

TEACHING EXPERIENCE

a. Undergraduate and Graduate Courses Taught

Year	Course	Code	Hours/Week	Term	# of Students
2006	Int. to Prob. Stat. I	Stat 260	3	Spring	69
2006	Time Series	Stat 457/554	3	Spring	9
2006	Int. to Prob. Stat. I	Stat 260	3	Fall	81
2007	Int. to Prob. Stat. I	Stat 260	3	Spring	87
2007	Spatial Statistics	Stat 454/556	3	Spring	4
2007	Bayesian Statistics	Stat 454/556	3	Fall	11
2007	Int. to Prob. Stat. I	Stat 260	3	Fall	87
2008	Int. to Prob. Stat. I	Stat 260	3	Spring	90
2008	Statistical Computing	Stat 454/556	3	Spring	7
2008	Int. to Prob. Stat. I	Stat 260	3	Fall	66
2008	Bayesian Statistics	Stat 454/556	3	Fall	6
2009	Int. to Prob. Stat. I	Stat 260	3	Fall	83
2009	Generalized Linear Models	Stat 458/568	3	Fall	4
2010	Spatial Statistics	Stat 454/556	3	Spring	3
2010	Data Analysis	Stat 359/563	3	Spring	14
2010	Bayesian Statistics	Stat 454/556	3	Fall	11
2010	Mathematical Statistics I	Stat 350	3	Fall	20
2011	Data Analysis	Stat 359/563	3	Spring	19
2011	Int. to Prob. Stat. I	Stat 260	3	Spring	74
2011	Generalized Linear Models	Stat 458/568	3	Fall	9
2012	Statistics for Business	Stat 252	3	Spring	80
2012	Data Analysis	Stat 359/563	3	Spring	15
2013	Bayesian Statistics	Stat 454/556	3	Spring	10

2013	Data Analysis	Stat 359/563	3	Spring	20
2013	Time Series	Stat 457/554	3	Fall	25
2014	Data Analysis	Stat 359/563	3	Spring	20
2014	Bayesian Theory	Stat 556	3	Spring	4
2015	Data Analysis	Stat 359/563	3	Spring	24
2015	Bayesian Statistics	Stat 454/556	3	Spring	9
2015	Data Analysis	Stat 359/563	3	Fall	24
2015	Time Series	Stat 457/554	3	Fall	15
2017	Int. to Prob. Stat. I	Stat 260	3	Spring	116
2018	Stochastic Processes	Math 452/ Stat 552	3	Fall	23
2018	Bayesian Statistics	Stat 460/560	3	Fall	11

b. Directed Studies

Year	Course	Code	Hours/Week	Term	Student
2010	Bayesian Statistics	Biol 550B	3	Spring	Katleen Roberts (Biology)
2014	Bayesian Theory	Stat 454/556	NA	Spring	Several students in Math and Statistics
2020	Directed Studies with emphasis on Stacking	Stat 498	NA	Summer	Cole Sibbald

SUMMARY of STUDENT EVALUATIONS of TEACHING

a. Evaluations 2006 to 2008 Spring

		Scores (means) based on a 5-point scale:							
Course	**Year**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**N**
STAT 260	2006 Spring	4.17	3.10	3.53	4.10	3.66	3.77	2.80	30
STAT 260	2006 Fall	4.10	2.98	3.76	3.95	3.48	3.51	2.79	42
STAT 260	2007 Spring	4.37	3.71	3.92	4.32	4.14	4.00	3.45	38

STAT 260	2007 Fall	4.32	3.44	3.93	4.07	3.76	4.09	3.18	56
STAT 260	2008 Spring	3.69	2.76	3.00	3.46	3.39	3.50	2.62	41
STAT 457/554 Time Series	2006 Spring	4.17	4.33	4.33	4.67	4.50	4.17	4.50	6
STAT 454/556 Spatial Statistics	2007 Spring	4.60	4.60	5.00	5.00	5.00	4.80	4.80	5
STAT 454/556 Bayesian Statistics	2007 Fall	4.82	4.73	4.27	4.73	4.64	4.91	4.82	11
STAT 454/556 Stat. Computing	2008 Spring	5.00	5.00	4.50	5.00	4.75	5.00	5.00	4

Questions:
1. The instructor's organization and presentation.
2. The instructor's ability to stimulate your interest.
3. The fairness of exams, assignments.
4. The instructors concern and respect for students.
5. The instructor's availability and helpfulness outside of lecture time.
6. The instructor's overall performance & effectiveness.
7. The course, independent of the effectiveness of the instructor.

b. Evaluations from Fall 2008

		Scores (means) based on a 5-point scale:								
Course	**Year**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**N**
STAT 260	2008 Fall	4.53	3.84	3.50	3.86	3.79	3.47	4.37	4.13	38
STAT 260	2009 Fall	4.47	3.87	3.37	3.97	3.89	3.81	4.38	4.00	38
STAT 260	2011 Spring	4.38	3.60	3.25	3.92	3.98	3.29	3.67	3.74	55
STAT 252	2012 Spring	4.29	3.59	3.88	4.25	4.24	3.53	4.12	4.12	17
STAT 454/556 Bayesian Statistics	2008 Fall	4.43	3.88	4.29	3.88	4.29	3.88	4.63	4.25	8
STAT 454/556 Bayesian Statistics	2013 Spring	4.44	4.44	4.22	4.55	3.78	3.88	4.67	4.56	9
STAT 458/568 Gen. Linear Models	2009 Fall	5.00	5.00	4.50	4.50	4.50	4.50	5.00	5.00	3
STAT 458/568 Gen. Linear Models	2011 Fall	4.56	4.78	4.67	4.56	4.11	4.56	4.78	4.44	9
STAT 454/556 Spatial Statistics	2010 Spring	5.00	5.00	5.00	4.50	5.00	4.50	4.50	5.00	2

STAT 359/563 Data Analysis*	2010 Spring	4.62	4.00	4.31	4.69	4.76	4.38	4.77	4.61	13
STAT 359/563 Data Analysis*	2011 Spring	4.56	4.56	4.68	4.79	4.78	4.57	4.91	4.79	9
STAT 359/563 Data Analysis*	2012 Spring	4.86	4.50	4.43	4.62	4.50	4.31	4.64	4.71	14
STAT 359/563	2013 Spring	4.58	4.17	4.17	4.75	4.42	4.25	4.67	4.42	12
STAT 457/554	2013 Fall	4.37	4.00	3.89	4.00	3.50	3.61	4.39	4.00	25
Stat 359/563	2014 Spring	4.44	3.83	3.18	3.88	3.41	3.18	4.35	4	15
Stat 359/563	2015 Spring	4.15	4	3.69	4	3.46	3.62	4.38	4	13
Stat 454/556	2015 Spring	4	4	4.5	4.5	3	3.5	5	4.5	2
Stat 359/563	2015 Fall	4.55	3.91	4.18	4.55	3.55	3.82	4.64	4.27	11
Stat 457/554	2015 Fall	4.43	3.86	4.29	4.14	4.14	4.14	4.57	4.14	7
Stat 260	2017 Spring	3.76	3.42	3.19	3.91	3.37	3.42	4.21	3.56	43
Stat 460	2018 Fall	4.25	3.00	3.25	4.25	3.75	3.25	4.50	3.25	4
Math 452	2018 Fall	3.56	3.11	2.78	3.89	3.67	3.22	4.11	3.44	9

*STAT 563 is a course for graduate students outside the Department of Mathematics and Statistics

Statement

1. The instructor was prepared for course sessions
2. The instructor's explanations of concepts were clear
3. The instructor motivated you to learn in this course
4. Instructor was available to answer questions or provide assistance
5. Inst. ensured that assign./tests were returned within reasonable time.
6. Inst. was helpful in providing feedback to improve learning in course
7. The instructor demonstrated respect for students and their ideas
8. Overall, the instructor was effective in this course

Response Scale

1 Very Poor 2 Poor 3 Adequate 4 Good 5 Excellent

EXPERIENCE in CURRICULUM and COURSE DEVELOPMENT, and in

INNOVATIVE TEACHING

1. TIME SERIES ANALYSIS 554

This is an introductory course covering the analysis of time series data aimed at beginning graduate students in statistics. Course notes were developed, typeset using LaTeX, and placed on the web for students to access.

Topics covered: *stochastic difference equation models, concepts of stationarity, autocorrelation function, periodogram, ARMA models, Linear processes, autocovariance generating functions, stationarity and invertibility, Yule-Walker equations, partial autocorrelation function; ARIMA models, three forms of the model, MMSE forecasts, three forms of forecast, updating, eventual forecast function, ARIMA and exponential smoothing, Identification techniques using acf and pacf, initial estimates, model multiplicity, Likelihood, conditional likelihood and least squares, unconditional likelihood and back forecasting, nonlinear estimation, exact likelihood computation, large sample information matrices, diagnostic checks, seasonal models, Kalman Filtering*

Textbook: Statistical Methods for Forecasting; By B. Abraham and J. Ledolter; John Wiley, 1983

2. SPATIAL STATISTICS 556

This is a course covering introductory and advanced topics in spatial statistics aimed at beginning graduate students in statistics. Course notes were developed, typeset using LaTeX, and placed on the web for students to access. At the time of first offering, this was a **new course to the University of Victoria**.

Topics Covered: Overview of spatial data problems, Basics of point referenced data models, Basics of areal data models, Bayesian inference and computing, Hierarchical Modeling for univariate spatial data, Bayesian kriging, disease mapping, Spatial misalignment , Multivariate spatial modeling, Spatio-temporal modeling

Textbook: Hierarchical Modeling and Analysis for Spatial Data; By Sudipto Banerjee, Bradley P. Carlin and Alan E. Gelfand; Chapman and Hall/CRC, 2003

3. BAYESIAN INFERENCE 556

This is an introductory course in Bayesian inference and data analysis. The course is aimed at graduate students in statistics; however, is attended by both students and faculty from other departments. Graduate students in Biology, Economics and Geography have all taken this course. In addition, a faculty member from Biology, and another from Geography have attended the course as well. Course notes were developed, typeset using LaTeX, and placed on the web for students to access. At the time of first offering, this was a **new course to the University of Victoria**.

Topics Covered: *Setting up a probability model; Bayes rule, posterior moments; Univariate models; noninformative prior distributions; Multiparameter models; large samples and comparison to non-Bayesian methods; hierarchical models; Bayesian computation; model checking and model selection*

Textbook: Bayesian Data Analysis 2nd Edition; By Andrew Gelman, John B. Carlin, Hal S. Stern and Donald B. Rubin; Chapman and Hall/CRC, 2004.

4. STATISTICAL COMPUTING 556

This course provides an introduction to stochastic simulation with a focus on the theory and practice of Markov chain Monte Carlo. The course is aimed at graduate students in statistics and, in addition to these students, has also been attended by a graduate student in applied mathematics. This type of statistical computing course was a **new course to the University of Victoria**.

Topics covered: *Stochastic simulation (basics, rejection sampling, weighted resampling, adaptive rejection sampling); Review of Bayesian inference (prior and posterior distributions and the integration problem); Markov chains (stationary distributions, limiting theorems, reversible chains, continuous state spaces, simulation of a Markov chain, data augmentation); Gibbs sampling (definition and properties, implementation and optimization, convergence diagnostics); Metropolis-Hastings algorithms (definition and properties, special cases, hybrid algorithms, convergence acceleration); Applications*

Textbook: Markov Chain Monte Carlo: Stochastic Simulation for Bayesian Inference. 2nd Edition; By Dani Gamerman and Hedibert F. Lopes; Chapman and Hall/CRC, 2006.

5. GENERALIZED LINEAR MODELS 568

This course introduces students to the theory of generalized linear models. Attention is directed mainly towards regression methods for binary, categorical, and count data, although the generalized linear model is discussed in its full generality for responses arising from the exponential family of distributions. The intended audience consists of beginning graduate and advanced undergraduate students in statistics.

Topics covered: *Review of likelihood inference; Basic methods for the analysis of contingency tables; Binomial regression models; Generalized linear models; Binomial regression models with different link functions; Poisson regression models; Models for cross-classified data; Markov models for longitudinal binary data; Bayesian methods and hierarchical generalized linear models*
Textbook: Dobson AJ: An Introduction to Generalized Linear Models, Third Edition, Chapman and Hall, 2008.

PROFESSIONAL DEVELOPMENT in TEACHING and LEARNING

- **Learning and Teaching Centre, University of Victoria**, 2009: Participated in the workshop entitled "The Art and Craft of Teaching the Large Class".

- **Learning and Teaching Centre, University of Victoria**, 2009: Participated in the workshop entitled "Developing Your Teaching Dossier".