

# NIKOLA SURJANOVIC

Updated February 13, 2025

## PROFILE

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PhD candidate in Statistics at the University of British Columbia. Research interests include probabilistic machine learning and scalable Bayesian inference. Recipient of the Vanier Canada Graduate Scholarship and the Governor General’s Academic Medal.

## EDUCATION

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**University of British Columbia, Vancouver, BC, Canada** *2021/9 - Present*

PhD in Statistics - 4.33 CGPA (out of 4.33)

Supervisors: Professors Alexandre Bouchard-Côté and Trevor Campbell

Supervisory Committee: Professors Tamara Broderick (MIT) and Geoff Pleiss (UBC)

**Simon Fraser University, Burnaby, BC, Canada** *2019/9 - 2021/5*

Master of Science in Statistics - 4.30 CGPA (out of 4.33)

Supervisor: Professor Thomas M. Loughin

**Simon Fraser University, Burnaby, BC, Canada** *2015/9 - 2019/9*

B.Sc., Major in Statistics (Minor in Mathematics) - 4.33 CGPA (out of 4.33)

## PUBLICATIONS AND SOFTWARE

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\* **Equal contribution**

### SUBMITTED FOR REVIEW

T. Liu, **N. Surjanovic**, M. Biron-Lattes, A. Bouchard-Côté, T. Campbell. “AutoStep: Locally adaptive involutive MCMC.” Available at arXiv:2410.18929.

**N. Surjanovic**, S. Syed, T. Campbell, A. Bouchard-Côté. “Uniform ergodicity of parallel tempering with efficient local exploration.” Available at arXiv:2405.11384.

**N. Surjanovic**, A. Henrey, T. Loughin. “Alpha-trimming: Locally adaptive tree pruning for random forests.” Available at arXiv:2408.07151.

### BOOK CHAPTERS

A. Bouchard-Côté, T. Campbell, G. Pleiss, **N. Surjanovic**. “MCMC-driven learning.” To appear as Chapter 17 of the Handbook of Markov Chain Monte Carlo. Available at arXiv:2402.09598.

### PAPERS

W. Thompson, D. Blakely, . . . , **N. Surjanovic**, . . . , T. Winterhalder. “On the orbit of the binary brown dwarf companion GL229 Ba and Bb.” The Astronomical Journal, 2025.

S. Luu, Z. Xu, **N. Surjanovic**, M. Biron-Lattes, T. Campbell, A. Bouchard-Côté. “Is Gibbs sampling faster than Hamiltonian Monte Carlo on GLMs?” International Conference on Artificial Intelligence and Statistics, 2025.

**N. Surjanovic**, M. Biron-Lattes, P. Tiede, S. Syed, T. Campbell, A. Bouchard-Côté. “Pigeons.jl: Distributed sampling from intractable distributions.” Proceedings of the 2023 JuliaCon Conference, 2024.

M. Biron-Lattes\*, **N. Surjanovic\***, S. Syed, T. Campbell, A. Bouchard-Côté. “autoMALA: Locally adaptive Metropolis-adjusted Langevin algorithm.” International Conference on Artificial Intelligence and Statistics, 2024.

**N. Surjanovic**, R. Lockhart, T. Loughin. “A generalized Hosmer–Lemeshow goodness-of-fit test for a family of generalized linear models.” TEST, 2023.

**N. Surjanovic**, T. Loughin. “Improving the Hosmer–Lemeshow goodness-of-fit test.” Journal of Applied Statistics, 2023.

**N. Surjanovic**, S. Syed, A. Bouchard-Côté, T. Campbell. “Parallel tempering with a variational reference.” Advances in Neural Information Processing Systems, 2022.

K. Houghton, M. McPherson, **N. Surjanovic**, T. Loughin, et al. “Development and validation of the Kids Disability Screen for children with juvenile idiopathic arthritis: results from the CAPRI Registry.” Rheumatology (Oxford), 2022.

#### THESES

**N. Surjanovic**. “An efficient approach to pruning regression trees using a modified Bayesian information criterion.” Simon Fraser University Summit Research Repository, 2021.

#### SOFTWARE

autoMALA: Locally adaptive Metropolis-adjusted Langevin algorithm  
(<https://github.com/Julia-Tempering/Pigeons.jl/blob/main/src/explorers/AutoMALA.jl>)

Pigeons.jl: Distributed sampling from intractable distributions  
(<https://github.com/Julia-Tempering/Pigeons.jl>)

goodGLM: A generalized Hosmer–Lemeshow goodness-of-fit test for a family of generalized linear models (<https://github.com/nikola-sur/goodGLM>)

#### RELEVANT WORK EXPERIENCE

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**Applied Scientist Intern** 2025/6 - 2025/9  
*Amazon*

Amazon Supply Chain Optimization Technologies (SCOT) team in Bellevue, WA.

**Teaching Assistant** 2025/1 - 2025/4  
*Department of Statistics, University of British Columbia*

Head TA for STAT 447C: Bayesian Statistics

**Research Assistant** 2021/10 - Present  
*Department of Statistics, University of British Columbia*

**Research Assistant** 2019/9 - 2021/8  
*Department of Statistics and Actuarial Science, Simon Fraser University*

**Teaching Assistant** 2020/5 - 2020/8, 2021/1 - 2021/4  
*Department of Statistics and Actuarial Science, Simon Fraser University*  
STAT 302: Analysis of Experimental and Observational Data  
STAT 300W: Statistics Communication

**Research Assistant (NSERC USRA)** 2018/5 - 2018/8  
*Department of Statistics and Actuarial Science, Simon Fraser University*

**Teaching Assistant**

2018/1 - 2018/4

*Department of Statistics and Actuarial Science, Simon Fraser University*  
Statistics Workshop: Several statistics courses

**Research Assistant (NSERC USRA)**

2017/5 - 2017/8

*Department of Statistics and Actuarial Science, Simon Fraser University*

**TALKS AND POSTERS**

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## INVITED TALKS

- 2025 SFU Department of Statistics and Actuarial Science Seminar Series  
Scalable, automated, and reliable: The next era of Bayesian inference  
*Simon Fraser University, Burnaby, BC, CAN*
- 2024 Seminar on Advances in Probabilistic Machine Learning  
Software and MCMC methods for sampling from complex distributions  
*Online: Aalto University and ELLIS Unit (Helsinki)*
- 2023 Harvard Center for Astrophysics Seminar  
Pigeons.jl: Distributed sampling from intractable distributions  
*Harvard University, Cambridge, MA, USA*
- 2023 Dr. Tamara Broderick's Reading Group  
Parallel tempering with a variational reference  
*Online: Massachusetts Institute of Technology, Cambridge, MA, USA*
- 2023 Bayes Comp  
Parallel tempering with a variational reference  
*Levi, Lapland, Finland*
- 2022 October CoSInES Seminar (Computational Statistical Inference for Engineering and Security)  
Parallel tempering with a variational reference  
*Online: Collaboration between the University of Oxford, the Alan Turing Institute, and others*

## CONTRIBUTED PRESENTATIONS

- 2024 UBC BIOL 447 Guest Lecture: The Role of Statistics in Research  
*Vancouver, BC, Canada*
- 2024 UBC Vancouver Summer Program Guest Lecture: Dynamic Documents  
*Vancouver, BC, Canada*
- 2024 UBC STAT 447C Bayesian Statistics Guest Lecture: Modern Inference Techniques  
*Vancouver, BC, Canada*
- 2024 Annual Meeting of the Statistical Society of Canada  
Geometric ergodicity of parallel tempering with efficient local exploration  
*St. John's, NL, Canada*
- 2024 Canadian Statistics Student Conference  
autoMALA: Locally adaptive Metropolis-adjusted Langevin algorithm  
*St. John's, NL, Canada*
- 2024 International Society for Bayesian Analysis (ISBA) World Meeting  
Geometric ergodicity of parallel tempering with efficient local exploration (poster presentation)  
*Venice, Veneto, Italy*

- 2024 Bayesian Young Statisticians Meeting (BAYSM)  
autoMALA: Locally adaptive Metropolis-adjusted Langevin algorithm (poster presentation)  
*Venice, Veneto, Italy*
- 2023 UBC/SFU Joint Seminar  
Geometric ergodicity of parallel tempering with efficient local exploration  
*Vancouver, BC, Canada*
- 2023 CANSSI Showcase  
Geometric ergodicity of parallel tempering with efficient local exploration  
*Online*
- 2023 Bayesian Young Statisticians Meeting (BAYSM)  
Geometric ergodicity of parallel tempering with efficient local exploration  
*Online*
- 2023 JuliaCon  
Pigeons.jl: Distributed sampling from intractable distributions  
*Massachusetts Institute of Technology, Cambridge, MA, USA*
- 2023 IRSA Conference  
Geometric ergodicity of parallel tempering with efficient local exploration  
*University of Minnesota, Minneapolis, MN, USA*
- 2022 Advances in Neural Information Processing Systems  
Parallel tempering with a variational reference (poster presentation)  
*New Orleans, LA, USA*
- 2022 Annual Meeting of the Western North American Region of the International Biometric Society  
Parallel tempering with a variational reference  
*Online*
- 2022 Bayesian, Fiducial & Frequentist Conference  
Parallel tempering with a variational reference (poster presentation)  
*Online*
- 2022 Annual Meeting of the Statistical Society of Canada  
Parallel tempering with a variational reference  
*Online*
- 2022 UBC/SFU Joint Statistics Seminar  
Music theory: Mathematical results and curiosities  
*Online*
- 2021 Joint Statistical Meetings  
A modified Bayesian information criterion for improving the performance of tree-based learning algorithms without the use of cross-validation  
*Online*
- 2021 Annual Meeting of the Statistical Society of Canada  
A modified Bayesian information criterion for improving the performance of tree-based learning algorithms without the use of cross-validation  
*Online*
- 2021 UBC/SFU Joint Statistics Seminar  
Using information criteria to improve the performance of tree-based learning algorithms without the

use of cross-validation

*Online*

- 2020 Canadian Statistics Student Conference  
A generalized Hosmer–Lemeshow goodness-of-fit test for a family of generalized linear models (poster presentation)  
*Online*
- 2020 SFU Business Analytics Hackathon  
Predicting default risk to ensure positive word-of-mouth: “Mortgage Direct” case study  
*Online*
- 2020 Case Studies in Data Analysis Competition, Annual Meeting of the Statistical Society of Canada  
Predicting hourly residential electricity demand in ontario using signal separation approaches and autoregressive models (poster)  
*Online*
- 2020 UBC/SFU Joint Statistics Seminar  
A generalized Hosmer–Lemeshow goodness-of-fit test for a family of generalized linear models  
*Vancouver, BC, Canada*
- 2019 Canadian Statistics Student Conference  
Improving the Hosmer–Lemeshow goodness-of-fit test (poster presentation)  
*Calgary, AB, Canada*
- 2018 SFU Science Undergraduate Research Journal Undergraduate Poster Competition  
Improving the Hosmer–Lemeshow goodness-of-fit test (poster presentation)  
*Vancouver, BC, Canada*
- 2018 Vancouver Sports Analytics Symposium and Hackathon  
Golden players: Perfect crosses  
*Vancouver, BC, Canada*
- 2018 Joint Statistical Meetings  
Improving the Hosmer–Lemeshow goodness-of-fit test  
*Vancouver, BC, Canada*
- 2017 SFU Business Analytics Hackathon  
Netflix’s \$1,000,000 model and customer retention at Grocery Consolidators  
*Vancouver, BC, Canada*

## AWARDS AND RECOGNITIONS

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### MAJOR AWARDS

- 2023 Oracle for Research Cloud Credits - >100,000 (CAD)  
*Awarded for Pigeons.jl: “Fast, Distributed Bayesian Inference for Everyone.” Joint application with Alexandre Bouchard-Côté, Trevor Campbell, Saifuddin Syed, Paul Tiede, and Miguel Biron-Lattes.*
- 2021 Vanier Canada Graduate Scholarship (PhD) - 150,000 (CAD)
- 2021 Four Year Doctoral Fellowship - up to 18,200 (CAD) per year  
*Note: Declined from Fall 2021 - Summer 2024, accepted in Fall 2024*
- 2021 NSERC Canada Graduate Scholarship (PhD) - 105,000 (CAD)  
*Note: Declined*
- 2020 Governor General’s Academic Medal (Undergraduate)

- 2019 NSERC Alexander Graham Bell Canada Graduate Scholarship (Master's) - 17,500 (CAD)
- 2018 NSERC Undergraduate Student Research Award - 4,500 (CAD)
- 2017 NSERC Undergraduate Student Research Award - 4,500 (CAD)
- 2015 Simon Fraser Major Entrance Scholarship - 34,000 (CAD)

#### OTHER AWARDS AND RECOGNITIONS

- 2024 j-ISBA Newsletter Paper Spotlight
- 2024 ISBA World Meeting Poster Award
- 2024 UBC Graduate Student Travel Award - 500 (CAD)
- 2024 President's Academic Excellence Initiative PhD Award - 795 (CAD)
- 2024 SSC Student Research Presentation Award Nominee
- 2024 Faculty of Science PhD Tuition Award - 1,839 (CAD)
- 2024 UBC Department of Statistics Award in Data Science - 1,000 (CAD)
- 2024 ISBA World Meeting Travel Award - 800 (USD)
- 2024 Canadian Statistics Student Conference Travel Award - 300 (CAD)
- 2023 Instructional Skills Workshop Certificate  
*The Instructional Skills Workshop is an internationally recognized teaching workshop.*
- 2023 President's Academic Excellence Initiative PhD Award - 1,215 (CAD)
- 2023 Faculty of Science PhD Tuition Award - 5,408 (CAD)
- 2023 JuliaCon Travel Award - 750 (USD)
- 2023 IRSA Conference Travel Award - 600 (USD)  
*Provided by the Institute for Research in Statistics and its Applications*
- 2023 ISBA/Bayes Comp Travel Grant - 400 (USD)
- 2022 NeurIPS Scholar Award
- 2022 Student of the Month (December), Students and Recent Graduates Committee of the Statistical Society of Canada
- 2022 President's Academic Excellence Initiative PhD Award - 1,410 (CAD)
- 2022 Faculty of Science PhD Tuition Award - 5,301 (CAD)
- 2021 Faculty of Science Graduate Award - 4,000 (CAD)
- 2021 Faculty of Science PhD Tuition Award - 3,465 (CAD)
- 2021 President's Academic Excellence Initiative PhD Award - 900 (CAD)
- 2021 Statistical Society of Canada Annual Meeting Student Grant - 50 (CAD)
- 2021 Randy Sitter Annual Graduate Scholarship - 3,700 (CAD)
- 2021 Partial Graduate Fellowship - 3,500 (CAD)
- 2020 Partial Graduate Fellowship - 3,250 (CAD)

- 2020 Student Travel Award, Statistical Society of Canada Annual Meeting - 500 (CAD)  
*The in-person conference was cancelled, and therefore an award payment was not made.*
- 2020 2nd Place Graduate Poster Presentation Award (Master's Level), Canadian Statistics Student Conference - 250 (CAD)
- 2019 Best Undergraduate Poster, Canadian Statistics Student Conference - 200 (CAD)
- 2019 Summer President's Honour Roll, Simon Fraser University
- 2019 Undergraduate Open Scholarship, Simon Fraser University - 1,320 (CAD)
- 2019 Department of Statistics and Actuarial Science Endowment Award, Simon Fraser University - 1,200 (CAD)
- 2019 Spring President's Honour Roll, Simon Fraser University
- 2018 Spring President's Honour Roll, Simon Fraser University
- 2018 Fall President's Honour Roll, Simon Fraser University
- 2018 Poster Competition Award, SFU Science Undergraduate Research Journal
- 2017 Spring President's Honour Roll, Simon Fraser University
- 2017 Fall President's Honour Roll, Simon Fraser University
- 2017 First Place Team, SFU Business Analytics Hackathon - 350 (CAD)
- 2016 Fall President's Honour Roll, Simon Fraser University
- 2016 McEwen Family Teacher Recognition Award (Student Nominator) - 250 (CAD)
- 2016 Department of Statistics and Actuarial Science Academic Merit Award, Simon Fraser University - 600 (CAD)
- 2015 Graduation Program Examinations Scholarship (Secondary School), Government of British Columbia - 1,000 (CAD)
- 2015 Governor General's Academic Medal (Secondary School Level)
- 2015 University of Toronto National Book Award
- 2015 Schulich Leader Nominee

## PROFESSIONAL ACTIVITIES

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### MENTORING & SUPERVISION

*Informal supervisory roles in the form of weekly/bi-weekly meetings with the students.*

- Tiange (Ivy) Liu  
Master's student. Supervisor: Dr. Trevor Campbell
- Yujia Ma  
Undergraduate student. Supervisors: Dr. Alexandre Bouchard-Côté and Dr. Trevor Campbell
- Lucas Wong  
Undergraduate student. Supervisor: Dr. Alexandre Bouchard-Côté

### ORGANIZING & SCIENTIFIC COMMITTEE

- Co-Organizer: van Eeden Seminar, University of British Columbia *2024/9 - Present*
- Committee Member: Student and Recent Graduate Committee, Statistical Society of Canada (Co-lead of EDI Subcommittee) *2024/7 - Present*
- Executive: UBC Statistics Graduate Student Association *2021/9 - Present*
- Co-Organizer: van Eeden Seminar, University of British Columbia *2023/9 - 2024/4*
- Co-Chair: Student Committee, Western North American Region of the International Biometric Society *2021/5 - 2023/6*
- Co-Organizer: Journal Club, Western North American Region of the International Biometric Society *2022/3 - 2023/6*
- Co-Organizer: 2022-2023 UBC/SFU Joint Statistics Seminar *2022/9 - 2023/3*
- Session Chair (Missing Data, Causal Inference, and New Algorithms for Differential Equations): 2022 Annual Meeting of the Statistical Society of Canada *2022/6 - 2022/6*
- Organizing Committee Member and Judge (Computational Methods): 2022 Canadian Statistics Student Conference *2021/9 - 2022/5*
- Organizing Committee Member and Session Chair (Biostatistics): 2021 Canadian Statistics Student Conference *2020/9 - 2021/6*
- President: Departmental Graduate Caucus *2020/9 - 2021/4*
- Co-Organizer: 2020-2021 UBC/SFU Joint Statistics Seminar *2020/9 - 2021/3*
- Member: Awards Creation Committee, Western North American Region of the International Biometric Society *2020/12 - 2021/2*
- Co-Organizer: Probability Theory Reading Group *2019/9 - 2019/12*
- Industry Partnership Coordinator: BC Undergraduate Mathematics and Statistics Conference *2018/9 - 2019/4*
- Co-Organizer: SFU Math Circles *2018/10 - 2019/4*

#### REVIEWING

- Artificial Intelligence and Statistics (AISTATS) 2025
- Journal of Machine Learning Research (JMLR) 2024
- Artificial Intelligence and Statistics (AISTATS) 2024
- Paper review for “BAYSM 2022 — Bayesian Statistics, New Generations New Approaches”
- Journal of the American Statistical Association 2023
- Artificial Intelligence and Statistics (AISTATS) 2022 — On behalf of Dr. Alexandre Bouchard-Côté

#### VOLUNTEERING AND COMMUNITY INVOLVEMENT

- Peer Mentor: Junior Section of the International Society for Bayesian Analysis (j-ISBA) *2024/10 - Present*
- Webmaster: UBC Statistics Graduate Student Association *2021/9 - Present*



- Representative: Student and Recent Graduate Committee of the Statistical Society of Canada *2020/4 - Present*
- Presenter: UBC Statistics Info Session at the 2024 CSSC Conference *2024/6 - 2024/6*
- Case Study Judge: 2024 Annual Meeting of the Statistical Society of Canada *2024/6 - 2024/6*
- Presenter: 2021 SFU Department of Statistics and Actuarial Science Convocation Ceremony *2021/6 - 2021/6*
- Social Events Coordinator: SFU Concert Orchestra *2020/9 - 2021/4*
- Presenter: SFU Department of Statistics and Actuarial Science Convocation Ceremony *2020/6 - 2020/6*
- Secretary and Social Events Team Member: Departmental Graduate Caucus *2019/9 - 2020/8*
- Interviewee: External Review Committee (Department of Statistics and Actuarial Science at SFU) *2020/3 - 2020/3*
- Coordinator: Departmental Squash League *2019/9 - 2020/3*
- Violinist: SFU Concert Orchestra *2019/1 - 2020/3*
- Presenter: PIMS Diversity in Math Camp *2019/8 - 2019/8*
- Volunteer: Cascadia Symposium on Statistics in Sports *2018/8 - 2018/8*
- Secretary: Statistics and Actuarial Science Student Association (SASSA) *2017/9 - 2018/8*
- Math Peer Tutor *2017/9 - 2017/12*
- Volunteer: Statistics and Actuarial Sciences Day *2017/11 - 2017/11*
- Major Entrance Scholarship Social Representative *2017/9 - 2017/9*
- Departmental Representative: Statistics and Actuarial Science Student Association (SASSA) *2017/1 - 2017/8*
- Marketing Director: Statistics and Actuarial Science Student Association (SASSA) *2016/9 - 2017/8*
- Webmaster: Statistics and Actuarial Science Student Association (SASSA) *2016/1 - 2017/8*
- 7 Minute Majors Program Representative *2017/2 - 2017/2*
- Math Peer Tutor *2016/9 - 2016/12*
- Input Provider: Faculty of Science Student Recruitment and Admissions *2016/7 - 2016/7*
- Student Mentor: Major Entrance Scholarship Reception *2016/4 - 2016/4*
- Volunteer: SFU Research Open House *2015/11 - 2015/11*