

Kevin McGregor — Curriculum Vitae

CONTACT INFORMATION Ross N636 - York University 416-736-2100 x33776
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WEBSITE <http://www.kevmcgregor.com>

RESEARCH INTERESTS Statistical genetics, Bayesian statistics, compositional data, analysis of microbiome data, epigenomics, high-dimensional data

LANGUAGES SPOKEN English, French

EMPLOYMENT **Assistant Professor** January 2021 -
Department of Mathematics and Statistics,
York University, Toronto, Ontario
Visiting Academic May 2019 - August 2019
Division of Microbiology and Infection,
Warwick Medical School
Supervisors: Christopher Quince, Ph.D. and Todd Parsons, Ph.D.
Undergraduate Research Assistant May 2011 - August 2013
Department of Mathematics and Statistics,
University of Saskatchewan
Supervisors: Christine Soteros, Ph.D. and Michael Szafron, Ph.D.

EDUCATION **McGill University**, Montréal, QC

Ph.D., Biostatistics, February 2021

- Thesis Topic: *Bayesian community modelling in microbiome data*
- Supervisors: Celia M.T. Greenwood, Ph.D. and Aurélie Labbe, Ph.D.

M.Sc., Biostatistics, November 2015

- Topic: *Methods for estimating changes in DNA methylation in the presence of cell type heterogeneity*
- Supervisors: Aurélie Labbe, Ph.D. and Celia M.T. Greenwood, Ph.D.

University of Saskatchewan, Saskatoon, SK

B.Sc. (Hons), Statistics, June 2013

- *Graduated with high honours*

PUBLICATIONS 1. **McGregor, Kevin**, Aurélie Labbe, Celia MT Greenwood, Todd Parsons, and Christopher Quince. "Microbial community modelling and diversity estimation using the hierarchical Pitman-Yor process." *Submitted to The Annals of Applied Statistics*, Mar 2022.

2. **McGregor, Kevin**, Aurélie Labbe, and Celia MT Greenwood. "MDiNE: a model to estimate differential co-occurrence networks in microbiome studies." *Bioinformatics* 36.6 (2020): 1840-1847.

3. Thaler, Lea, Sarah Brassard, Linda Booij, Esther Kahan, **Kevin McGregor**, Aurélie Labbe, Mimi Israel, and Howard Steiger. "Methylation of the OXTR gene in women with anorexia nervosa: Relationship to social behavior." *European Eating Disorders Review* 28, no. 1 (2020): 79-86.

4. Jeyakumar, Thiviya, Nassima Fodil, Lauren Van Der Kraak, Charles Meunier, Romain Cayrol, **Kevin McGregor**, David Langlais, Celia MT Greenwood, Nicole Beauchemin, and Philippe Gros. "Inactivation of interferon Regulatory Factor 1 Causes Susceptibility to Colitis-Associated colorectal cancer." *Scientific Reports* 9, no. 1 (2019): 1-13.
5. Jeyakumar, Thiviya, Nassima Fodil, Lauren Van Der Kraak, Charles Meunier, Romain Cayrol, **Kevin McGregor**, David Langlais, Celia Greenwood, Nicole Beauchemin, and Philippe Gros. "P145 INACTIVATION OF IRF1 CAUSES SUSCEPTIBILITY TO COLITIS-ASSOCIATED COLORECTAL CANCER." *Gastroenterology* 156, no. 3 (2019): S96.
6. LaRusso, Kathryn, Geraldine Schaack, Tiffany Fung, **Kevin McGregor**, Justin Long, Marie-Pier Dumas, Zahia Attari et al. "Should you Pick the PICC? Prolonged Use of Peripherally Inserted Central Venous Catheters in Children with Intestinal Failure." *Journal of Pediatric Surgery* (2019).
7. Steiger, Howard, Linda Booij, Esther Kahan, **Kevin McGregor**, Lea Thaler, Emilie Fletcher, Aurelie Labbe et al. "A longitudinal, epigenome-wide study of DNA methylation in anorexia nervosa: results in actively ill, partially weight-restored, long-term remitted and non-eating-disordered women." *Journal of psychiatry & neuroscience: JPN* 44, no. 3 (2019): 205.
8. Arabzadeh, Azadeh, **Kevin McGregor**, Valérie Breton, Lauren Van Der Kraak, Uri David Akavia, Celia MT Greenwood, and Nicole Beauchemin. "EPHA2 signaling is impacted by carcinoembryonic antigen cell adhesion molecule 1-L expression in colorectal cancer liver metastasis in a cell context-dependent manner." *Oncotarget* 8, no. 61 (2017): 104330.
9. **Kevin McGregor**, Sasha Bernatsky, Ines Colmegna, Marie Hudson, Tomi Pastinen, Aurélie Labbe, Celia MT Greenwood (2016). An evaluation of methods correcting for cell type heterogeneity in DNA methylation studies. *Genome Biology*, 2016 17(84).
10. Azadeh Arabzadeh, Jeremy Dupaul-Chicoine, Valérie Breton, Sina Haftchenary, Sara Yumeen, Claire Turbide, Maya Saleh, **Kevin McGregor**, Celia M T Greenwood, Uri David Akavia, Richard S Blumberg, Patrick T Gunning, Nicole Beauchemin (2015). Carcinoembryonic Antigen Cell Adhesion Molecule 1 long isoform modulates malignancy of poorly differentiated colon cancer cells. *Gut*, gutjnl-2014.
11. Cheston, M. A., **McGregor, K.**, Soteros, C. E., Szafron, M. L. (2014). New evidence on the asymptotics of knotted lattice polygons via local strand-passage models. *Journal of Statistical Mechanics: Theory and Experiment*, 2014(2), P02014.

CORRESPONDENCE

1. Anderson, Chloé, **Kevin McGregor**, and James A. Hanley. "Cranberry Capsules for Bacteriuria Plus Pyuria in Nursing Home Residents." *Jama* 317.10 (2017): 1077-1078.
2. **McGregor, Kevin**, Aurélie Labbe, and Celia MT Greenwood. "Response to: Correcting for cell-type effects in DNA methylation studies: reference-based method outperforms latent variable approaches in empirical studies." *Genome biology* 18.1 (2017): 25.

RESEARCH FUNDING

- CANSSI Distinguished Postdoctoral Fellowships 2021
(Proposal as principal supervisor advanced to 2nd stage)
- NSERC Discovery Grant (\$115,000) 2021-2026
- NSERC Discovery Launch Supplement (\$12,500) 2021
- York University Start-up Grant (\$25,000) 2021

TEACHING EXPERIENCE	Instructor	
	• <i>MATH 6635: Introduction to Bayesian Statistics</i>	Fall 2021
	Department of Mathematics and Statistics York University	
	• <i>MATH 3131: Mathematical Statistics I</i>	Fall 2021
	Department of Mathematics and Statistics York University	
	• <i>MATH 4931: Simulation and the Monte Carlo Method</i>	2021, 2022
	Department of Mathematics and Statistics York University	
	• <i>EPIB 521 Regression Analysis for Health Sciences</i>	Winter 2018
	Department of Epidemiology, Biostatistics, and Occupational Health McGill University	
	• <i>Seminar Series in Biostatistics (5 lectures)</i>	Fall 2017
Lady Davis Institute for Medical Research Montréal, Québec		
	Teaching Assistant	
• <i>EDPE 676 — Intermediate Statistics</i>	Fall 2015, 2016	
Department of Educational and Counselling Psychology, McGill University		
	Grader	
• <i>STAT 100 — Elementary Statistics for Applications</i>	Winter 2013	
University of Regina (Saskatoon Campus)		
	Help Desk Advisor	
• Computer Science Help Desk	May-June 2010	
Department of Computer Science, University of Saskatchewan		
TRAINEES	Postdoctoral fellows	
	• Ismaïla Ba	2022-Present
	Recipient of CANSSI Distinguished Postdoctoral Fellowship	
	Master's survey paper supervision	
	• Zhijie Li - MA Statistics, York University	2021-Present
	Supervisory Committee member	
	• Vadim Tyuryaev - PhD Statistics, York University	2022-Present
	• Lyndsay Roach - PhD Statistics, York University	2021-Present
	Undergraduate research supervision	
	• Nneka Okaeme - York University	Summer 2021-Present
Recipient of NSERC USRA		
• Yutong Chen - York University	Summer 2021 - Present	
Recipient of Dean's Undergraduate Research Award Faculty of Science		
EDITORIAL WORK	• Review Editor for <i>Frontiers in Genetics - Editorial Board of Statistical Genetics and Methodology</i>	2021-Present
REVIEWER WORK	• Reviewed grants for the following funding competitions: <ul style="list-style-type: none"> – NSERC: Discovery Grants – NSERC: Arthur B. McDonald Fellowships 	
	• Reviewed articles for the following journals: <ul style="list-style-type: none"> – <i>Frontiers in Genetics</i> – <i>Annals of Applied Statistics</i> 	

- *Applied Computing and Geosciences*
- *American Journal of Human Genetics*
- *Genome Biology*
- *International Journal of Epidemiology*

SERVICE	<ul style="list-style-type: none"> • PhD Committee - Member 	2022-2025
ACTIVITIES -	Department of Mathematics and Statistics	
YORK UNIVERSITY	<ul style="list-style-type: none"> • Statistics Curriculum Committee - Member • Statistical Consultant • Statistical Consulting Committee - Co-chair 	2021 2021 2021
	Department of Mathematics and Statistics Institute for Social Research Department of Mathematics and Statistics	
EXTERNAL	<ul style="list-style-type: none"> • Committee on New Investigators - Member 	2021-2024
COMMITTEE	Statistical Society of Canada	
MEMBERSHIPS		
OTHER ACADEMIC	<ul style="list-style-type: none"> • Session Chair • Session Chair • Poster Judge • Poster judge • Abstract reviewer • Student council - Member at Large • Local Arrangement Chair • Biostatistics Academic Representative • Co-organized successful CANSSI Distinguished Visitor application 	2022 2021 2021 2020, 2021 2020, 2021 2018-19, 2019-20 Sept 2017 - June 2018 2016-17, 2017-18 March 2017
ACTIVITIES	<ul style="list-style-type: none"> Statistical Society of Canada Annual Meeting Canadian Statistics Student Conference Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Department of Epidemiology, Biostatistics, and Occupational Health Speaker: Hilary Parker Ph.D. 	
	<ul style="list-style-type: none"> Statistical Society of Canada Annual Meeting Canadian Statistics Student Conference Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Department of Epidemiology, Biostatistics, and Occupational Health Speaker: Hilary Parker Ph.D. 	
	<ul style="list-style-type: none"> Statistical Society of Canada Annual Meeting Canadian Statistics Student Conference Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Canadian Statistics Student Conference Department of Epidemiology, Biostatistics, and Occupational Health Department of Epidemiology, Biostatistics, and Occupational Health Speaker: Hilary Parker Ph.D. 	
OTHER PROJECTS	<ul style="list-style-type: none"> • Statistical analysis and consulting (various projects) • Course translation (French to English) 	2016-present Fall 2018
	HEC Montréal - Analyse et inférence statistique - 6-619-15	

SOFTWARE

- **MDiNE**: Microbiome Differential Network Estimation - A Bayesian model to estimate precision matrix based network changes with respect to a binary covariate.
<https://github.com/kevinmcgregor/mdine>
- **MiCoRe**: Microbiome Covariance Regression - A Bayesian model to estimate changes in a covariance matrix with respect to a covariate profile.
<https://github.com/kevinmcgregor/micore>
- **gStirling**: Calculates a table of the log of the generalized Stirling numbers of type $(-1, -a, 0)$, as defined by Hsu and Shiue, 1998.
<https://github.com/kevinmcgregor/gStirling>

AWARDS

Awards — McGill University

- IMPACTT Mentorship program (Mentee) 2022-2023
- FRQS Doctoral award (\$21,000/year) 2018-2020
- Faculty of Medicine Internal Studentship (\$12,000) 2017
- Faculty of Medicine Internal Studentship (\$12,000) 2016
- Graduate excellence award Ph.D. (\$10,000) 2015
- Graduate excellence award M.Sc. (\$4,000) 2013

Awards — University of Saskatchewan

- Most Outstanding Graduate in Statistics 2013
- Dean's List 2013
- Honours Scholarship (\$1500) 2013
- Saskatchewan Curling Association Athlete Assistance Award (\$1100) 2009
- Edgar Alexander Garton Scholarship (\$1000) 2009
- Entrance Scholarship (\$3000) 2008

Travel Awards

- McGill University Graduate Mobility Award (\$3,120) 2019
- Queen Elizabeth Scholar: "Quantitative Biology and Medical Genetics for the World" (\$6,000) 2019
- 2017 Microbiome Summer School: Big Data Analytics for Omics Science (All conference expenses covered) 2017
- Workshop on Statistical Issues in Biomarkers and Drug Co-Development (\$500) 2014

Other Awards

- Statistical Society of Canada Student Conference Award for best undergraduate poster (co-authored with Marla Cheston) 2013

PRESENTATIONS

Invited talks

- ICSA Canada, Banff, Alberta July 2022
- Statistical Society of Canada Annual Meeting, Online June 2022
Recent Advances By New Investigators Across Canada
- University of Manitoba, Winnipeg MB Mar 2022
Bioinformatics-Biostatistics Journal Club and Research Seminar Series
- McMaster University, Hamilton ON Jan 2020
Department of Mathematics and Statistics
- Queen's University, Kingston ON Jan 2020
Department of Public Health Sciences
- Bellairs Research Institute, Folkestone, St. James, Barbados Jan 2020
Workshop on Clinical Implementation of Genomics and Epigenomics
- York University, Toronto ON Dec 2019
Department of Mathematics and Statistics

Contributed talks

- IMPACTT Symposium, Canmore Alberta June 2022
Short talk: Bioinformatics & Multi-Omics Session
- Statistical Society of Canada Annual Meeting (Online) Jun 2021
- Research Day 2019, Montréal QC Mar 2019
Department of Epidemiology, Biostatistics, and Occupational Health
McGill University, Montréal QC
- Statistical Society of Canada Annual Meeting, Montréal QC Jun 2018
- (Bio)Statistics Student Research and Career Day, McGill University Sept 2017
- Statistical Society of Canada Annual Meeting, Winnipeg MB Jun 2017
- 4th Annual Human and Statistical Genetics Meeting, Vancouver, BC Apr 2015

Posters

- Joint Statistical Meetings, Washington D.C. Aug 2022
- Integrated Microbiome Platforms for Advancing Causation Jun 2021
Testing and Translation — Online Symposium
- International Genetic Epidemiology Society Annual Conference Oct 2019
Houston, TX
- American Society of Human Genetics Annual Meeting, San Diego, CA Oct 2018
- Canadian Human and Statistical Genetics Meeting Jun 2018
Harrison Hot Springs, BC
- Causal Challenge, Workshop on Statistical Causal Inference Jul 2016
and Applications to Genetics, Montréal, QC
- EBOH 50th anniversary conference, Montréal, QC Apr 2015
- 4th Annual Human and Statistical Genetics Meeting, Vancouver, BC Apr 2015
- Workshop on Statistical Issues in Biomarker and Drug Co-development Nov 2014
Fields Institute, Toronto, ON
- Statistical Society of Canada Annual Meeting May 2014
Case Study Competition, Toronto, ON
- Statistical Society of Canada Student Conference May 2013
Student poster competition, Edmonton, AB