IAN LAGA

970-314-4122 ◇ ian.laga@montana.edu ◇ Personal Website ◇ Google Scholar

EDUCATION

Ph.D. in Statistics August 2022
Pennsylvania State University

· Dissertation: Everyone Counts: Advanced Methods for Estimating Marginalized Populations
· Advisors: Dr. Le Bao and Dr. Xiaoyue Niu

B.S. in Applied Mathematics May 2017
University of Colorado – Boulder

· Minor in Statistics and Computer Science.

PROFESSIONAL POSITION

Assistant Professor of Statistics August 2022 - Present
Montana State University *Bozeman, MT*

REFEREED JOURNAL ARTICLES

9. Vogel, B., Cummins, B., and Laga, I. (2025). Accounting for correlation and censoring in bayesian network scale-up method models. *Social Networks*, 84:101–109
doi: https://doi.org/10.1016/j.socnet.2025.07.005

8. Laga, I., Kunke, J. P., McCormick, T. H., and Niu, X. (2025). Estimating and correcting degree ratio bias in the network scale-up method. *Sociological Methods & Research*
doi: https://doi.org/10.1177/00491241251364233

7. Kunke, J. P., **Laga, Ian**, Niu, X., and McCormick, T. H. (2024). Comparing the robustness of simple network scale-up method estimators. *Sociological Methodology*, 54(2):385–403
doi: https://doi.org/10.1177/00811750241242791

6. **Laga, Ian**, Niu, X., Rucinski, K., Baral, S., Rao, A., Chen, D., Viswasam, N., Phaswana-Mafuya, N. R., Diouf, D., Sabin, K., et al. (2023b). Mapping the number of female sex workers in countries across sub-Saharan Africa. *Proceedings of the National Academy of Sciences*, 120(2):e2200633120
doi: https://doi.org/10.1073/pnas.2200633120

5. **Laga, Ian**, Bao, L., and Niu, X. (2023a). A correlated network scale-up model: Finding the connection between subpopulations. *Journal of the American Statistical Association*, 118(543):1515–1524
doi: https://doi.org/10.1080/01621459.2023.2165929

4. **Laga, Ian**, Niu, X., and Bao, L. (2022). Modeling the marked presence-only data: A case study of estimating the female sex worker size in malawi. *Journal of the American Statistical Association*, 117(537):27–37
doi: https://doi.org/10.1080/01621459.2021.1944873

3. **Laga, Ian**, Bao, L., and Niu, X. (2021). Thirty years of the network scale-up method. *Journal of the American Statistical Association*, 116(535):1548–1559
doi: https://doi.org/10.1080/01621459.2021.1935267

2. **Laga, Ian** and Niu, X. (2020). Review of *Model-Based Geostatistics for Global Public Health: Methods and Applications*: by Peter J. Diggle and Emanuele Giorgi. *Journal of the American Statistical Association*, 115(530):1030–1032
doi: https://doi.org/10.1080/01621459.2020.1759988

1. **Laga, Ian** and Kleiber, W. (2017). The modified matérn process. *Stat*, 6(1):241–247
doi: https://doi.org/10.1002/sta4.152

SUBMITTED MANUSCRIPTS

4. Thiele, J., FireMoon, P., Johnson, O., Reum, M., Laga, I., and Rink, E. (2025+c). Condom use self-efficacy with indigenous youth: the integration of factor analysis with participatory research. *Submitted to AIDS Care*

3. Thiele, J., FireMoon, P., Johnson, O., Laga, I., and Rink, E. (2025+b). "if i didn't have that, then i really don't know where i'd be": Examining the association between depression and participation in traditional activities for indigenous youth using a concurrent triangulation design. *Submitted to Social Science & Medicine*

2. Thiele, J., FireMoon, P., Johnson, O., Laga, I., and Rink, E. (2025+a). The development and testing of a pilot intervention to address sexual risk behavior, substance use, and mental health among indigenous youth ages 12–18 years old. *Submitted to Field Methods*

1. Sanei, S., Laga, I., Weir, S., and Bao, L. (2025+). A case-control sampling strategy for zero-inflated models with an application to female sex worker mapping in sub-saharan africa. *Submitted to The Annals of Applied Statistics*

SOFTWARE

2. **Ian Laga** and Boateng, F. (2024). *MCPModGeneral: A Supplement to the 'DoseFinding' Package for the General Case*. R package version 0.1-3. https://cran.r-project.org/package=MCPModGeneral

1. **Ian Laga**, Bao, L., and Niu, X. (2024). *networkscaleup: Network Scale-Up Models for Aggregated Relational Data*. R package version 0.1-2. https://cran.r-project.org/package=networkscaleup

INVITED SEMINARS AND TALKS

4. "The Network Scale-up Method and the Degree Ratio." Simon Fraser University Statistics & Actuarial Science Seminar, Burnaby, BC, Canada, December 1, 2023

3. "A Correlated Network Scale-up Model: Finding the Connection Between Subpopulations." ASA/IMS Spring Research Conference, Banff, AB, Canada, May 24, 2023

2. "A Case-Control Sampling Strategy for Zero-Inflated Models with an Application to Female Sex Worker Mapping in Sub-Saharan Africa." Montana American Statistical Association Chapter Meeting, Bozeman, MT, USA, October 28, 2022

1. "A Correlated Network Scale-up Model: Finding the Connection Between Subpopulations." Stochastic Modeling and Computational Statistics Talk, Department of Statistics, Pennsylvania State University, PA, USA, September 17, 2021

CONTRIBUTED SEMINARS AND TALKS

5. "Studying Migrant Workers Using the Network Scale-up Method." Joint Statistical Meetings, Nashville, TN, USA, August 4, 2025

4. "Correlated Models for Aggregated Relational Data and Social Network Sizes." Joint Statistical Meetings, Portland, OR, USA, August 7, 2024

3. "The Analysis of Aggregated Relational Data Collected From Surveys With 'How Many X's Do You Know?' Questions." International Conference on Establishment Statistics, Glasgow, Scotland, UK, June 19, 2024

2. "Finding the Hidden Populations: A Correlated Network Scale-up Model." Joint Statistical Meetings, Virtual Conference, August 12, 2021

1. "Finding the Hidden Populations: A Correlated Network Scale-up Model." World Meeting of the International Society for Bayesian Analysis, Virtual Conference, June 16, 2021

GRANTS FUNDED

2. Statistical Methodology for Model Checking for Aggregated Relational Data
Period: 2025
Funding Amount: Lodging, meals, and travel expenses for two weeks at a BIRS site for all collaborators
Granting Agency: Pacific Institute for the Mathematical Sciences (PIMS) and the Banff International Research Station (BIRS)

Collaborators: Dr. Owen Ward (Simon Fraser University), Dr. Anna Smith (University of Kentucky), Jieyun Wang (University of Kentucky), Benjamin Vogel (Montana State University)
Primary Goals: Develop methods to check the validity of Aggregated Relational Data models
Contribution: Equal contribution writing and idea development with the two other PIs

1. Statistical Models for Estimating and Projecting HIV/AIDS Epidemics
Period: 2022-2024
Amount: $72,809.00
Granting Agency: Subaward from Pennsylvania State University from funding received via National Institute of Allergy and Infectious Diseases, Project Number: 5 R01 AI136664-05
Primary Goals: Develop methods to estimate the size of HIV high-risk populations, such as female sex workers; present the results at conferences; prepare and submit manuscripts for publication to peer-reviewed journals
Contribution: No role in writing, supported with the grant with the production of scholarly works and dissemination of results at conferences

GRANT PROPOSALS SUBMITTED (UNSUCCESFUL)

1. Improved Function for Children with CP Using Hippotherapy, the Equine Environment
Period: Submitted 2023
Granting Agency: Montana INBRE
Collaborators: Dr. Julia Mazzarella (University of Montana) and Dr. Stephanie Dimitroff (University of Montana) **Primary Goals**: Confirm the feasibility of a randomized-controlled trial of targeted rehabilitation intervention utilizing hippotherapy and the equine environment for children with cerebral palsy
Contribution: Design of analysis, power analysis, and minor writing role

AWARDS

2. **2020 Teaching Award Honorable Mention**: Pennsylvania State University Statistics Department
1. **2019 NSF Graduate Research Fellowship Honorable Mention**: National Science Foundation

TEACHING

Montana State University

Fall 2024
STAT 448: Mixed Effects Models
STAT 510: Statistical Consulting Seminar

Spring 2024
STAT 506: Advanced Regression Analysis

Fall 2023
STAT 425: Biostatistical Data Analysis
STAT 437: Introduction to Applied Multivariate Analysis

Spring 2023
STAT 506: Advanced Regression Analysis
STAT 441/541: Experimental Design

Fall 2022
STAT 448: Mixed Effects Models

Pennsylvania State University

Spring 2020
STAT 440: Computational Statistics

Fall 2018

STAT 415: Mathematical Statistics

ADVISING

All students are earning Statistics degrees unless otherwise noted

Current PhD Students

Ben Vogel 2024-Present

Statistics MS Writing Project

Gifty Osei 2022-2023
Michael Kumi 2022-2023
Michael Hessler 2023-2024
Jacob Oard 2023-2024
Mark Braun 2024-2025
Bernard Ntiamoah 2024-2025

PhD Thesis Committee

Steven Hammond 2024-Present
Korathotage Lakviru Perera 2024-Present
Clinton Patrick Pollock 2024-Present
Jeffrey Thiele (Health and Human Development) 2024-Present

SERVICE

Montana State University Service

Accelerated Master's Program 2024-Present
Advisor

Statistics Undergraduate Program 2024-Present
Advisor

Statistics Graduate Certificate 2024-Present
Advisor

DataFest 2024
Judge

Statistics Graduate Student Admissions Subcommittee 2023
Member

Website Committee 2022-Present
Member

Jeffrey Thiele, Department of Health and Human Development 2023-Present
Co-mentor for TL1 grant

Professional Service

Montana Chapter of the American Statistical Association 2022-Present
Treasurer

United States Geological Survey 2024-Present
Professional consultation and collaboration to publish R code as a package on CRAN

United Nations: International Organization for Migration 2024-Present

Professional consultation and collaboration to design and implement a Network Scale-up Method survey in Jordan

Referee

PLOS Global Public Health	2025
Journal of the Royal Statistical Society: C	2024, 2025
Sociological Methodology	2024, 2025
Quality and Quantity	2024
Field Methods	2023

PROFESSIONAL MEMBERSHIPS

American Statistical Association (ASA)