Ian Laga

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(970) 314-4122
Website: `https://ilaga.github.io/`

RESEARCH INTERESTS

Bayesian methods, small area estimation, network scale-up, computational statistics, and spatial statistics

EDUCATION

Pennsylvania State University

Ph.D. Statistics (August 2022), Pennsylvania State University
Advisors: Dr. Le Bao and Dr. Xiaoyue Niu
Dissertation Title: Everyone Counts: Advanced Methods for Estimating Marginalized Populations

University of Colorado - Boulder

B.S. Applied Mathematics (minors in Statistics and in Computer Science) (2013 - 2017), *Magna Cum Laude*

PROFESSIONAL POSITION

Montana State University

2022 - present: Assistant Professor of Statistics, Department of Mathematical Science

ACCEPTED & PUBLISHED

Jessica P Kunke, **Ian Laga**, Xiaoyue Niu, and Tyler H McCormick. (2024) "Comparing the Robustness of Simple Network Scale-Up Method Estimators." *Sociological Methodology*. doi: 10.1177/00811750241242791.

Ian Laga, Le Bao, and Xiaoyue Niu. (2023) "A Correlated Network Scale-up Model: Finding the Connection Between Subpopulations." *Journal of the American Statistical Association*. doi: 10.1080/01621459.2023.2165929.

Ian Laga, Xiaoyue Niu, Katherine Rucinski, Stefan Baral, David Chen, Nikita Viswasam, Nancy Refilwe Phaswana-Mafuya, Daouda Diouf, Keith Sabin, Jinkou Zhao, Jeffrey W. Eaton, and Le Bao. (2023) "Mapping the Population Size of Female Sex Workers in Countries Across Sub-Saharan Africa." *Proceedings of the National Academy of Sciences*, 120.2. doi: doi: 10.1073/pnas.2200633120.

- Placed on SSRN's Top Ten download list for MedRN: HIV/AIDS (Topic), Primary Care eJournal and PublicHealthRN: HIV & Public Health (Topic)

Ian Laga, Xiaoyue Niu, and Le Bao. (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: 10.1080/01621459.2021.1944873.

Ian Laga, Le Bao, and Xiaoyue Niu. (2021) "Thirty Years of The Network Scale-up Method." *Journal of the American Statistical Association*, 116.535, 1548-1559. doi: 10.1080/01621459.2021.1935267.

Ian Laga and Xiaoyue Niu. (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: 10.1080/01621459.2020.1759988.

Ian Laga. (2019) "The POWER Structure and Why an 80% Correct Solution is Sometimes Better Than a 100% Correct Solution." In JSM Proceedings, Section on Statistical Consulting. Denver, Colorado: American Statistical Association. 2345-2356.

Ian Laga and William Kleiber. (2017) "The Modified Matérn Process." *Stat*, 6.1, 241-247. doi: 10.1002/sta4.152.

IN PREPARATION

Sanam Sanei, **Ian Laga**, Sharon Weir, and Le Bao. "Enhancing the Precision of Female Sex Worker Size Estimation with Cross-Country Studies."

TEACHING

Spring 2024:
- Advanced Regression Analysis, STAT 506

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

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

Fall 2022:
- Mixed Effects Models, STAT 448

Spring 2020:
- Computational Statistics, STAT 440

Fall 2018:
- Mathematical Statistics, STAT 415

RESEARCH PRESENTATIONS

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

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

"A Case-Control Sampling Strategy for Zero-Inflated Models with an Application to Female Sex Worker Mapping in Sub-Saharan Africa," 2022 Montana ASA Chapter Meeting. October 2022

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

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

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

"Modeling the Marked Presence-only Data: A Case Study of Estimating the Female Sex Worker Size in Malawi," Invited Poster Presentation, Joint Statistical Meetings, Virtual Conference. August 2020

"The POWER Structure and Why an 80% Correct Solution is Sometimes Better Than a 100% Correct Solution," Topic-Contributed Session, Joint Statistical Meetings, Denver, Colorado. August 2019

"The Modified Matérn Process," SIAM Front Range Applied Mathematics Student Conference, University of Colorado at Denver, Denver, Colorado. March 2016

OTHER PRESENTATIONS

"How to Make an R package," Penn State Statistics Graduate Student Association Workshop, December 2020, November 2021

"Introduction to RStan," Penn State Statistics Graduate Student Association Workshop, November 2019, November 2020

"Introduction to RStan," Bayer Corporation Statistician Group, August 2019

POSTERS

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

Ian Laga. "MCPMod for Negative Binomial Count Data," ASA New Jersey Chapter/Bayer Statistics and Data Insights 7^{th} Annual Workshop. November 2019

Eric Vance and **Ian Laga**. "Variations in Statistical Practice Between North American Stat Labs," ASA Conference on Statistical Practice, Jacksonville, Florida, February 2017

SCIENTIFIC SOFTWARE

networkscaleup: R-package to fit Newtwork Scale-up Models, including the Correlated Network Scale-up

MCPModGeneral: R-package to supplement the 'DoseFinding' package for non-normal data

AWARDS/ HONORS

2020 Teaching Award Honorable Mention: Pennsylvania State University Statistics Department

2019 NSF Graduate Research Fellowship Honorable Mention: National Science Foundation

2013 - 2017 Dean's List: University of Colorado - Boulder

CU Esteemed Scholars - Sewall Award:
Awarded to high school students with 4.0 GPA and 33 ACT and above

Engineering Differential Scholarship:
Awarded to engineering students who also received a Sewall or Presidential Scholarship

2013 Boettcher Scholar:
Award given to top 40 high school students in Colorado

FUNDING SUPPORT

1. Project Title: Statistical Models for Estimating and Projecting HIV/AIDS Epidemics
   Funding Agency: National Institutes of Health (NIH)
   Role: Principal Investigator for MSU subaward
   Amount: $72,809
   Period: 11/01/22 to 8/31/23

SERVICE

Journal Referee:

- Field Methods
- Annals of Applied Statistics
- Proceedings of the National Academy of Sciences of the United States of America

Montana Section of American Statistical Society
Treasurer, 2022 - present

CDC Key Population Surveillance and Estimates: Recent Advances and Future Directions
Participant, May 2021

UNAIDS Reference Group Spring Meeting
Participant, April 2021

Eberly College Climate and Diversity Committee
Member, 2018 - 2021

Penn State Statistics Graduate Student Association
Social Coordinator, 2017 - 2021

Laboratory for Interdisciplinary Statistical Analysis (LISA) University of Colorado - Boulder
Founding collaborator, 2016-2017

ADVISING

1. Gifty Osei
   Writing Project Advisor
2. Michael Osei Kumi
   Writing Project Advisor

3. Jacob Oard (co-advised with John Smith)
   Research Project Advisor
4. Eliot Liucci
   Independent Study Advisor
5. Michael Hessler
   Writing Project Advisor
6. Natasha Gesker
   Independent Study Advisor
7. Benjamin Vogel
   Ph.D. Advisor