

1. Personal Information

Nathaniel T. Stevens

Assistant Professor

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2. Education

Degree	Discipline	Institution	Date of Convocation
Doctor of Philosophy	Statistics	University of Waterloo	June 12, 2015
Master's of Mathematics	Statistics	University of Waterloo	October 22, 2011
Bachelor's of Mathematics	Statistics	University of Waterloo	June 18, 2010

3. Recognitions

- 2020 ASQ Lloyd S. Nelson Award**
 The award recognizes the paper appearing in the *Journal of Quality Technology* each year with the greatest immediate impact to practitioners. The awarded paper is *Published Paper #7* listed in Section 8b below.
- 2020 Distinction in Teaching Award**
 This award recognizes excellence in teaching each year within the Department of Statistics and Actuarial Science at the University of Waterloo.
- 2019 Shewell Award**
 This award is presented for the best presentation at the American Society for Quality (ASQ) Fall Technical Conference each year. The awarded presentation is *Invited Presentation #13* listed in Section 8a below.

- 2017-2018 Quality Engineering Best Reliability Paper Award**
 This recognition is awarded to the authors of the best paper in the *Quality Engineering* journal on the topic of reliability analysis in the given years. The awarded paper is *Published Paper #13* listed in Section 8b below.
- 2017-2018 Applied Stochastic Models in Business and Industry Impact Award**
Published Paper #9 listed in Section 8b below was the top downloaded article in *Applied Stochastic Models in Business and Industry* in the given years and was recognized as one of the top 20 most read articles in that journal.
- 2015 Amit & Meena Chakma Award for Exceptional Teaching by a Student**
 Each year this award is presented to up to four University of Waterloo students who have a formal teaching role and who have displayed excellence in communication, intellectual vigor and sensitivity to student needs.

4. Profile

Dr. Stevens is an award-winning researcher and teacher, and an internationally recognized scholar who serves on the editorial committees of three top-tier journals in his field. Dr. Stevens is interested in using statistics to solve practical problems and he has a passion for inspiring and training students to do the same. His experience leading a Bachelor's of data science program at the University of San Francisco, and overseeing 30+ data science internships at 20+ companies gives him a valuable and unique perspective on student training. His understanding of market needs, in terms of both relevant research problems and the skills required to succeed in his field, is unmatched by anyone else at a similar career stage.

5. Employment History

Position	Institution	Department	Start Date	End Date
Assistant Professor	University of Waterloo	Statistics & Actuarial Science	January 2019	--
Director of Data Science	University of San Francisco	Mathematics & Statistics	August 2017	December 2018
Assistant Professor	University of San Francisco	Mathematics & Statistics	August 2015	December 2018

6. Research Funding History

Program	Role	Total Funding	Start Date	End Date
NSERC Discovery	PI	\$127,500	April 2019	March 2024
	Dr. Stevens received 29% more funding than the average Early Career Researcher in Mathematics and Statistics for the 2019 NSERC Discovery Grant competition.			
UW Startup Grant	PI	\$50,000	January 2019	December 2024
NSERC CGS-D	PI	\$105,000	September 2011	August 2014
NSERC CGS-M	PI	\$17,500	September 2010	August 2011
TOTAL		\$300,000		

7. Activities

a. Student Supervision

Student	Dr. Stevens' role	Degree	Period	Current Status
Luke Hagar	Supervisor	MMath, UW	09/2020 – Present	MMath Candidate, University of Waterloo
		BMath, UW	09/2019 – 08/2020	
<i>Luke co-authored Submitted Paper #2 listed in Section 8b below.</i>				
Maziar Dadbin	Supervisor	MMath, UW	01/2019 - Present	MMath Candidate, University of Waterloo
Murad Ahmed	Supervisor	MMath, UW	01/2019 – 08/2019	Job-seeking
Kenny Guo	Co-Supervisor	PhD, UW	09/2019 – Present	PhD Candidate, University of Waterloo
Francis Kiwon	Co-Supervisor	PhD, UW	09/2019 – Present	PhD Candidate, University of Waterloo
Trang Bui	Co-Supervisor	PhD, UW	01/2019 – Present	PhD Candidate, University of Waterloo

Narges Motalebi	Co-Supervisor	PhD, Yazd U	09/2018 – 06/2019	PhD Candidate, Yazd University
	<i>Narges co-authored Accepted Paper #1 listed in Section 8b below.</i>			
Grace Zhang	Internship Mentor	MSc, USF	10/2018 – 06/2019	Data Scientist, Amazon
Anna Zeng	Internship Mentor	MSc, USF	10/2018 – 06/2019	Data Scientist, Visa
Yihan Wang	Internship Mentor	MSc, USF	10/2018 – 06/2019	Data Scientist, Verizon Media
Jian Wang	Internship Mentor	MSc, USF	10/2018 – 06/2019	Job-seeking
Feiran Ji	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, LinkedIn
Lingzhi Du	Internship Mentor	MSc, USF	10/2017 – 06/2018	Senior Data Scientist, Zest Finance
Kunal Kotian	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Amazon
Jingjue Wang	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Plume Design Inc.
David Kes	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Kaiser Permanente
Danai Avgerinou	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Trulia
Shannon McNish	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, ThirdLove
John Rumpel	Internship Mentor	MSc, USF	10/2017 – 06/2018	High School Math Teacher, River Falls School District
Kaya Tollas	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Metropolitan Transportation Commission
Stephen Hsu	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Analyst, American Academy of Ophthalmology
Deena John	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Vungle
Patrick Yang	Internship Mentor	MSc, USF	10/2017 – 06/2018	Data Scientist, Vungle

Meng Zhao	Committee Member	PhD, Virginia Tech	06/2015 – 08/2017	Research Scientist, Eli Lilly & Co.
	<i>Meng co-authored Published Paper #8 listed in Section 8b below.</i>			
Cameron Carlin	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, City of Hope
Mikaela Hoffman-Stapleton	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, Arable
Sheri Nguyen	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, Checkr, Inc.
Keyang Zhang	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Science Team Lead, Ultimate Software
Matt McClelland	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, Lumiata
Ruixuan Zhang	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, Houzz
Brigit Lawrence-Gomez	Internship Mentor	MSc, USF	10/2016 – 06/2017	Senior Manager of Business Strategy & Analytics, Sephora
Arda Aysu	Internship Mentor	MSc, USF	10/2016 – 06/2017	Quantitative Analyst, Beam Dental
Roger Wu	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Scientist, Thumbtack
Tim Zhao	Internship Mentor	MSc, USF	10/2016 – 06/2017	Data Analyst, University of Waterloo
Zefeng Zhang	Internship Mentor	MSc, USF	10/2016 – 06/2017	Applied Scientist, Amazon
Laura da Rocha	Supervisor	BSc, U of Brazil	05/2016 – 08/2016	Data Scientist, Infoblox
	<i>Laura co-authored Published Paper #11 listed in Section 8b below.</i>			
Meg Ellis	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, SAP Concur
Jack Norman	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, Vida Health Inc.
Gabriella Corbett	Internship Mentor	MSc, USF	10/2015 – 06/2016	Senior Data Scientist, Eventbrite
Jason Helgren	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, Uber

Mrun Bhagwat	Internship Mentor	MSc, USF	10/2015 – 06/2016	Senior Business Analyst, Rakuten Rewards
Erica Lee	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, NCOFT
Binjie Lai	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, Adobe
Felipe Ferreira	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, Cortex
Jacob Pollard	Internship Mentor	MSc, USF	10/2015 – 06/2016	Data Scientist, Apple

b. Editorial Activities

Associate Editor

- *The American Statistician* (January 2019 - Present)

Editorial Review Board

- *Quality Engineering* (February 2019 - Present)

Reviewer

- *BMC Medical Research Methodology*
- *Journal of Humanities and Applied Social Sciences*
- *Journal of Quality Technology*
- *Journal of the Royal Statistical Society: Series C*
- *PLOS ONE*
- *Quality and Reliability Engineering International*
- *Quality Engineering*
- *Statistics in Medicine*
- *Statistical Methods in Medical Research*
- *Technometrics*
- *The American Statistician*
- *Transactions on Network Science and Engineering*

c. International Collaboration

List of International Collaborators

- Christine M. Anderson-Cook, Los Alamos National Laboratory
- Laura T. da Rocha, Infoblox
- Vanda I. de Carvalho, University of Edinburgh
- Anne R. Driscoll, Virginia Tech
- Ronald D. Fricker, Virginia Tech
- Willis A. Jensen, W.L. Gore & Associates
- Daniel R. Jeske, University of California Riverside
- L. Allison Jones-Farmer, Miami University

- Lu Lu, University of South Florida
- Alex G. Tartakovsky, Moscow Institute of Physics and Technology
- James D. Wilson, University of San Francisco
- Richard A. Parker, University of Edinburgh
- Steve E. Rigdon, Saint Louis University
- Charlie Scott, Oxford University
- Srijan Sengupta, North Carolina State University
- Ian R. Smith, St. Andrew's Medical Institute
- Kwok L. Tsui, City University of Hong Kong
- William H. Woodall, Virginia Tech
- Lisha Yu, City University of Hong Kong
- Meng J. Zhao, Eli Lilly & Company
- Inez M. Zwetsloot, City University of Hong Kong

Conference Session Organization

- Fall Technical Conference 2020
 - CPID Invited Reliability Session
 - *Cancelled due to COVID-19*
- International Society for Business and Industrial Statistics Conference 2020
 - Y-BIS Session: Statistical Analysis of Complex Data
 - *Cancelled due to COVID-19*
- Statistical Society of Canada Annual Meeting 2020
 - Experimentation in Data Science
 - *Cancelled due to COVID-19*
- Data Institute SF Annual Conference 2019
 - *Design of Experiments*
- Data Institute SF Annual Conference 2017
 - *Experimental Design I*
 - *Experimental Design II*
- Statistical Society of Canada Annual Meeting 2017
 - Business Problems, Data Science Solutions
 - Staying Sane Pre-Tenure: Addressing the Challenges of New Investigators

d. Committee Memberships

Organizing Committee, COPSS-NISS COVID-19 Data Science Webinar Series

- SSC Representative, November 2020 – Present

Organizing Committee, Y-BIS Data Science in Industry Webinar Series

- Member, September 2020 – Present

Data Science and Analytics Section, Statistical Society of Canada

- President-Elect, July 2020 – Present

Technometrics Management Committee, American Statistical Association

- Member, January 2019 – Present

Program Committee, Fall Technical Conference

- CPID Representative, October 2019 – Present

Committee on Membership, Statistical Society of Canada

- Member, July 2019 – Present

Committee on New Investigators, Statistical Society of Canada

- Chair, July 2017 – June 2019
- Member, July 2016 – June 2017

8. Contributions Summary

a. Presentations

i. Invited lectures and conference presentations

1. *Design and Analysis of Confirmation Experiments*
University of Alberta, November 2020
2. *Design and Analysis of Confirmation Experiments*
Fall Technical Conference Webinar Series, November 2020
3. *Designed Experiments in Data Science: A Pedagogical Evolution*
Joint Statistical Meetings, August 2020
4. *The Importance of an Experimental Design Course in Data Science Programs*
National Workshop on Data Science Education, June 2020
5. *Comparing Two Kaplan-Meier Curves with the Probability of Agreement*
CPID Webinar, May 2020
6. *You're Probably A/B Testing Incorrectly*
University of San Francisco, February 2020

7. *Hurdle Block Models for Sparse Network Modeling*
University of California Riverside, February 2020
 8. *Hurdle Block Models for Sparse Network Modeling*
City University of Hong Kong, December 2019
 9. *Designed Experiments in Data Science: A Pedagogical Evolution*
Miami University, September 2019
 10. *The Analysis of A/B Tests with Comparative Probability Metrics*
International Conference on Design of Experiments, May 2019
 11. *The Analysis of A/B Tests with Comparative Probability Metrics*
Spring Research Conference, May 2019
 12. *Statistics = Analytics? A Discussion*
Stu Hunter Research Conference, February 2019
 13. *Comparing Two Kaplan-Meier Curves with the Probability of Agreement*
Fall Technical Conference, October 2018
 14. *Comparing the Reliability of Related Populations with the Probability of Agreement*
Joint Statistical Meetings, July 2018
 15. *Detecting Change in Dynamic Networks*
University of California Davis, April 2018
 16. *Quantifying the Agreement Between Two Methods of Measurement Using the Probability of Agreement*
Genentech Biostatistics Seminar Series, November 2016
 17. *A Random Graph Model for Benchmarking Network Surveillance Techniques*
Quality and Productivity Research Conference, June 2016
 18. *Practical Applications of the Probability of Agreement Analysis*
Spring Research Conference, May 2015
 19. *Design and Analysis of Measurement System Comparison Studies*
Joint Research Conference, June 2014
- ii. Contributed conference presentations**
1. *Comparing the Reliability of Related Populations with the Probability of Agreement*
Statistical Society of Canada Annual Meeting, May 2016

2. *Quantifying Agreement Between Two Methods of Measurement*
Statistical Society of Canada Annual Meeting, June 2015
3. *Incorporating Baseline Information when Assessing Measurement Systems*
Statistical Society of Canada Annual Meeting, May 2014
4. *Problems with the 'Limits of Agreement' Method of Comparing Measurement Systems*
Quality and Productivity Research Conference, June 2013
5. *SPC: A Student's Perspective*
Quality and Productivity Research Conference, June 2011

iii. Conference Workshops

1. *Designed Experiments for Data Scientists*
Data Institute SF Annual Conference, October 2017
2. *Introduction to Forecasting and Time Series Analysis*
National Forum on Criminal Justice, August 2017

iv. Corporate Training

1. *Design and Analysis of Experiments*
San Francisco 49ers, June 2018
2. *A/B Testing and Beyond: Designed Experiments for Data Scientists*
San Francisco Data Institute, Fall 2017 & Fall 2018
3. *Introduction to Probability and Statistics*
Capital One, November 2016

b. Publications and Citations

Publication Type	Number of citations (from Google Scholar; excluding self-citations)	Number of publications	Number of independent publications
Journals	121	23	16

Dr. Stevens' research focus lies in the field of industrial statistics for which the most common methods of disseminating research are via article publication in peer-reviewed journals and by giving seminars and conference presentations. Note that peer-reviewed conferences are not common in this discipline. The venues chosen for dissemination of work are carefully selected; Dr. Stevens

sends papers to reputable peer-reviewed journals whose readership will be most impacted by the work. *Technometrics*, *Journal of Quality Technology*, *Quality Engineering*, and *Quality and Reliability Engineering International* are the four most prominent journals in the field of industrial statistics, and *Statistics in Medicine* and *Statistical Methods in Medical Research* are top journals in the field of medical statistics. However, Dr. Stevens' research is multidisciplinary and at times may have impact in other disciplines. When this is the case, he aims to publish in journals subscribed to by those professionals, thereby maximizing the impact of his research. This was the case with *Submitted Paper #3* and *Published Papers #2* and *#21* below.

Much of Dr. Stevens' work is collaborative and so it is important to make clear his contributions and the rationale used for author ordering. On all but one publication it may be assumed that author ordering is based on the level of contribution and the first author is the primary author. To earn this position, they have either generated the initial idea or they wrote the majority of the manuscript or they are responsible for the majority of the mathematical and/or computational developments. The exception to this rule is *Published Paper #5* below: Dr. Stevens and Dr. Wilson contributed equally to this work and so the ordering of their names has no meaning.

Note that authors in bold font and with asterisks indicate student co-authors.

i. Peer-reviewed journals

Accepted/in press

1. **Motalebi N.***, Stevens N.T. and Steiner S.H. (2020). Hurdle blockmodels for sparse network modeling. *The American Statistician*, accepted December 2020.

Submitted

1. Yu L., Zwetsloot I.M., Stevens N.T. and Wilson J.D. (2020). Monitoring dynamic networks: a simulation-based strategy for comparing monitoring methods and a comparative study. Submitted to *Quality and Reliability Engineering International*.
2. **Hagar L.*** and Stevens N.T. (2020). Comparative probability metrics: A Bayesian framework for two-group comparisons, with applications to online controlled experiments. Submitted to *The American Statistician*.
3. Stevens N.T., **Kiwon, F.***, Morita, P.P., Sen, A. and Steiner, S.H. (2020). A policymaker's guide to predicting daily COVID-19 cases: Evidence from Ontario. Submitted to *Health Policy*.

Published

1. Stevens N.T. and Lu L. (2020). Comparing Kaplan-Meier curves with the probability of agreement. *Statistics in Medicine* 39(30): 4621–4635.
2. Parker R.A., Scott C., Inacio De Carvalho V. and Stevens N.T. (2020). Using multiple agreement methods for continuous repeated measures data: A tutorial for practitioners. *BMC Medical Research Methodology* 20(1): 1–14.
3. Stevens N.T., Lu L., Anderson-Cook C.M. and Rigdon S.E. (2020). Bayesian Probability of Agreement for Comparing Survival or Reliability Functions with Parametric Lifetime Regression Models. *Quality Engineering* 32(3): 312–332.
4. Stevens N.T., Rigdon S.E., and Anderson-Cook C.M. (2020). Bayesian probability of agreement for comparing the similarity of response surfaces. *Journal of Quality Technology* 52(1): 67–80.
5. Wilson J.D., Stevens N.T., Woodall W.H. (2019). Modeling and detecting change in temporal networks via the degree stochastic block model. *Quality and Reliability Engineering International* 35(5): 1363–1378.
6. Steiner S.H., Stevens N.T., Jensen W.A., MacKay R.J. (2019). Replacing a current measurement system in an inspection scheme: A case study. *Quality Engineering* 31(4): 615–626.
7. Stevens N.T. and Anderson-Cook C.M. (2019). Design and analysis of confirmation experiments. *Journal of Quality Technology* 51(2): 109–124.
8. **Zhao M.J.***, Driscoll A.R., Sengupta S., Stevens N.T., Fricker RD. and Woodall W.H. (2018). The effect of data aggregation level in social network monitoring. *PloS one*, 13(12): e0209075.
9. Jeske D.R., Stevens N.T., Tartakovsky A.M. and Wilson J.D. (2018). Statistical Methods for Network Surveillance. *Applied Stochastic Models in Business and Industry*, 34(4): 425–445.
10. Stevens N.T., Rigdon S.E. and Anderson-Cook C.M. (2018). Bayesian probability of predictive agreement for comparing the outcome of two separate regressions. *Quality and Reliability Engineering International*, 34(6): 968–978.
11. **Da Rocha L.T.*** and Stevens N.T. (2018). Comparing two measurement systems using the probability of agreement web app. *Quality Engineering*, 30(3): 525–533.

12. Stevens N.T., Steiner S.H. and MacKay R.J. (2018). Comparing heteroscedastic measurement systems with the probability of agreement. *Statistical Methods in Medical Research*, 27(11): 3420–3435.
13. Stevens N.T. and Anderson-Cook C.M. (2017). Quantifying similarity in reliability surfaces using the probability of agreement. *Quality Engineering*, 29(3): 395–408.
14. Stevens N.T. and Anderson-Cook C.M. (2017). Comparing the reliability of related populations with the probability of agreement, *Technometrics*, 59(3): 371–380.
15. Stevens N.T. and Jones-Farmer L.A. (2017). Discussion of “Analyzing behavioral big data: Methodological, practical, ethical, and moral issues”, *Quality Engineering*, 29(1): 84–86.
16. Jones-Farmer L.A. and Stevens N.T. (2017). Discussion of “Bridging the gap between theory and practice in basic statistical process monitoring”, *Quality Engineering*, 29(1): 22–26.
17. Stevens N.T., Steiner S.H. and MacKay R.J. (2017). Assessing agreement between two measurement systems: An alternative to the limits of agreement approach. *Statistical Methods in Medical Research*, 26(6): 2487–2504.
18. Stevens N.T., Steiner S.H. and MacKay R.J. (2015). Being smart about parts, *Quality Progress*, 48(3): 32–37.
19. Stevens N.T., Steiner S.H., Browne R. and MacKay R.J. (2013). Gauge R&R studies that incorporate baseline information, *IIE Transactions*, 45(11): 1166–1175.
20. Steiner S.H., Stevens N.T., Browne R. and MacKay R.J. (2011). Planning and analysis of measurement reliability studies, *Canadian Journal of Statistics*, 39(2): 344–355.
21. Stevens N.T., Smith I.R., Steiner S.H. and MacKay R.J. (2011). Monitoring radiation in cardiology imaging equipment, *Medical Physics*, 38(1): 317–326.
22. Stevens N.T., Browne R., Steiner S.H. and MacKay R.J. (2010). Augmented measurement system assessment, *Journal of Quality Technology*, 42(4): 388–399.

ii. Theses

Stevens N.T. (2014). *Assessment and comparison of continuous measurement systems*. (PhD thesis).