

Christian Song-Hyo Schmid

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Education

The Pennsylvania State University

Ph.D., Statistics with minor in Computational Sciences, expected Summer 2021

Advisor: David R. Hunter

Fields: Social Networks, Computational Statistics, Bayesian Estimation,
Statistical Consulting, Size Estimation

Ludwig Maximilians University, Munich

M.Sc., Statistics, February 2015

Advisor: Göran Kauermann

Thesis: A Statistical Analysis of the International Arms Trade Data from 1950-2013

B.Sc., Mathematics with minor in Statistics, February 2012

Advisor: Detlef Dürr

Thesis: The Axiom of Choice and the Banach-Tarski Paradox

Publications

Christian S. Schmid, Ted H. Chen and Bruce A. Desmarais.

Generative Dynamics of Supreme Court Citations: Analysis with a New Statistical Network Model. Accepted for publication at Political Analysis

Paul W. Thurner, Christian S. Schmid, Skyler J. Cranmer, and Göran Kauermann.

Network Interdependencies and the Evolution of the Arms Trade Network.

Journal of Conflict Resolution, Oct 2019.

Christian S. Schmid and Bruce A. Desmarais.

Exponential random graph models with big networks: Maximum pseudolikelihood estimation and the parametric bootstrap. 2017 IEEE International Conference on Big Data (Big Data), pages 116–121, Dec 2017.

Working Papers

Christian S. Schmid and David R. Hunter.

Accounting for Model Misspecification When Using Pseudolikelihood for ERGMs.

Bomin Kim, Aaron Schein, Bruce A. Desmarais, Hanna Wallach and

Christian S. Schmid. *The Hyperedge Event Model.*

Submitted to Bayesian Analysis

Christian S. Schmid, David R. Hunter and Pavel Krivitsky.
Improving ERGM Starting Values Using Simulated Annealing.

Research Experience

Graduate Research Assistant

May 2016 - Present: Governance and Administration in Networks (GAiN) Lab
Department of Political Science, Pennsylvania State University
Supervisor: Bruce A. Desmarais

Developed a new statistical model for dynamic citation networks with the goal of understanding what drives the use of opinions as precedents through the study of Supreme Court case citation patterns. Currently developing techniques for more computationally efficient parameter estimation.

May 2014 - January 2019: Empirical Political Research and Policy Analysis Lab
Department of Political Science, Ludwigs Maximilians University
Supervisor: Paul W. Thurner

Developed a new network-oriented explanation for the worldwide transactions of major conventional weapons in the period after World War II using temporal exponential random graph models.

May 2018 - August 2018: Department of Statistics, Pennsylvania State University
Supervisor: Xiaoyue Niu

Implemented Bayesian hierarchical models using R, Stan and C++.

May 2017 - August 2017: Department of Statistics, Pennsylvania State University
Supervisor: Le Bao

Developed new models for aggregated relational data with the goal of estimating the size of hidden and hard-to-reach population groups.

Work Experience

Quantitative Sciences Intern

May 2019 - August 2019: Janssen Research & Development, LLC,
Pharmaceutical Companies of Johnson and Johnson
Supervisor: Stan Altan

Developed a new multivariate conditional regression approach based on a three-parameter Weibull model to predict the dissolution performance of a continuous manufacture solid dose drug product. Conducted Bayesian simulation control strategy studies for guaranteeing quality according to FDA regulations and US pharmacopoeia standards.

Statistical Consultant

August 2016 - May 2017: Statistical Consulting Center
Pennsylvania State University

April 2014 - February 2015: Statistical Consulting - Statistisches Beratungslabor
Ludwig Maximilians University

Presentations July 2018, Joint Statistical Meetings, Vancouver
December 2017, IEEE International Conference on Big Data, Boston
July 2017, Joint Statistical Meetings, Baltimore
November 2014, Network Analysis of Arms Trade Seminar, LMU Munich

R-packages **Author**
cERGM: Fit, Simulate and Diagnose Citation Exponential Random Graph Models
Contributor
ergm: Fit, Simulate and Diagnose Exponential-Family Models for Networks

Teaching Experience **Instructor at Penn State**
Spring 2021, STAT 440 - Computational Statistics
Fall 2020, STAT 319 - Applied Statistics in Science
Fall 2018, STAT 470W - Problem Solving and Communication in Applied Statistics

Teaching Assistant at Penn State
Fall 2019, STAT 462 - Applied Regression Analysis
Spring 2019, STAT 200 - Elementary Statistics
Spring 2018, STAT 470W - Problem Solving and Communication in Applied Statistics
Fall 2017, STAT 470W - Problem Solving and Communication in Applied Statistics
Spring 2017, STAT 500 - Applied Statistics
Fall 2016, STAT 200 - Elementary Statistics
Summer 2016, STAT 462 - Applied Regression Analysis
Spring 2016, STAT 415 - Introduction to Mathematical Statistics
Fall 2015, STAT 415 - Introduction to Mathematical Statistics

Review Session Instructor (Übungsleiter) at LMU
Winter 2014, Calculus for Computer Scientists and Statisticians
Winter 2014, Mathematics I for Physicists
Summer 2014, Mathematics II for Physicists
Winter 2013, Mathematics I for Physicists
Summer 2013, Stochastics
Winter 2012, Linear Algebra for Computer Scientists and Statisticians
Summer 2012, Linear Algebra for Computer Scientists and Statisticians

Awards **Bruce Russett Award for the Best Paper Published in the Journal of Conflict Resolution in 2019**
Paul W. Thurner, Christian S. Schmid, Skyler J. Cranmer, and Göran Kauermann.
Network Interdependencies and the Evolution of the Arms Trade Network.

Teaching Award for Support of Pedagogy in Undergraduate Instruction 2019
Department of Statistics, Pennsylvania State University

Graduate Consulting Award 2015
Statistical Consulting Center, Ludwig Maximilians University

Technical
Skills

Statistical Programming

R, Git, Stan, C/C++, SPSS, Minitab,

Computing Platforms

Unix, DOS/Windows

Typesetting Platforms

Latex, R Markdown

Languages

German (native), English (fluent), Korean, French (elementary)

Last update: March 2021