

Camelia Simoiu

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Research Interests

Computational statistics (e.g. MCMC sampling methods), machine learning, data mining, online experiments, with applications in criminal justice and behavioral cyber security.

Education

Stanford University, USA PhD candidate, Computational Social Science	2014-present
University of Amsterdam, Netherlands MS Artificial Intelligence	2013-2014
University of Toronto, Canada BS in Applied Statistics and Economics with Highest Honors	2005-2009
Society of Actuaries (SOA) Associate of Society of Actuaries (ASA accreditation)	2006-2011

Employment

Researcher, Symantec , Mountain View, CA	Summer, 2017
<ul style="list-style-type: none">Develop a machine-learning approach to identify online web browsing behaviors that increase individuals' risk of experiencing malware attacks.	
Researcher, Massachusetts Institute of Technology (MIT) , Cambridge, MA	Jan – June, 2013
<ul style="list-style-type: none">Study the effects of network structure on social influence and complex contagion.Identify factors that encourage effective peer-to-peer propagation of behaviour using time-dependent Cox survival models, on 1.6 million users across 2,000 large-scale corporate social networks.Work featured in <i>Pentland, Alex. Social Physics: How Good Ideas Spread-The Lessons from a New Science. Penguin, 2014.</i>	
Fellow, Eric Schmidt Data Science for Social Good , University of Chicago, IL	Summer, 2013
<ul style="list-style-type: none">Develop a supervised machine-learning approach to quantify energy savings of building retrofits.Profile usage, predict peaks, and detect anomalous patterns for energy consumption from three years of hourly energy usage data from over 6,000 commercial buildings; work presented at KDD.One of 36 fellows chosen from 500+ applicants for this three-month fellowship.	
Actuarial Consulting Analyst, Mercer , Toronto, ON	2009 – 2012
<ul style="list-style-type: none">Develop quantitative statistical and stochastic models to evaluate the financial risk exposure of health and benefit plans for companies across the financial, industrial, and energy sectors.Qualified as an Associate of Society of Actuaries (ASA) after passing 8 exams on probability, statistics, and financial mathematics.	

Publications

C. Simoiu, S. Corbett-Davies, S. Goel, “The Problem of Infra-marginality in Outcome Tests for Discrimination”, *Annals of Applied Statistics*, Vol 11-3, 2017.
[nominated for ASA Outstanding Application award, voted most interesting paper on arXiv, 08/2016]

Crowd Research: Open and Scalable University Laboratories. UIST 2017.
R. Vaish, S. Gaikwad, G. Kovacs, **C. Simoiu**, M. Bernstein, et. al.
[Best Paper Honorable Mention Award]

Investigating the Wisdom of the Crowds at Scale, ACM UIST Symposium, 2015.

C. Simoiu, Rajan Vajan, Sharad Goel et. al., poster with oral presentation

Understanding and Improving Energy Consumption in Commercial Buildings, KDD, 2013.

S. Alfeld, C. Simoiu, A. Fernandez-Conde

Under review / working papers

E. Pierson, C. Simoiu, J. Overgoor, S. Corbett-Davies, V. Ramachandran, C. Phillips, S. Goel, “A large-scale analysis of racial disparities in police stops across the United States” [under review]

C. Simoiu, C. Gates, S. Goel, “At risk of ransomware: a behavioral analysis of web browsing habits” [working paper]

C. Simoiu, C. Sumanth, A. Myore, S. Goel, “The effects of social influence on collective behavior” [under review]

Teaching & Leadership

Co-Instructor, “**Rethinking cybersecurity: Behavioral and economic perspectives**” Winter 2018

- Initiated and co-led a new seminar course focused on behavioral cyber security at Stanford in collaboration with Professor Dan Boneh and the Stanford Cyber Initiative

Teaching Assistant

- Applied Statistics (MS&E125), TA for Sharad Goel Winter 2018
- Social Networks: Theory and Methods (MS&E382), TA for Noshir Contractor Winter 2016

Founder, **Data Analysis Workshop Series**, University of Toronto, ON 2009 – 2012

- Lead a ten-week intermediate and advanced level technical workshop for undergraduate students covering advanced data analysis techniques and Visual Basics for Applications (VBA) programming (attendance approximately 50 students).
- Create and develop course material, lectures, assignments, organize guest speakers.
- Workshop subsequently integrated into the actuarial science program at the University of Toronto.

Scholarships and awards

StanCon Scholarship, Stan Development Team	2017
Best Paper Honorable Mention Award, UIST	2017
Travel Grant, GREPSEC III workshop on computer security research	2017
ACCEL Fellowship, Stanford University	2016-07
Winner of the Knight News Challenge Fellowship Challenge	2015
RSA Security Scholar	2015
Stanford Graduate School of Engineering Fellowship	2014
Data Science for Social Good Fellowship, University of Chicago	2013
International Exchange Bursary, University of Toronto	2007
Blue-Lands Scholarship, University of Toronto	2006
Victoria College Regents Scholarship, University of Toronto	2006
School Champion, Cayley Contest, Canadian Mathematics Competition	2003
Placed in top 5% nationally on Pascal & Fermat Contests, Canadian Mathematics Competition	2002-04

Invited talks and conferences

2018 *The cost of fairness: Assessing bias in decision-making (invited talk)*

Electronic Frontier Foundation (EFF), San Francisco, CA

Unveiling hidden biases in human decision-making: an algorithmic approach (invited talk)

CMStats, Pisa, Italy

Algorithms for Criminal Justice Reform (invited talk)

Artificial Intelligence for Social Impact Speaker Series, Santa Clara University, San Jose, CA.

- 2017 *The Effects of Social Influence on Collective Intelligence (invited talk)*
Conference on Digital Experimentation (CODE), MIT, Cambridge, MA.
- At risk of ransomware: a behavioral approach to predicting at-risk populations using web browsing (talk)*
Symantec, San Francisco, CA.
- Modelling connectedness in cyber risk – a network perspective (invited talk)*
World Economic Forum Cyber Risk Quantification Workshop, San Diego, CA.
- A large-scale analysis of racial disparities in police stops across the United States (data science workshop lead)*
Investigative Reporters and Editors Conference (IRE), Phoenix, AZ.
- GREPSEC III** Workshop on computer security research, San Jose, CA. (*sponsored attendance*)
- 2016 *The Problem of Infra-marginality (invited talk)*
TEDxBeaconStreet Conference, Boston, MA.
- A large-scale analysis of racial disparities in police stops across the United States (attended)*
Computation and Journalism Conference, Stanford, CA.
- The Problem of Infra-marginality (invited talk)*
Joint Statistical Meetings, Chicago, IL.
- The Problem of Infra-marginality (invited talk)*
International Computational Social Science Conference (IC2S2), Chicago, IL.
- 2015 *Investigating collective intelligence at scale (poster with oral presentation)*
ACM UIST, Charlotte, NC.

Service

RSA Security Scholar Committee member, RSA	2018
Volunteer, Code.org, CA.	2018
Local facilitator, Women in Data Science (WiDS) Conference, Stanford, CA.	2018
Volunteer instructor (Python algorithms workshop lead) ChickTech, San Francisco, CA.	2017
Volunteer, WISE (Women in Science and Engineering) group, Stanford, CA	2016
Local Chair, Conference for Online Social Networks (COSN), Stanford, CA.	2015
Data science lead, Aspiring Researcher Challenge, Stanford, CA.	2015
Volunteer consultant, Endeavor Volunteer Consulting for Non-Profits, Toronto, ON.	2012

Programming Skills

Proficient: Python, (Py)Spark, R, MySQL, Hive, Stan, MatLab, Gephi, Unix, LaTeX
Basic Knowledge: Java, Hadoop, C++

Personal

Languages: Fluent in English and Romanian (native). Conversant in French.
 Amateur cello player; road biking, diving, mountaineering.