Publications

2017

Towards real-time prediction of unemployment and profession
Joint work with MIT Media Lab and MIT Sloan.
Published in Social Informatics 2017 LNCS, Springer

Improving official statistics in emerging markets using machine learning and mobile phone data
Joint work with MIT Media Lab
Published in EPJ Data Science. 2017 May 16;6(1):3.

Mapping Poverty using mobile phone and satellite data
Joint work with MIT Media Lab and Flowminder
Published in Royal Society Interface (2017)

Differential Network Effects on Economic Outcomes: A Structural Perspective
Joint work with MIT Media Lab and MIT Sloan.
Published in Social Informatics 2017 LNCS, Springer

Modeling the Temporal Nature of Human Behavior for Demographics Prediction
Joint work with B. Felbo, S. Lehmann, YA montjoye, A.Pentland
Published in ECML-PKDD 2017

Mitigating the risks of financial exclusion: Predicting illiteracy with standard mobile phone logs
Published in SBP-BRIMS 2017 (pp. 309-314). Springer

Joy of Giving: Increasing Product Uptake by allowing customers to Forward
Joint work with Harvard Business School
In preparation (2017)

Investigating Social Influence through large-scale field Experimentation (work title)
Joint work with David Lazer, Taimur Qureshi, Geoffrey Canright, J.Bjelland, Chris Riedl
In preparation (2017)

Quantifying socio-economic segregation across continents using mobile phone metadata
Joint work with Jo Thori Lind, Andreas Kotsadam, Bjørn-Atle Reme and Johannes Bjelland
In preparation (2017)

The impact of social networks on individual income (work title)
Joint work with Guillaume Saint-Jacques, Eaman Jahani, Johannes Bjelland, Bjørn-Atle Reme
In preparation (2017)

2016

Deep learning applied to mobile phone data for Individual income classification
Joint work with MIT Media Lab
Published in International conference on Artificial Intelligence: Technologies and Applications (ICAITA 2016)

Detecting climate adaptation with mobile network data: Anomalies in communication, mobility and consumption patterns during Cyclone Mahasen
Joint work with Flowminder
Published in Climatic Change, 138(3-4), pp.505-519 (2016)

Unveiling Hidden Migration and Mobility Patterns in Climate Stressed Regions: A Longitudinal Study of Six Million Anonymous Mobile Phone Users in Bangladesh
Joint work with Flowminder
Published in Global Environmental Change 38 (2016): 1-7

2015

Impact of human mobility on the emergence of dengue epidemics in Pakistan
Joint work with Harvard University
Published in PNAS (2015)
2014

**Big Data-Driven Marketing: How Machine Learning outperforms marketers’ gut-feeling**
Joint work with MIT Media Lab

**Handset-centric view of smartphone application use**
Joint work with Cambridge University
Published in Procedia Computer Science, Volume 34, 2014, Pages 368-375

**Small circles: Mobile Telephony and the cultivation of the private**

2013

**Comparing and visualizing the social spreading of products on a large-scale social network**
Published in The influence on Technology on Social Network Analysis and Mining, Tanzel Ozyer et.al, Volume 6, 2013, pp 201-225 (Springer)

2012

**The activation of core social networks in the wake of the 22 July Oslo bombing**
Published in IEEE Advances in Social Network Analysis and Mining, 586-590, 2012

**Small and Even Smaller Circles: The Size of Mobile Phone-Based Core Social Networks in Scandinavia and South Asia**
Published in Journal of Intercultural Communication Research: Volume 41, Issue 3, 2012

**The socio-demographics of texting: An analysis of traffic data**
Published in New Media & Society, Vol 1 4 Issue 2 March 2012 pp 280-297

**A Social Network Study of Android VS Apple Smartphone battle**
Published in IEEE Business Applications of Social Network Analysis, 983-987, 2012

2010

**Product adoption networks and their growth in a large mobile phone network**
Published in IEEE Advances in Social Network analysis and Mining 208-216, 2010

**Talks**

2017

**Differential Network Effects on Economic Outcomes: A Structural Perspective**
Joint work with MIT Media Lab and MIT Sloan.
Social Informatics, Oxford University, 2017

**Towards real-time prediction of unemployment and profession**
Joint work with MIT Media Lab and MIT Sloan.
Social Informatics, Oxford University, 2017

**Mitigating the risks of financial exclusion : Predicting illiteracy with standard mobile phone logs**

**Mapping poverty using mobile phone and satellite data**
Joint work with MIT Media lab and Flowminder
Netmoh, Milan, Italy, 2017

**Making Money: Evidence from Individually Matched network, education and income data**
Joint work with MIT Media lab and MIT Sloan
International conference on computational social science, Cologne, Germany, 2017

**Modeling the Temporal Nature of Human Behavior for Demographics Prediction**
Joint work with B.Felbo, S. Lehmann, YA montjoye, A.Pentland
ECML-PKDD 2017

2016

**Deep Learning Applied to Mobile Phone Data for individual Income classification**
Joint work with MIT Media lab
International Conference of Artificial Intelligence, Bangkok, 2016

2015

Using Mobile Phone Data for Poverty Estimates in Bangladesh
Invited Speaker

Predicting Gender from Mobile Phone Metadata
Joint work with MIT Media lab
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2015

Investigating Social Influence through large-scale field experimentation
Joint work with Northeastern University
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2015

Dynamics of Social and Spatial Segregation using mobile phone data
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2015

A cross country study of gender prediction using mobile phone metadata
Joint work with MIT Media lab

Smartphone application co-usage: Could we predict your next app?
Joint work with Cambridge University

Social Influence and Complex Contagion
Joint work with Northeastern University
Workshop on information in Networks, Stern School of Business, New York, US, 2015

2014

Big Data And Social change in Underdeveloped Countries
Rockefeller Centre, Bellagio, Italy (2014)

Big Data-Driven Marketing: How Machine Learning outperforms marketers gut-feeling
Joint work with MIT Media Lab

2013

Accelerating Internet Growth in Asia using Viral Spreading
Joint work with Northeastern University
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2013

Big Data: Rewards and Risks for the Social Sciences
Oxford Internet Institute, University of Oxford, UK, 2013

Testing contagion in small groups via Direct Marketing
Joint work with Northeastern University
Stern School of Business, New York, US, 2013

Apple VS Android: Signals of success in the Social Network
ECCS 2013 International conference on Complex Systems, Quantifying Success satellite session
World Trade Center, Barcelona, Spain, 2013

Clustering of Smartphone ownership in Development Countries
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2013

2012

Apple VS Android: A comparison of Social Effects in Adoption
Netmob, Massachusetts Institute of Technology (MIT), Boston, US, 2012

The activation of social networks in the wake of the Oslo 22 July Bombing
INSNA Social Network Analysis Conference
Sunbelt XXXI, Redondo, California, US, 2012

2011

Comparing and visualizing the social spreading of products on a large-scale social Network
WIDS, Massachusetts Institute of Technology (MIT), Boston, US, 2011
2010

**Social Network Monsters in Telecom Call Graphs**
INSNA Social Network Analysis Conference
Sunbelt XXX, Riva Del Garda, Italy, 2010

**Telecom Service Diffusion and Influence in a network of interlocking directorates**
INSNA Social Network Analysis Conference
Sunbelt XXX, Riva Del Garda, Italy, 2010

**Product Adoption, Network Structure and Growth in a Large Mobile Phone Network**
ASONAM 2010, Advances in Social Network Mining and Analysis, Odense, Denmark (2010)

2009

**Product Spreading and Network Structure for an inter firm communication network**
INSNA Social Network Analysis Conference, Sunbelt XXIX, San Diego, US, 2009

### Scientific committees

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<th>Conference</th>
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<td>SocInfo 2017</td>
<td>University of Oxford</td>
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<td>Netsci 2017</td>
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<td>KDD 2014</td>
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### Media Exposure

**How metadata can reveal what your job is**
Vice Media, Dec 2016

**Researcher uses mobile phone data to predict illiteracy**
Engadget, July 2016

**Mobile phone data reveals literacy rates in developing countries**
MIT Technology Review, July 2016

**Mobile phone and satellite data to map poverty**
Science Daily, Feb 2017

**Poverty mapped in near real-time using mobile phone and satellite data**
Seeker, Feb 2017

**How Big Cities Can Lead to Small Thoughts**
Wall Street Journal (Mar 2012)

**Report to President Obama: Big Data and Privacy: a technological perspective**
Executive Office of the President,
White House, May 2014

**How friends influence gadget adoption**
MIT Technology Review (Jun 2011)

**Wireless companies could use your friends**
MIT Technology Review (Jul 2010)

**How Big Data can serve development**
Gates Foundation, 2014 (Nirant Gupta, Jake Kendall)

**Cell phone data analysis dials in crime networks**
Science News (Mar 2013)

**Apple product fever**
Science News (Jun 2011)
Big Data Analytics in Telenor Group
Article in Norwegian Marketing Association

How friends influence gadget adoption
Times of India (Jun 2011)

Bringing together the brightest minds in Big Data
Telenor Group (May 2013)

Big Data - Good for the World, good for Business
VG Nett, E24 news (May 2013)

May 17th in 25 seconds
The technology that visualize our National Day will also save people from flood and Dengue Fever
Dagens Næringsliv (May 2014)

Will Big Data end the Executive Gut Feeling
Telenor Group (Feb 2013)

Big Data – 90% of all data has been generated the two last years
IT News (Feb 2013)

A Vital New Marketing Metric: The Network Value of a Customer
Predictive-marketing.com (Sept 2010)

Telenor researchers reveal how iPad spreads
Telenor Group (May 2011)

Talks – industrial conferences

Big Data Science from a telecom perspective
2015 The Decision Support Day, Oslo, Norway
Data Science on large mobile phone datasets
2015 Santander Digital Week, Oslo, Norway

Data science
2015 Innovation Day, Affecto, Oslo, Norway

Big Data and Predictive Analytics (international keynote)
2013 Big Data Europe, Zurich, Switzerland

Improving Business With Data Science
2014 Gurus of Business Intelligence, Oslo Spektrum, Norway

Big Data - how far can we go?
2013 New Media Network, Oslo, Norway

13 times better hitrate with Machine Learning
2013 IT-Tinget, Tønsberg, Norway

Using Big Enough Data to Give the Customers what they want
2013 Telenor Group, Oslo, Norway

Big Data in Telecom: Making an impact on peoples lives
2013 Arrangement with UN Global Pulse, NorthEastern University (200 pp!), Oslo, Norway

Insights and applications of customer data: Focus on Advanced Analytics
2011 Information Management, Oslo, Norway, Norway

Advanced Analytics in Telecom
2012 Information Management, Copenhagen, Denmark

References

- Astrid Undheim  Vice President, PHD  Telenor Group Research, Analytics & AI
- Geoffrey Canright  Vice President, PHD, Professor  Telenor Group Research, Big Data Analytics
- Rima Venturin  Research Manager  Telenor Group Research
- Dr. Stein V. Høgland  Executive Director, PHD  Hinode Science Data Centre Europe, UiO
- Dr Kenji Shibuya  Director, PHD  World Health Organization, Switzerland
• Prof. Hugo Zbinden  Professor, PHD  Quantum Communication, UiG, Switzerland
• Prof. Johannes Skaar  Professor, PHD  Fiberoptics Group, NTNU
• Prof. Jon Otto Fossum  Professor, PHD  Dep.of Physics, NTNU
• Prof. Dag Hjelme  Professor, PHD  Fiberoptics Group, NTNU
• Prof. emeritus Bjørn Larsen  Professor, PHD  Dep. of Biotechnology, NTNU