Michael Szell

Associate Professor

Computer Science Department
IT University of Copenhagen
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Positions held

Associate professor, Computer Science Department, IT University of Copenhagen, since Oct 2020

External faculty, Complexity Science Hub Vienna, since Apr 2017

Founder and manager of Bayer & Szell OG, since Sep 2006

Developer and administrator of the Massive Multiplayer Online Game *Pardus*, since Jul 2004

Past positions

Assistant professor, Computer Science Department, IT University of Copenhagen
Feb 2019 – Sep 2020

External researcher, ISI Foundation
Aug 2019 – Jul 2020

Assistant professor, Department of Network and Data Science, Central European University
Oct 2017 – Jan 2019

Researcher, Centre for Economic and Regional Studies, Hungarian Academy of Sciences
Sep 2017 – Jan 2019

Adjunct visiting professor, Center for Complex Network Research, Northeastern University
Sep 2016 – Jan 2019

Visiting research fellow, Center for Network Science, Central European University
Oct 2016 – Sep 2017

Research fellow, Centre for Social Sciences, Hungarian Academy of Sciences
Sep 2016 – Sep 2017

Researcher in residence, moovel lab, moovel Group GmbH
Sep 2016 – Dec 2016

Postdoctoral research associate, Center for Complex Network Research, Northeastern University
Jul 2014 – Sep 2016

Postdoctoral research fellow, Senseable City Laboratory, Massachusetts Institute of Technology
Apr 2012 – Jul 2014

Research assistant, Section for Science of Complex Systems, Medical University of Vienna
Jan 2009 – Dec 2011

Research interests

Urban data science, Human mobility, Sustainable transport

Data visualization, Complex systems, Network science

Quantifying human behavior and social networks, in particular online and in cities

Education

Ph.D. in Physics, summa cum laude, University of Vienna, Mar 2012

M.Sc. in Technical Mathematics, Vienna University of Technology, Oct 2007

Skills

Programming: Python, MATLAB, PHP, SQL, HTML/CSS, MongoDB

Data mining, Databases, Web scraping, Online game development

Languages: German, Hungarian (native), English (proficient), Italian (conversational), Danish (basic)

Publications

* denotes corresponding authorship

Preprints

M. Klanjčić, L. Gauvin, M. Tizzoni, M. Szell*
Identifying urban features for vulnerable road user safety in Europe, *SocArXiv:89cyu* (2021)

Peer-reviewed publications

M. Coscia, M. Szell
Multiplex Graph Association Rules for Link Prediction, *Proceedings of the International Conference on Web and Social Media (ICWSM)* 15(1), 129–139 (2021)

M. Schläpfer, L. Dong, K. O'Keeffe, P. Santi, M. Szell, H. Salat, S. Anklesaria, M. Vazifeh, C. Ratti, G.B. West
The universal visitation law of human mobility, *Nature* 593(7860), 522–527 (2021)

L.G. Natera Orozco, F. Battiston, G. Iñiguez, M. Szell*
Data-driven strategies for optimal bicycle network growth, *Royal Society Open Science* 7:201130 (2020)

L.G. Natera Orozco, F. Battiston, G. Iñiguez, M. Szell*
Extracting the multimodal fingerprint of urban transportation networks, *Transport Findings* 13171 (2020)

F. Battiston, F. Musciotto, D. Wang, A.-L. Barabási, M. Szell, R. Sinatra
Taking census of physics, *Nature Reviews Physics* 1, 89–97 (2019)

M. Szell, Y. Ma, R. Sinatra
A Nobel opportunity for interdisciplinarity, *Nature Physics* 14, 1075–1078 (2018)

M. Szell*
Crowdsourced quantification and visualization of urban mobility space inequality, *Urban Planning* 3, 1-20 (2018)

S. Grauwin, M. Szell, S. Sobolevsky, P. Hövel, F. Simini, M. Vanhoof, Z. Smoreda, A.-L. Barabási, C. Ratti
Identifying the structural discontinuities of human interactions, *Scientific Reports* 7, 46677 (2017)

R. Tachet , O. Sagarra , P. Santi, G. Resta , M. Szell , S. Strogatz , C. Ratti
Scaling law of urban ride sharing, *Scientific Reports* 7, 42868 (2017)

M. Nyhan, S. Sobolevsky, C. Kang, P. Robinson, A. Corti, M. Szell, D. Streets, Z. Lu, R. Britter, S.R.H. Barrett, C. Ratti

Predicting vehicular emissions in high spatial resolution using pervasively measured transportation data and microscopic emissions model, *Atmospheric Environment* 140, 352–363 (2016)

R. Sinatra, P. Deville, M. Szell, D. Wang, A.-L. Barabási
A century of physics, *Nature Physics* 11, 791–796 (2015)

O. Sagarra, M. Szell, P. Santi, A. Diaz-Guilera, C. Ratti
Supersampling and network reconstruction of urban mobility, *PLOS ONE* 10(8), e0134508 (2015)

O. Mryglod, B. Fuchs, M. Szell, Y. Holovatch, S. Thurner
Interevent time distributions of human multi-level activity in a virtual world, *Physica A* 419, 681–690 (2014)

P. Santi, G. Resta, M. Szell*, S. Sobolevsky, S. Strogatz, C. Ratti
Quantifying the benefits of vehicle pooling with shareability networks, *Proceedings of the National Academy of Sciences* 110(37), 13290–13294 (2014)

M. Szell*, S. Grauwin, C. Ratti
Contraction of online response to major events, *PLOS ONE* 9(2), e89052, (2014)

R. Sinatra, M. Szell*
Entropy and the predictability of online life, *Entropy* 16(1), 543–556 (2014)

S. Sobolevsky, M. Szell, R. Campari, T. Couronné, Z. Smoreda, C. Ratti
Delineating geographical regions with networks of human interactions in an extensive set of countries, *PLOS ONE* 8(12), e81707 (2013)

S. Thurner, P. Klimek, M. Szell, G. Duftschmid, G. Endel, A. Kautzky-Willer, D. Kasper
Quantification of excess-risk for diabetes when born in times of hunger, in an entire population of a nation, across a century, *Proceedings of the National Academy of Sciences* 110, 4703–4707 (2013)

M. Szell, S. Thurner
How women organize social networks different than men, *Scientific Reports* 3, 1214 (2013)

M. Szell, R. Sinatra, G. Petri, S. Thurner, V. Latora
Understanding mobility in a social petri dish, *Scientific Reports* 2, 457 (2012)

M. Szell*, S. Thurner*
Social dynamics in a large-scale online game, *Advances in Complex Systems* 15, 1250064 (2012)

S. Thurner, M. Szell, R. Sinatra
Emergence of good conduct, scaling and Zipf laws in human behavioral sequences in an online world, *PLOS ONE* 7, e29796 (2012)

M. Szell, S. Thurner
Measuring social dynamics in a massive multiplayer online game, *Social Networks* 32, 313–329 (2010)

M. Szell, R. Lambiotte, S. Thurner
Multirelational organization of large-scale social networks in an online world, *Proceedings of the National Academy of Sciences* 107, 13636–13641 (2010)

Other publications

B. Resch*, M. Szell*
Human-Centric Data Science for Urban Studies, *ISPRS International Journal of Geo-Information* 8, 584 (2019)

Y. Holovatch, O. Mryglod, M. Szell, S. Thurner
Analyses of a virtual world, In: *Math Meets Myth: Complexity-science approaches to folktales, myths, sagas, and histories*, Springer, Eds.: R. Kenna, M. Maccarron, P. Maccarron (2017)

M. Szell*, R. Sinatra
Research funding goes to rich clubs, *Proceedings of the National Academy of Sciences* 112(48), 14749–14750 (2015)

M. Szell*, P. Santi, C. Ratti
Trip sharing in the era of self-driving cars, *Autonomous Vehicles Conference*, New York University (2015)

P. Santi, G. Resta, M. Szell*, S. Sobolevsky, S. Strogatz, C. Ratti
Reply to Lopez et al.: Sustainable implementation of taxi sharing requires understanding systemic effects, *Proceedings of the National Academy of Sciences* 111(51), E5489 (2014)

M. Szell*, B. Groß
Hubcab – Exploring the Benefits of Shared Taxi Services, *Decoding the City*, De Gruyter, Eds.: D. Offenhuber, C. Ratti (2014)

M. Szell
Connecting Paradigms, *Science* 343(6147), 970–971 (2014)

M. Szell*, B. Groß
Hubcab – Taxi-Fahrgemeinschaften, digital erkundet, *Stadt entschlüsseln*, Bauwelt Fundamente 150, Birkhäuser, Eds.: D. Offenhuber, C. Ratti (2013)

S. Thurner, P. Klimek, M. Szell, G. Duftschmid, G. Endel, A. Kautzky-Willer, D. Kasper
Reply to Klitz and Niklasson: Can viral infections explain the cross-sectional Austrian diabetes data?, *Proceedings of the National Academy of Sciences* 110, E2751 (2013)

M. Szell
Statistical physics approaches to large-scale socio-economic networks, *Dissertation*, University of Vienna (2011)

S. Thurner, M. Szell (Eds.)
Book of abstracts ECCS'11 Vienna, *European Conference on Complex Systems 2011*, Löcker (2011)

M. Szell, G. Petri, K. Zhao, D. Levin
Human mobility in an online world, *Santa Fe Summer School 2010 Project Paper* (2010)

M. Szell
Finite Differenzen Verfahren zur numerischen Lawinensimulation, *Diploma thesis*, Vienna University of Technology (2007)

M. Szell, F. Judex
Petri Net Modelling of Different Strategies in ARGESIM Comparison C4 "Dining Philosophers" with HPSim, Simulation News Europe 17, 1 (2007)

Data visualization projects

Taxonomy of Urban Bicycle Network Approaches, Jan 2021, github.com/mszell/taxonomybikenw

The idea of this visualization is to identify the most distinct environments for cycling arriving from different approaches of urban planning.

Stephen Hawking Career, March 2018, michael.szell.net/hawking

A Science of Science tribute to Stephen Hawking. This interactive plot allows the exploration of the influential physicist's oeuvre – scientific papers and books – and its impact.

What the Street!?, June 2017, whatthestreet.moovellab.com

An online platform for intuitive and playful exploration of wasted mobility space in cities, of uneven distribution of space between different modes of transportation, and of how, in future scenarios of widespread shared and autonomous vehicles, massive areas of parking spaces could be regained for the public.

HubCab, Mar 2014, www.hubcab.org

An interactive visualization that invites you to explore the ways in which over 170 million taxi trips connect the City of New York in a given year. This interface provides a unique insight into the inner workings of the city from the previously invisible perspective of the taxi system with a never before seen granularity.

Tweet Bursts, Feb 2014, senseable.mit.edu/tweetbursts

Visual exploration of our collective excitement towards major events: The more excited we are, and the more intense the flurry of messages in the collective, the shorter our messages become.

Talks

Keynotes and invited talks

City Interaction Lab, Paris, France (remotely), May 2021
Vulnerable road user safety in Europe, and towards a science of bicycle network design

Supercykelstier, Copenhagen, Denmark (remotely), Mar 2021
Data-driven strategies for optimal bicycle network growth

MIT Medial Lab, Cambridge, USA (remotely), Sep 2020
Human-centric Urban Data Science with OpenStreetMap

EFC Funders Forum on Sustainable Cities, Turin, Italy, Oct 2019
Revealing wasted urban space with crowd-sourced data

Complex networks workshop, Lipari, Italy, Jul 2019
Taking census of Physics and of the Nobel Prize

DataBeers Copenhagen, Denmark, May 2019
Understanding wasted mobility space with crowdsourced urban data

Keynote talk at *Parallel Cities* Science Forum at *BLOXHUB*, Copenhagen, Denmark, Mar 2019
Measuring Mobility Space Inequality

Mathematical modelling seminar, Budapest, Hungary, Sep 2018
Mathematical modelling of human mobility

Complex networks workshop, Lipari, Italy, Jul 2018
Quantitative analysis of urban shareability networks and mobility spaces

Big Dive at *ISI Foundation*, Turin, Italy, Jul 2018
Urban data science towards sustainable cities: From taxi sharing to mobility space equality

External Faculty Meetup at *Complexity Science Hub*, Vienna, Austria, May 2018
Make cities great again: Understand urban complexity, but embrace simplicity

Urban Mobility OpenStreetMap Hungary Meetup, Budapest, Hungary, May 2018
Using OpenStreetMap for Quantification and Visualization of Urban Mobility Space Inequality

Keynote talk at *Innovation & Cooperation* event of Wiener Stadtwerke at *TU Wien*, Vienna, Austria, Apr 2018
Urban Data Culture – Notwendigkeit und Chancen datenbasierter, interdisziplinärer Stadtentwicklung

AI and Urban Life satellite at *NetSci-X 2018*, Hangzhou, China, Jan 2018
Exploring New York City Taxi Trails and Sharing Our Way to a More Sustainable Urban Future

Invited talk at *Hungarian Academy of Sciences*, Budapest, Hungary, Nov 2017
Exploring quantitatively sharing benefits and inequalities in urban transportation

Workshop on Complex Systems at *Complexity Science Hub Vienna*, Vienna, Austria, Oct 2017
Towards a quantitative understanding of cities using network science and large-scale data analysis

Keynote talk at *COSTNET2017 Conference*, Palma de Mallorca, Spain, Oct 2017
Unveiling untapped potential in cities: From taxi sharing to mobility space inequality

Harvard University, Cambridge, USA, Jul 2017
Visual exploration of urban mobility space inequality with What the Street!?

Northwestern University, Evanston, USA, Jul 2017
Quantifying sharing benefits and injustice in urban transportation

Senseable City Lab, MIT, Cambridge, USA, Jun 2017
Exploring the arrogance of space with What the Street!?

Quantifying success satellite at *NetSci 2017*, Indianapolis, USA, Jun 2017
The success of teams and interdisciplinary research

Talk at Center for Network Science, Central European University, Budapest, Hungary, May 2017
Understanding social networks and collective behavior in online and urban environments

Physics of Flexible Mobility symposium at *DPG Spring Meeting*, Dresden, Germany, Mar 2017
Mobility in shareability networks

moovel meetup at *moovel Group GmbH*, Stuttgart, Germany, Sep 2016
The science of trip-sharing

Seminar at "Lendület" Research Center for Educational and Network Studies (RECENS), Budapest, Hungary, Jan 2016
Conflict and cooperation in large social networks

Autonomous Vehicles Conference at New York University, New York, USA, May 2015
Trip-sharing in the age of self-driving cars

Understanding Complexity Conference, Vienna, Austria, Feb 2015
Understanding Human Society with a Social Petri Dish

Zurich meets New York Festival at New York Academy of Science, New York, USA, May 2014
Using virtual worlds to explore behavior of people

Social Network Analysis Colloquium at ETH Zürich, Switzerland, Feb 2014
The Social Petri Dish and New Perspectives in Social Network Analysis

Urban Beers Meetup, Barcelona, Spain, Sep 2013
Taxi pooling in New York City: a network-based approach to optimize shared mobility

FuturICT Workshop at MIT Medial Lab, Cambridge, Feb 2013
Online games as platforms for measuring socio-economic behavior

Macro Connections Seminar at Harvard University, Cambridge, USA, Oct 2011
Understanding collective socio-economic behavior in an online world

Talk at Barabasilab, Northeastern University, Boston, USA, Oct 2011
Structure and dynamics of multi-relational, socio-economic networks in an online world

Games Technology Workshop at ETH Zürich, Switzerland, Mar 2011
Browser-based MMOGs: Technology and use as research tools

Interdisciplinary Seminar *Modeling Complex Socio-Economic Systems and Crises* at ETH Zürich, Switzerland, Feb 2011
Social Networks in Multiplayer Online Games

Invited talk at ETH Zürich, Switzerland, Feb 2011
Massive Multiplayer Online Games as Socio-economic Labs

IIASA Xevents Workshop, Laxenburg, Austria, Mar 2010
Extreme events in a large-scale, virtual human society

Invited talk at University of Catania, Italy, Oct 2009
Measuring the evolution of socio-economical structure in an online game

Invited lecture at the Department of Education and Human Development, University of Vienna, Austria, Jun 2008
Pardus – Funktion und Aufbau eines Browser-Spiels

ARGESIM Simulation Workshop, Siena, Italy, Sep 2007
Finite Differenzen Verfahren zur numerischen Lawinensimulation
Pardus – Funktion und Aufbau eines Browser-Spiels

Workshop for avalanche dynamics at the Austrian service for Torrent and Avalanche Control, Schwaz, Austria, Oct 2007
Finite Differenzen Verfahren zur numerischen Lawinensimulation

Contributed talks

1st Annual Meeting of the Cycling Research Board, Amsterdam, Netherlands, Nov 2018
Cross-city visualization & quantification of the "arrogance of space" using large-scale transport space data

NetSci 2018 Conference, Paris, France, Jun 2018
Structural discontinuities of human interactions in space

Urban Systems and Network Science satellite at *NetSci 2017*, Indianapolis, USA, Jun 2017
Interactive, animated exploration of urban mobility spaces through the online platform "What the Street!?"

CompleNet 2017 Conference, Dubrovnik, Croatia, Mar 2017
Shareability networks: Quantifying ride-sharing benefits

IC2S2 2016 Conference, Evanston, USA, Jun 2016
Exploring the anatomy of physics

CompleNet 2016 Conference, Dijon, France, Mar 2016
Quantifying social effects in collaborative work

ICCSS 2015 Conference, Helsinki, Finland, Jun 2015
Understanding effort and success in teams

NetSci 2015 Conference, Zaragoza, Spain, Jun 2015
Quantifying team effort and success

CompleNet 2015 Conference, New York City, USA, Mar 2015
Understanding Team Success

NetSci 2014 Conference, Berkeley, USA, Jun 2014
Higher-order models in human mobility and interactions

Network Frontier Workshop 2013 at Northwestern University, Evanston, USA, Dec 2013
Taxi-pooling in New York City: A network-based approach to social sharing

Engaging Data 2013 Conference at MIT, Cambridge, USA, Nov 2013
Hubcab – Taxi-sharing in New York City: A network-based approach

ECCS 2013 Conference, Barcelona, Spain, Sep 2013
Human spatial organization and the emergence of urban centers

ECCS 2013 Conference, Multiplex Networks 2013, Barcelona, Spain, Sep 2013
Multiplex networks in social systems

Urban Code Conference, Cambride, USA, Nov 2012
hubcab – A network-based improved urban taxi service

Ph.D. Defensio at University of Vienna, Austria, Mar 2012
Statistical physics approaches to large-scale socio-economic networks

ECCS 2011 Conference, Vienna, Austria, Sep 2011
Human mobility on a network

NetSci 2011 Conference, Budapest, Hungary, Jun 2011
Multi-relational Socio-economic Networks in a Large-scale Online Community

Net2011 Conference at University Bicocca Milano, Italy, May 2011
Multi-relational socio-economic networks in a massive multiplayer online game

INSITE Kickoff-Meeting, Venice, Italy, Apr 2011
The artificial world of the Pardus game: First lessons

7th Vienna Central European Seminar in Particle Physics and Quantum Field Theory, Austria, Nov 2010
Complex human mobility dynamics on a network

ECCS 2010 Conference, Lisbon, Portugal, Sep 2010
Multi-relational social dynamics in a large-scale online game society
Trade, Conflict and Sentiments: Multi-relational organization of large-scale social networks

COST workshop *Processes on Networks* at Medical University of Vienna, Austria, Mar 2010
Establishment of a large-scale "laboratory" for socio-economic behavior

Workshop *Modelling Science* at Rathenau Institute, Amsterdam, Netherlands, Oct 2009
Measuring the evolution of socio-economical structure in an online game

DPG Spring Meeting, Dresden, Germany, Mar 2009
Measuring the evolution of socio-economical structure in an online game

Academic activities

Memberships and foundations

Co-founder and member of *NEtwoRks, Data, and Society (NERDS)* research group at IT University of Copenhagen, nerds.itu.dk, Denmark, since Apr 2019

Editorial service

Editor at International Journal of Geo-information
since Aug 2019

Review editor at Frontiers (Social Physics)
since Jun 2018

Editor at Complex Systems
since Jan 2018

Editor at PLOS ONE
since Dec 2017

Handling editor at PLOS ONE collection *Science of Stories*
Jan 2019 – Jun 2019

Guest Editor at International Journal of Geo-Information, *Human-Centric Data Science for Urban Studies*
Dec 2017 – Apr 2019

Guest Editor at EPJ Data Science, *Individual and Collective Human Mobility: Description, Modelling, Prediction*
May 2017 – Jan 2018

Review service

Nature, Nature Communications, Nature Sustainability, PNAS, Science Advances, Physical Review Letters, Physical Review E, New Journal of Physics, Europhysics Letters, Social Networks, Journal of The Royal Society Interface, Royal Society Open Science, Scientific Data, PLOS ONE, Journal of Statistical Mechanics, EPJ Data Science, Condensed Matter Physics, Frontiers, Transportation, Games, ACM Transactions on Knowledge Discovery from Data, IEEE Transactions on Network Science and Engineering, IEEE Transactions on Knowledge and Data Engineering, IEEE Transactions on Signal and Information Processing over Networks, IEEE Transactions on Intelligent Transportation Systems, GeoInformatica, International Journal of Sustainable Transportation, International Journal of Geographical Information Science, Sustainability, World Bank, Economics Bulletin, Forum neue Medien Austria, Netherlands Organisation for Scientific Research (NWO), World Bank

Academic visits

ISI Foundation, Turin, Italy, Jun 2019

ISI Foundation, Turin, Italy, Jun – Jul 2018

Northwestern Institute on Complex Systems (NICO), Northwestern University, Evanston, USA, Jul 2017

Center for Complex Network Research, Northeastern University, Boston, USA, Jun – Jul 2017

Center for Network Science, Central European University, Budapest, Hungary, Mar – Apr 2016

Santa Fe Institute, Santa Fe, USA, Oct 2011

Laboratory for Complex Systems, University of Catania, Italy, May – Jun 2011

Chair of Sociology, in particular of Modeling and Simulation, ETH Zürich, Switzerland, Feb – Mar 2011

Laboratory for Complex Systems, University of Catania, Italy, Sep 2010

COST scientific mission at the Institute of Mathematical Sciences, Imperial College London, UK, Aug – Sep 2010

Advanced training

Graph Exploitation Symposium at MIT Endicott House, USA, Aug 2014

Workshop on Information and Decision in Social Networks at MIT Media Lab, USA, Nov 2012

Workshop Computational Social Science at Harvard University, USA, May 2012

SFI Complex Systems Summer School 2010 at the Santa Fe Institute, USA, Jun 2010

Summer school *Complex Systems and Social Simulation* at the Central European University, Budapest, Hungary, Jul 2009

Summer school *Steps in Evolution* at the Jacobs University Bremen, Germany, Jun 2009

Organization and committees

Main organizer of *DataBeers Copenhagen*, Denmark, since May 2019

Program Committee member of *MIMODE 2021* in Lyon, France, Oct 2021

Program Committee member of *CCS 2021* in Lyon, France, Oct 2021

Program Committee member of *IC2S2 2021* in Zurich, Switzerland, Jul 2021

Program Committee member of *CompleNet 2021* online, May 2021

Program Committee member of *SocInfo20* in Pisa, Italy, Oct 2020

Program Committee member of *ICCS 2020* in Nashua, USA, Jul 2020

Reviewer of Conference Papers of *IC2S2 2020* in Cambridge, USA, Jul 2020

Program Committee member of *NetSci 2020* in Rome, Italy, Jul 2020

Program Committee member of *CompleNet 2020* in Exeter, UK, Mar 2020

Program Committee member of *NetSci-X 2020* in Tokyo, Japan, Jan 2020

Program Committee member of *Future Cities Challenge 2019* in Oxford, UK, Jul 2019

Program Committee member of *CompleNet 2019* in Tarragona, Spain, Mar 2019

Program Committee member of *Complex Networks 2018* in Cambridge, UK, Dec 2018

Program Committee member of *CCS 2018* in Thessaloniki, Greece, Sep 2018

Program Committee member of *ICCS 2018* in Cambridge, USA, Jul 2018

Program Committee member of *CompleNet 2018* in Boston, USA, Mar 2018

Program Committee member of *Complex Networks 2017* in Lyon, France, Nov 2017

Program Committee member of *CCS 2017* in Cancun, Mexico, Sep 2017

Program Committee member of *ENIC'17* in Duisburg, Germany, Jul 2017

Program Committee member of *IC2S2 2017* in Cologne, Germany, Jul 2017

Program Committee member of the ICWSM-17 *11th International Conference on Web and Social Media* in Montreal, Canada, May 2017

Program Committee member of *COMPLEXIS 2017* in Porto, Portugal, Apr 2017

Program Committee member of the Social Networks and Graph Analysis Track of the WWW2017 *26th International World Wide Web Conference* in Perth, Australia, Apr 2017

Program Committee member of *CompleNet 2017* in Dubrovnik, Croatia, Mar 2017

Program Committee member of *Complex Networks 2016* in Milan, Italy, Dec 2016

Program Committee member of the CCS 2016 *Open Science for an Open Society* satellite in Amsterdam, Netherlands, Sep 2016

Program Committee member of the ICWSM-16 *10th International Conference on Web and Social Media* in Cologne, Germany, May 2016

Program Committee member of the ICDM2016 *Workshop on Data mining for the Analysis of Performance and Success (DAPS 2016)* in Cologne, Germany, May 2016

Program Committee member of the ICWSM-16 *10th International Conference on Web and Social Media* in Cologne, Germany, May 2016

Program Committee member of *COMPLEXIS 2016* in Rome, Italy, Apr 2016

Program Committee member of the Social Networks and Graph Analysis Track of the WWW2016 *25th International World Wide Web Conference* in Montreal, Canada, Apr 2016

Program Committee member of the CompleNet 2016 *Workshop on Complex Networks* in Dijon, France, Mar 2016

Program Committee member of the NetSciX 2016 *Conference on Network Science* in Wroclaw, Poland, Jan 2016

Program Committee member of the ASONAM 2015 *DyNo Workshop on Dynamics in Networks* in Paris, France, Aug 2015

Program Committee member of the ASONAM 2015 *Industry-Track* in Paris, France, Aug 2015

Program Committee member of the *IEEE BigData Congress 2015* in New York City, USA, Jun 2015

Main organizer and Program Committee member of the NetSci 2015 Satellite *NetSci Backstage* in Zaragoza, Spain, Jun 2015

Program Committee member of the ICWSM-15 *9th International Conference on Web and Social Media* in Oxford, UK, May 2015

Program Committee member of the CompleNet 2015 *Workshop on Complex Networks* in New York City, USA, Mar 2015

Program Committee member of the NetSciX 2015 *Conference on Network Science* in Rio de Janeiro, Brasil, Jan 2015

Program Committee member of the SocInfo 2014 track EGG 2014 *Exploration on Game and Gamers Workshop* in Barcelona, Spain, Nov 2014

Program Committee member of the SDM 2014 *Workshop on Mining Networks and Graphs: A Big Data Analytic Challenge* in Philadelphia, USA, Apr 2014

Organizer at the conference *Engaging Data 2013* at MIT, Cambridge, USA, Nov 2013

Program Committee member of the SDM'14 workshop *Mining Networks and Graphs: A Big Data Analytics Challenge* Philadelphia, USA, Apr 2014

Program Committee member of the 3PGCIC 2013 *Social Network Applications* track at University of Technology of Compiegne, France, Oct 2013

Program Committee member of the ECCS 2013 *Multiplex Networks 2013* satellite in Barcelona, Spain, Sep 2013

Program Committee member of the BRICS-CCI & CBIC 2013 *Complex Systems Symposium* in Recife, Brazil, Sep 2013

Reviewer of Conference Papers of the CUPUM 2013 *13th International Conference on Computers in Urban Planning and Urban Management* in Utrecht, Netherlands, Jul 2013

Organizer at the conference *Urban Code* at MIT, Cambridge, USA, Nov 2012

Program Committee member of the *Symposium on Social Networks and Social Contagion* at the Westin Arlington Gateway, USA, Nov 2012

Main organizer and Program Committee member of the ECCS'11 Satellite *XNet – Complexity & Networks* at the Medical University of Vienna, Austria, Jan – Sep 2011

Main organizer and Program Committee member of the *European Conference on Complex Systems 2011 (ECCS'11)* at the Medical University of Vienna, Austria, Oct 2010 – Sep 2011

Main organizer of COST MP0801 workshop *Processes on Networks* at the Medical University of Vienna, Austria, Mar 2010

Teaching and supervision

Courses

Introduction to Data Science and Programming (15 ECTS credits, 65%), IT University of Copenhagen, Fall 2021/2022

First Year Project (15 ECTS credits, 30%), IT University of Copenhagen, Spring 2021

Introduction to Data Science and Programming (15 ECTS credits, 65%), IT University of Copenhagen, Fall 2020/2021

Introduction to Data Science and Programming (15 ECTS credits, 50%), IT University of Copenhagen, Fall 2019/2020

Technical Communication (7.5 ECTS credits), IT University of Copenhagen, Fall 2019/2020

Data and Network Visualization (4 ECTS credits), Central European University, Budapest, Hungary, Fall 2018/2019

Urban Networks and Human Mobility (4 ECTS credits), Central European University, Budapest, Hungary, Fall 2018/2019

Statistical Methods in Network Science and Data Analysis (8 ECTS credits), Central European University, Budapest, Hungary, Winter 2017/2018

Seminar chair at seminar *Understanding Big Data*, European Forum Alpbach 2016, Alpbach, Austria, Aug 2016

Single classes

Guest class at *Reflections on Data Science*, ITU Copenhagen, Denmark, Apr 2020

Guest class at *Data and Network Visualization*, Central European University, Budapest, Hungary, Nov 2017

Guest class at *JustData - University Wide Course*, Central European University, Budapest, Hungary, Nov 2017

Supervision and examination

Supervisor of Postdoc Bojan Kostic at ITU Copenhagen, since 2021

Co-supervisor of Postdoc Tiago Cunha at ITU Copenhagen, since 2020

Supervisor of MSc student Anastassia Vybornova at ITU Copenhagen, 2021

Supervisor of MSc students Cecilia Laura Kolding Andersen and Morten Lynghede at ITU Copenhagen, 2021

Supervisor of BA students Edi Begovic and Høgni Ziska Maree Jacobsen at ITU Copenhagen, 2021

Supervisor of Lagrange scholar (Post-MSc level) Marina Klanjčić at ISI Foundation, 2019-2021

Supervisor of PhD student Luis Guillermo Natera Orozco at CEU, 2018-2021

Supervisor of MSc student Albert-Hose Llebaria Holda at ITU Copenhagen, 2020

Supervisor of BA student Martin Bedsted Villandsen at ITU Copenhagen, 2020

Co-supervisor of PhD students, master students, interns, at Medical University Vienna and MIT

PhD defense reviewer at Scuola Normale Superiore di Pisa, Italy, Jul 2020

PhD defense reviewer at Universitat de les Illes Balears, Palma, Spain, Jul 2019

PhD defense reviewer at Aalto University, Helsinki, Finland, Aug 2018

PhD defense examiner at Eötvös Loránd University, Budapest, Hungary, Mar 2017

External research funding

Co-leader in a sub-award of the Templeton grant *Using Big Data to Quantify and Cultivate Genius*, with Albert-László Barabási, Roberta Sinatra, Cesar Hidalgo, Sep 2018 – Aug 2021
The sub-award was won but declined.

Premium postdoctoral researcher in the Hungarian Academy of Sciences (MTA) grant *Conflict and Controversy in Large Social Networks*, Sep 2016 – Sep 2019
Due to assuming an Assistant Professor position at CEU, I discontinued this grant in Oct 2017.

Key research personnel in the Air Force Office of Scientific Research (AFOSR) grant *The Fundamentals of Predictability of Scientific Success*, with Albert-László Barabási, Alessandro Vespignani, Roberta Sinatra, Feb 2015

Key research personnel in the Austrian Science Fund (FWF) project P23378, *Quantifying socio-economic multiplex networks in a massive multiplayer online game*, with Stefan Thurner, Sep 2011 – Oct 2015
Although this grant was funded, I did not assume the position due to my move to Boston (MIT) in 2012.

Travel and other grants

CEU ACRO Teaching development grant, Dec 2017

Industry support for organizing NetSci 2015 satellite NetSci Backstage, Jun 2015

Travel and accommodation support to one-month academic visit by ETH Zurich, Feb 2011

Travel grant from Österreichische Forschungsgemeinschaft to ECCS 2010, Sep 2010

Travel grant from the European Cooperation in Science and Technology, Action MP0801 Physics of Competition and Conflicts, to two-month academic visit to Imperial College, Aug-Sep 2010

Full travel and accommodation grant from Santa Fe Institute for three-week SFI Complex Systems Summer School 2010, Jun 2010

In the media

My research and projects have been featured in, among others:
The New York Times, Le Monde, MIT Technology Review, MIT Frontpage Spotlight, MIT News, Nature News, Science News, National Geographic, Frankfurter Allgemeine Zeitung, The Guardian, Fast Company, The Huffington Post, Der Spiegel, Forbes, Newsweek, NBC News, The Atlantic, Citylab, Bild der Wissenschaft, Fortune, Yahoo! Finance, New York Magazine, Salon, Physorg, IEEE Spectrum, Quattroruote, Il sole 24 ore, La Stampa, Science Daily, Neue Zürcher Zeitung, 20 Minuten, Público, Austrian National Radio Ö1, Austrian National Radio FM4, ORF Science, Der Standard, Die Presse, Wiener Zeitung, Salzburger Nachrichten, OÖ Nachrichten, Kleine Zeitung

Awards and exhibitions

Permanent exhibition of *What the Street!?* in Futurium in Berlin, Germany, from Sep 2019

City Vis 2018 award in Art & Advocacy for *What the Street!?*, and exhibition in Berlin, Germany, Oct 2018

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