Curriculum Vitae

DR. MÁRTON KARSAI

Assistant Professor in Computer Science

PERSONAL DETAILS

Affiliation: Ecole Normale Supérieure de Lyon
Computer Science Department
Laboratoire de l'Informatique du Parallélisme
IXXI – Rhône Alpes Complex Systems Institute
INRIA

Address: 46 allée d'Italie
69364 LYON CEDEX 07
France

E-mail: marton.karsai@ens-lyon.fr
Web: perso.ens-lyon.fr/marton.karsai

Date of birth: 12th December, 1981, Szeged (Hungary)
Nationality: Hungarian
Family status: married (2 children)

POSITIONS:

2013-present: **Assistant Professor (tenured)**
Co-responsible for the master 2 program "Modeling Complex Systems"
Ecole Normale Supérieure de Lyon (France) – Computer Science Department

2013-2018: **INRIA chair of excellence**

2011-2015: **Scientific Consultant**
Skype/Microsoft Labs, STACC (Estonia)

2012-2013: **Postdoctoral research associate**, Northeastern University (USA), MoBS
Group of Prof. Alessandro Vespignani

2009-2012: **Postdoctoral research fellow**, Aalto University (Finland), BECS
Group of Prof. Kimmo Kaski and Prof. Jari Saramäki

EDUCATION

Ph.D.: Statistical and Computational Physics (summa cum laude), 2005-2009
Co-supervisored Ph.D. program between
University of Szeged (Szeged, Hungary)
Université Joseph Fourier (Grenoble, France)
CNRS Grenoble-Institut Néel-MCBT (Grenoble, France)
Dissertation: Cooperative behaviour in complex systems
Supervisors: Prof. Ferenc Iglói and Dr. Jean-Christian Anglès d'Auriac

M.Sc.: Informatics in Physics, 2000-2005
University of Szeged (Szeged, Hungary)
Master's Thesis: Non-equilibrium phase transitions in complex networks
Supervisors: Prof. Dr. Ferenc Iglói

B.Mus.: Trumpet teacher and chamber artist, 2002-2006
University of Pécs (Pécs, Hungary)
Thesis: Physical description of the trumpet sound
Supervisor: Péter Solymosi

Exchange Student, 2004-2005
University of Saarland (Saarbrücken, Germany)
DAAD-MÖB-Erasmus Hungarian-German exchange program
Group of Prof. Heiko Rieger

Baccalaureate, 1996-2000
Béla Bartók Conservatory (Budapest, Hungary)

RESEARCH INTERESTS

Complex systems: complex networks, socio-physics, temporal networks, data-driven modelling, human dynamics, human mobility, epidemic spreading, ICT enabled human behaviour, social contagion phenomena, data-driven research

Computer science: computational modelling, data-mining techniques, data science, combinatorial optimisation, algorithms, parallel computing

RESEARCH EXPERIENCE

2013-: **Assistant Professor with INRIA research chair**, Ecole Normale Supérieure de Lyon (France)
Computer Science Department

2014-: **Scientific consultant**, Grandata (Argentina)
Research subjects: Socio-economic stratification, Egocentric networks

2011-2015: **Scientific consultant**, Skype/Microsoft Labs, STACC Oy (Estonia)
Research subjects: Social network analysis, Adoption dynamics

2012-2013: **Postdoctoral research associate**, Northeastern University (USA), MoBS
Research subjects: Complex systems, Computational modeling, Epidemic spreading, Temporal networks, Social contagion phenomena, Data-driven research, Data-driven modeling, Human Dynamics, Human Communication

2009-2012: **Postdoctoral research fellow**, Aalto University (Finland), BECS
Research subjects: Epidemic spreading, Temporally correlated systems, Heterogeneous behaviour, Human dynamics, Human mobility, Temporal networks, Temporal motifs, Community detection, Models of temporal systems, Evolving networks

2005-2009: **Co-supervisored Ph.D. program:** University of Szeged (Hungary), Université Joseph Fourier and CNRS-Grenoble Institute Néel (Grenoble, France)
supervisors: Prof. Ferenc Iglói and Dr. Jean-Christian Anglès d'Auriac
2008-2009: Critical dynamics in geometrically frustrated systems

2007-2008: Density of critical clusters in conformal invariant strongly disordered systems

2006-2007: Numerical studies of surface mapping between the random bond Potts model and random field Ising model in two dimensions
2005-2006: Optimal cooperation in scale-free networks

2003-2005: **Master program:**University of Szeged, supervisor: Prof. Dr. Ferenc Iglói
2004-2005: Non-equilibrium phase transitions in scale-free networks
University of Saarland (Saarbrücken, Germany), group of Prof. Dr. Heiko Rieger

2003-2004: Selected studies in statistical physics and complex networks

TEACHING EXPERIENCE

2013-: **Assistant Professor with INRIA chair**, Ecole Normale Supérieure de Lyon (France) Computer Science Department
2013-: **Co-responsible of the M2 master program** in Modeling of Complex Systems at ENS Lyon
2014-: **Guest Lecturer in the M2 program** in Data Science for Complex Economic Systems at Collegio Carlo Alberto (Torino, Italy)

ENS Lyon (France)
Complex Networks, lecturer (2013-2018 each year)
Dynamical Processes on Networks, lecturer (2014-2018 each year)
Modeling Social Systems, lecturer (2013-2018 each year)
Introduction to Complex Networks: an interdisciplinary approach (ENS Lyon alter-disciplinary course) lecturer (2014-2018 each year)
Introduction to Statistical Physics, tutor (2013/14 fall)
Introduction to Algorithms, lecturer (2013/14 fall)
Collegio Carlo Alberto (Italy)
Complex Networks, guest lecturer (2014-present)
Northeastern University (USA)
Introduction to Network Science (undergraduate course), lecturer (2012-2013 spring)
Aalto University (Finland)
Complex Networks (postgraduate theory course), lecturer (2009-2010 spring)
University of Szeged (Hungary)
General Physics Seminar (2005-2006 fall)
Electrodynamics and Special Theory of Relativity Seminar (2005-2006 spring)
Statistical Physics Seminar (2006-2007 spring)
Statistical Physics Lecture (2007-2008 spring)
Statistical Physics Seminar (2007-2008 spring)
Research Schools:
IMéRa 2017 PhD course on Network Science (April 2017, Marseille, France)
Lecture: Modelling Human Dynamics
RIO 2017 (February 2017, Rio Cuarto, Argentina)
Course: Human dynamics: data, networks, and modelling
DPCN 2016 (January 2016, Wroclaw, Poland)
Course: Modelling contacts in social networks –network dynamics and diffusion
RESCOM 2014 (May 2014, Bastia, Corsica, France)
Course: Spreading processes on complex networks

SCIENTIFIC ORGANISATIONS AND MANAGEMENT

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the CCS'18 conference
September 24th- September 28nd, 2018, Thessaloniki, Greece

RESCOM-MaDICS Summer School 2018
Summer School on Machine Learning and Networks
June 18th- June 22th, 2018, Porquerolles, France.

NetSci 2018 (as sponsor chair)
International School and Conference on Network Science
June 11th- June 15th, 2018, Paris, France.

Complex Networks 2017 (as program chair)
The 6th International Conference on Complex Networks and Their Applications
November 29th- December 1st, 2017, Lyon, France.

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the CCS'17 conference
September 18th- September 22nd, 2016, Cancun, Mexico

Machine Learning in Networks Science
Satellite meeting of the NetSci'17 conference
June 19th- June 22nd, 2017, Indianapolis, IN, USA

Thematic Semester on Complex Networks (Coordinating PI**)**
Workshop 1: Network Linguistic and Machine Learning (Lyon, May 2015)
Workshop 2: Dynamics on and of networks (Lyon, June 2015)
Workshop 3: Modeling and applications of networks (Marseille, July 2015)

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the CCS'16 conference
September 19th- September 22nd, 2016, Amsterdam, The Netherlands

M2TI-2015 Workshop on Modeling and Mining Temporal Interactions
Satellite of the AAAI-ICWSM'15 conference
May 26th, 2015, Oxford, UK

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the CCS'15 conference
September 28th-October 2nd, 2015, Tempe, AZ, USA

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the ECCS'14 conference
September 21st-26th, 2014, Lucca, Italy

Computational Social Science: from social contagion to collective behaviour
Satellite meeting of the ECCS'13 conference
September 16th-20th, 2013, Barcelona, Spain

Complex Dynamics of Human Interactions
Satellite meeting of the ECCS'11 conference
September 14th, 2011, University of Vienna, Vienna, Austria

Social networks - from science to technology
ICTeCollective Dissemination meeting
September 9th, 2010, Aalto University BECS, Helsinki Finland

PROGRAM COMMITTEES

Latin America Data Science Workshop 2018
International Conference on Complex Systems - 2018
Summer School Series on Methods for analyzing und modeling textual data - 2018
Dynamics On and Of Networks - 2018
IC2S2 - International Conference on Computational Social Science - 2015, 2016, 2018
Conference on Complex Systems - 2016, 2017, 2018
Complex Networks - 2016, 2017, 2018
NetSci - 2015, 2016, 2018
CompleNet - 2016, 2017, 2018, 2019
NetSciX - 2016, 2018
AlgoTel - 2016, 2018
Machine Learning in Networks Science - NetSci Satellite - 2017, 2018
Computational Social Science: from social contagion to collective behaviour - CCS Satellite - 2013, 2014, 2015, 2016, 2017, 2018
DAMN! 2017 - IEEE PerCom - 2017
NetSciCom - IEEE INFOCOM - 2017
Contagion - Modeling of Disease Contagious Processes, 2nd Edition - 2013, 2016
SocInfo - 2016
DyNo 2016 - IEEE/ACM ASONAM - 2016
D2NetLang (Data Driven Approach to Networks and Linguistic) - 2016
ComplexNetworks (Complex networks: from theory to interdisciplinary applications) - 2016
Do2Net (Dynamics On and Of Networks) - 2016
WebSci16 (Web Science) - 2016
LC2S2 (At the crossroads: lessons and challenges in Computational Social Science) - 2015
M2TI ICWSM-2015 (AAAI) Workshop on Modeling and Mining Temporal Interactions

RESPONSABILITIES

Co-responsible for the master 2 training program in Modeling of Complex Systems, ENS Lyon (2013 -)
Elected steering committee member of the IXXI Rhone-Alpes Complex System Institute
Elected executive committee member of the Complex System Society (2018-)
Elected steering committee member of the Complex System Society (2017-)
Member of the Network Science Society (2010 -)

EDITORSHIP

Associate Editor of the journal Advances in Complex Systems (World Scientific Journal)
Invited editor of the Special Issue on Complex Networks and Their Applications, Applied Network Science, Springer (2017)
Invited editor in chief of the Special Issue on Higher Order Characterisation on Temporal Networks, Applied Network Science, Springer (2017)

JURIES

PhD defence (as member) - Sébastien Lerique, EHESS Paris, 27 October 2017
PhD defence (as opponent) Pietro Parolo, Aalto University, 19 December 2017

FELLOWSHIPS AND AWARDS

Junior Scientific Award of the Complex System Society - 2018

Awarded fellow of the ISI Foundation Torino - 2018

Premium prize for excellent PhD supervision and research (2018-2022)

INRIA chair of excellence - 2013-2018

Ph.D. Fellowship with joint supervision of the French State
Université Joseph Fourier – CNRS-Institut Néel - 2006-2009
Ph.D. Fellowship of the Hungarian State
University of Szeged - 2005-2008
DAAD-MÖB-Erasmus Hungarian-German exchange program
University of Saarland - 2004-2005

GRANTS

ACADEMICS project in Machine Learning & Data Science for Complex and Dynamical Models
IDEXLYON breakthrough program 2018 (WP leader), 1.2 M euros
MOTIf project on Mobile phone sensing of human dynamics (Coordinating PI)
STICAmSud research project (2018-2020) 82K euros
LIAISON project on Deep Learning for Linguistic & Social Network (Coordinating PI)
INRIA Exploratory research grant (2017), 40K euros
IXXI research grant for incoming mobility
ENS Lyon, France (2016), 5K euros
DyLNet project on children language evolution (PI) – 2016-2020
ANR (France), 650K euros
ENS Lyon visiting professor grant (2016), 5K euros
D3NetSci (PI)
RNSC network grant (France) 2.5K euros – 2015-2016
Thematic Semester on Network Science (Coordinating PI)
Labex MILYON (France), 90K euros – 2016
SoSweet project on social linguistic (PI) – 2015-2018
ANR (France), 600K euros
AScI visiting fellow grant
Aalto University, Finland (2014, 2015, 2016, 2017), 5K euros
CODDDE project on community dynamics and diffusion (member), 2014-2017
ANR (France) 610K euros
IXXI research grant for incoming mobility
ENS Lyon, France (2014), 5K euros
ICTeCollective (Member of the project coordination and the scientific management team) – 2009-2012
FP7 FETopen project (Project No. 238597), 1.95M euros

LONG SCIENTIFIC VISITS

2017 (4 weeks Aalto University, Espoo, Finland
Group of Prof. Jari Saramäki
2016 (4 weeks Aalto University, Espoo, Finland
Group of Prof. Jari Saramäki
2015 (4 weeks Aalto University, Espoo, Finland
Group of Prof. Jari Saramäki

2015 (2 weeks Northeastern University, Boston, MA, USA)
Group of Prof. Alessandro Vespignani
2014 (4 weeks Aalto University, Espoo, Finland
Group of Prof. Jari Saramäki
2013 (4 weeks) ISI Foundation, Torino, Italy
Group of Prof. Alessandro Vespignani
2013 (4 weeks) Aalto University, Espoo, Finland
Group of Prof. Kimmo Kaski
2013 (2 weeks) ISI Foundation, Torino, Italy
Group of Prof. Alessandro Vespignani
2012 (4 weeks) MoBS Lab - Northeastern University, Boston, MA, USA
Group of Prof. Alessandro Vespignani
2011-2012 (4 weeks) STACC - University Of Tartu, Estonia
Skype Research collaboration
2009-2011 (1 week) Institute of Physics (Budapest University of Technology and Economics, Hungary
Group of Prof. János Kertész
2009-2011 (1 month) BarabásiLab - Northeastern University, Boston, MA, USA
Group of Prof. Albert-László Barabási
2004-2005 (6 months) Department of Theoretical Physics, Saarland University, Saarbrucken, Germany
Group of Prof. Heiko Rieger

SUPERVISION

Postdocs:

Dr. Sebastien Lerique - ENS Lyon (2017-)
Dr. Yongjun Liao - ENS Lyon (2015-2016)
Dr. Hadrien Hours - ENS Lyon (2015-2016)

PhD students:

Sicheng Dai - ENS Lyon/Shanghai Technical University - (expected defense in 2021)
Thesis: Co-evolving Dynamics of social networks and language acquisition of children
Co-supervised (90%) with E. Fleury (10%)

Jacobo Levy Abitbol - ENS Lyon - (expected defense in 2019)
Thesis: Information diffusion and language evolution on dynamical social networks
Co-supervised (90%) with E. Fleury (10%)

Samuel Unicomb - ENS Lyon - (expected defense in 2019)
Thesis: Spreading processes on temporal networks
Co-supervised (90%) with E. Fleury (10%)

Matteo Morini - ENS Lyon - (defended in 2017)
Thesis: Dynamics of social networks
Co-supervised (20%) with P. Jensen (60%) and E. Fleury (20%)

Yannick Leo - ENS Lyon - (defended in 2016)
Thesis: Deep dive into social network and economic data
Co-supervised (40%) with C. Crespelle (20%) and E. Fleury (40%)

Qian Zhang - Northeastern University (defended in 2014)
Thesis: Contagion and Ranking Processes in Complex Networks
Co-supervised (10%) with A. Vespignani (90%)

MSc students:

Louis Duvivier (M2) – ENS Lyon – 2017
Thesis: Causality in link streams

Agathe Baltzer (M2) – ENS Lyon – 2017

Thesis: Information diversity and cognitive limitations in human communication

Samuel Unicomb (M2) – ENS Lyon – 2016

Thesis: Modelling complex contagion processes with tie heterogeneities

Colas Droin (M2) – ENS Lyon – 2016

Thesis: Data-driven characterization of tie heterogeneities in information cascades

Sami Jouaber (M1) – ENS Lyon – 2016

Thesis: Impact of University Admission on Freshmen' Egocentric Network

Jordan Cambe (M1) – University of Toulouse – ENS Lyon – 2015

Thesis: Modelling limited social capacities in time-varying networks

Guillaume Laurent (M2) - ENS Lyon - Aalto University - 2014

Thesis: Modeling social tie formation in time-varying networks

Laura Alessandretti (M2) - ENS Lyon - ISI Torino - 2014

Thesis: Tensor factorization of transportation networks

Sonja Koskelo (M2) - Aalto University, School of Science - 2011

Thesis: Social network analysis on different urbanization levels

BSc students

Hugo Richard - ENS Lyon - IXXI - 2014

Thesis: Structure and evolution of sister city networks

Quentin Bammey – ENS Lyon – IXXI – 2015

Thesis: Characterization of community structure and linguistic variability on Twitter

JOURNAL PUBLICATIONS (citations: Scholar: 2116, h: 19, i10: 27 (December, 2018))

1. M. Karsai, R. Juhász, F. Iglói:
Non-equilibrium phase transition and finite size scaling in weighted scale-free networks
Phys.Rev.E **73**, 036116 (2006)

2. M. Karsai, J-Ch. Anglès d'Auriac and F. Iglói
Rounding of first-order phase transitions and optimal cooperation in scale-free networks
Phys.Rev.E **76**, 041107 (2007)

3. M. Karsai, I. A. Kovács, J-Ch. Anglès d'Auriac and F. Iglói
Density of critical clusters in strips of strongly disordered systems
Phys.Rev.E **78**, 061109 (2008)

4. M. Karsai, J-Ch. Anglès d'Auriac and F. Iglói
Non-equilibrium dynamics of the triangular antiferromagnetic Ising model at zero temperature
J. Stat. Mech. P07044 (2009)

5. M. Karsai, J-Ch. Anglès d'Auriac and F. Iglói
Interface mapping in two-dimensional random lattice models
J. Stat. Mech. P08027 (2010)

6. M. Karsai, M. Kivelä, R. K. Pan, K. Kaski, J. Kertész, A.-L. Barabási and J. Saramäki
Small But Slow World: How Network Topology and Burstiness Slow Down Spreading
Phys. Rev. E 83, 025102(R) (2011)

7. G. Tibely, L. Kovanen, **M. Karsai**, K. Kaski, J. Kertész and J. Saramäki
Communities and beyond: mesoscopic analysis of a large social network with complementary methods
Phys. Rev. E 83, 056125 (2011)

8. K. Zhao, **M. Karsai** and G. Bianconi
Entropy of dynamical social networks
PLoS ONE 6(12), e28116 (2011)

9. L. Kovanen, **M. Karsai**, K. Kaski, J. Kertész and J. Saramäki
Temporal motifs in time-dependent networks
J. Stat. Mech. P11005 (2011)

10. H.-H. Jo, **M. Karsai**, J. Kertész and K. Kaski
Circadian pattern and burstiness in human communication activity
New. J. Phys. **14** 013055 (2012)
Nature (highlight) **482** 7384 (2012)

11. M. Karsai, K. Kaski, A.-L. Barabási and J. Kertész
Universal features of correlated bursty behaviour
Scientific Reports (Nature) **2**, 397 (2012)

12. M. Kivelä, R. K. Pan, K. Kaski, J. Kertész, J. Saramäki and **M. Karsai**
Multiscale Analysis of Spreading in a Large Communication Network
J. Stat. Mech. P03005 (2012)

13. G. Krings, **M. Karsai**, S. Bernhardsson, V. Blondel and J. Saramäki
Effects of time window size and placement on the structure of aggregated networks
EPJ Data Science **1**, 4 (2012)

14. M. Karsai, K. Kaski and J. Kertész
Correlated dynamics in egocentric networks
PLoS ONE **7**(7), e40612 (2012)

15. H.-H. Jo, **M. Karsai**, J. Karikoski and K. Kaski
Spatiotemporal correlations of handset-based service usages
EPJ Data Science, **1**,10 (2012)

16. R. Kikas, M. Dumas and **M. Karsai**
Bursty egocentric network evolution in Skype
Soc, Netw. Anal. Min., **3**, 1393 (2013)

17. M. Karsai, N. Perra and A. Vespignani
Time varying networks and the weakness of strong ties
Scientific Reports (Nature) **4**, 4001 (2014)

18. S. Liu, N. Perra, **M. Karsai** and A. Vespignani
Controlling Contagion Processes in Time-Varying Networks
Phys. Rev. Lett. **112**, 118702 (2014)

19. M. V. Tomasello, N. Perra, C. J. Tessone, **M. Karsai**, F. Schweitzer
The role of endogenous and exogenous mechanisms in the formation of R&D networks
Scientific Reports (Nature) **4**, 5679 (2014)

20. M. Karsai, G. Iniguez, K. Kaski, J. Kertész
Complex contagion process in spreading of online innovation
J. R. Soc. Interface **11**, 101 (2014)

21. D. Mocanu, L. Rossi, Q. Zhang, **M. Karsai**, W. Quattrociocchi
Collective attention in the age of (mis)information
Computers in Human Behavior **51**, 1198–1204 (2015)

22. M. Tizzoni, K. Sun, D. Benusiglio, **M. Karsai**, N. Perra
The Scaling of Human Contacts in Reaction-Diffusion Processes on Heterogeneous Metapopulation Networks. Scientific Reports (Nature) **5**, 15111 (2015)

23. G. Laurent, J. Saramäki, **M. Karsai**
From calls to communities: a model for time varying social networks
Eur. Phys. J. B **88**, 301 (2015)

24. P. Jensen, M. Morini, **M. Karsai**, T. Venturini, A. Vespignani, M. Jacomy, J-P. Cointet, P. Mercklé, E. Fleury. Detecting global bridges in networks
Journal of Complex Networks **3**, 4 (2015)

25. Z. Ruan, G. Iniguez, **M. Karsai**, J. Kertész
Kinetics of Social Contagion
Phys. Rev. Lett. **115**, 218702 (2015)

26. L. Alessandretti, **M. Karsai**, L. Gauvin
User-based representation of time-resolved multimodal public transportation networks
R. Soc. Open Sci. **3**, 160156 (2016).

27. M. Karsai, G. Iniguez, R. Kikas, K. Kaski, J. Kertész
Local cascades induced global contagion: How heterogeneous thresholds, exogenous effects, and unconcerned behaviour govern online adoption spreading
Scientific Reports (Nature) **6**, 27178 (2016).

28. E. Ubaldi, N. Perra, **M. Karsai**, A. Vezzani, R. Burioni, A. Vespignani
Asymptotic theory for the dynamic of networks with heterogenous social capital allocation
Scientific Reports (Nature) **6**, 35724 (2016).

29. Y. Leo, E. Fleury, J. I. Alvarez-Hamelin, C. Sarraute, **M. Karsai**
Socioeconomic correlations and stratification in social-communication networks
J. R. Soc. Interface **13** 125 (2016)

30. E. Ubaldi, A. Vezzani, **M. Karsai**, N. Perra, R. Burioni
Burstiness and tie reinforcement in time varying social networks
Scientific Reports (Nature) **7**, 46225 (2017).

31. Y. Leo, **M. Karsai**, C. Sarraute, E. Fleury
Correlations and dynamics of consumption patterns in social-economic networks
Soc. Netw. Analys. Min. (2018) – accepted, e-print: https://arxiv.org/abs/1801.08856

32. S. Unicomb, G. Iñiguez, **M. Karsai**
Threshold driven contagion on weighted networks
Scientific Reports (Nature) **8**, 3094 (2018).

33. M. Kivelä, J. Cambe, J. Saramäki, **M. Karsai**
Mapping temporal-network percolation to weighted, static event graphs.
Scientific Reports (Nature) 8, 12357 (2018)

34. Q. Zhang, **M. Karsai**, A. Vespignani
Link transmission centrality in large-scale social networks.
EPJ Data Science 7, 33 (2018)

CONFERENCE PAPERS IN PEER-REVIEWED PROCEEDINGS:

35. Y. Leo, **M. Karsai**, C. Sarraute, E. Fleury
Correlations of consumption patterns in social-economic networks
IEEE/ACM ASONAM p. 500-507, San Francisco CA, August 18-21 (2016).

36. H. Hours, E. Fleury, **M. Karsai**
Link prediction in the Twitter mention network: impacts of local structure and similarity of interest
16th IEEE International Conference on Data Mining (ICDM) -
DMHAA Workshop, Barcelona 12-15 December (2016).

37. J.L. Abitbol, **M. Karsai**, J-P. Magué, J-P. Chevrot, E. Fleury
Socioeconomic dependencies of linguistic patterns in Twitter: a multivariate analysis.
WWW 2018 IW3C2 International World Wide Web Conference, Lyon, April 23-27 (2018).

38. J. Levy Abitbol, M. Karsai, E. Fleury, Location, Occupation, and Semantics based Socioeconomic Status Inference on Twitter.
18th IEEE International Conference on Data Mining (ICDM) – IWSC'18 Workshop (2018).

PUBLICATIONS UNDER REVIEW

39. L. Gauvin, M. Génois, M. Karsai, M. Kivelä, T. Takaguchi, E. Valdano, C. L. Vestergaard
Randomized reference models for temporal networks
e-print: arxiv.org/abs/1806.04032

40. S. Lerique, J. Levy Abitbol, M. Karsai
Joint embedding of structure and features via graph convolutional networks
(Submitted)

41. S. Unicomb, G. Iñiguez, J. Kertész, M. Karsai
Reentrant phase transitions in threshold driven contagion on multiplex networks
(Submitted)

BOOK CHAPTERS

1. L. Kovanen, **M. Karsai**, K. Kaski, J. Kertész and J. Saramäki
Temporal motifs in communication networks
In Temporal Networks, P. Holme and J. Saramäki (Eds.) Springer 2013

2. K. Zhao, **M. Karsai** and G. Bianconi
Models, Entropy and Information of Temporal Social Networks
In Temporal Networks, P. Holme and J. Saramäki (Eds.) Springer 2013

3. M. Karsai and N. Perra
Control Strategies of Contagion Processes in Time-varying Networks
In Temporal Network Epidemiology, N. Masuda and P. Holme (Eds.) Springer 2017

4. G. Iñiguez, R. Kikas, Z. Ruan, K. Kaski, J. Kertész, **M. Karsai**
Service adoption spreading in online social networks
In Spreading Dynamics in Social Systems, S. Lehman, YY. Ahn (Eds.) Springer 2018 (in press)

5. L. Weng, **M. Karsai**, N. Perra, F. Menzer, A. Flamini
Attention on Weak Ties in Social and Communication Networks
In Spreading Dynamics in Social Systems, S. Lehman, YY. Ahn (Eds.)
Springer 2018 (in press), e-print: arxiv.org/abs/1505.02399

6. Y. Liao, W. Du, M. Karsai, C. Sarraute, M. Minnoni, E. Fleury, Prepaid or Postpaid? That Is the Question: Novel Methods of Subscription Type Prediction in Mobile Phone Services. In: Kaya M., Kawash J., Khoury S., Day MY. (eds) Social Network Based Big Data Analysis and Applications. Lecture Notes in Social Networks. Springer, Cham (2018)

BOOKS

1. C. Cherifi, H. Cherifi, **M. Karsai**, M. Musolesi (Eds.)
Complex Networks & Their Applications VI
Springer, Studies in Computational Intelligence (Edited book) (2017)

2. M. Karsai, H.H. Jo, K. Kaski
Bursty Human Dynamics
Springer Briefs in Complexity (monograph) (2018)

THESIS:

1. M. Karsai
Nonequilibrum phase transitions on complex networks (Master in Science thesis)
Supervisor: Prof. Iglói Ferenc, University of Szeged, Department of Theoretical Physics (2005)

2. M. Karsai
Physical description of the trumpet sound (Master in Art thesis)
Supervisor: Vidovszky László, University of Pécs, Institute of Medial Arts (2006)

3. M. Karsai
Cooperative behaviour in complex systems (Ph.D. thesis)
Supervisor: Prof. Iglói Ferenc and Dr. Jean-Christian Anglès d'Auriac
University of Szeged and Université Joseph Fourier, e-print: UJF-TEL (2009)

INVITED TALKS:

1. Institut Néel, CNRS-Grenoble (December 2007, Grenoble - France)
Title: *Complex Networks*

2. Department of Theoretical Physics – University of Szeged (May 2009, Szeged - Hungary)
Title: *Cooperative behaviour in complex systems*

3. INAC-L_Sim CEA-Grenoble (July 2009, Grenoble - France)
Title: *Nonequilibrium dynamics of the triangular antiferromagnetic Ising model at T=0*

4. Helsinki University of Technology (September 2009, Espoo Finland)
Title: Cooperative Behaviour in Complex Networks

5. BarabasiLab – Northeastern University (November 2009, Boston, MA, USA)
Title: *Communication sequences and temporal correlations in a mobile communication network*

6. Department of Psychology – University of Warsaw (December 2009, Warsaw, Poland)
Title: *Temporal Correlation Patterns in Mobile Phone Call Networks*

7. Saïd Business School – University of Oxford (March 2010, Oxford, UK)
Title: *Analysis of temporal and spatial patterns in mobile phone data*

8. INFSO - EU Commission (November 2010, Brussels, Belgium)
Title: *Small but slow world*

9. BarabasiLab – Northeastern University (December 2010, Boston, MA, USA)
Title: *Bursty correlations in communication networks*

10. ISI Foundation (March 2011, Torino, Italy)
Title*: Circadian pattern and burstiness in human communication activity*

11. Skype Research (March 2011, Tallin, Estonia)
Title: *Small but slow world*

12. Institute of Physics - Budapest University of Technology and Economics (September. 2011, Budapest, Hungary)
Title: *Correlations in bursty time series: from human communications to earthquakes*

13. MoBS – Norheastern University (February 2012, Boston, MA, USA)
Title: *Correlated Dynamics of human interactions*

14. BECS – Aalto University (January 2013, Espoo, Finland)
Title: *Modelling adoption dynamics of online services*

15. STACC-Microsoft/Skype Labs – University of Tartu (March 2014, Tartu, Estonia)

16. IXXI – ENS Lyon (May, 2013, Lyon, France)
Title: *Dynamique des interactions humaines*
17. BECS – Aalto University (March 2014, Espoo, Finland)

18. RESCOM Summer School - Invited Lecturer (May 2014, Furiani, Corsica, France)

19. TNetSphys'14 - NetSci'14 Symposium (June 2014, University of California, Berkeley, CA, USA)

20. CITI Lab - INSA Lyon (June 2014, Lyon, France)

21. Complex Networks and Dynamics - ICCSA'14 Satellite meeting (June 2014, Le Havre, France)

22. INRIA UCOOL workshop (October 2014, INRIA Headquarter, Paris, France)

23. Institute of Research and Development (October 2014, Bondy, Paris, France)

24. Center for Network Science - Central European University (November 2014, Budapest, Hungary)

25. Department of Theoretical Physics - University of Szeged (November 2014, Szeged, Hungary)

26. Electronics Engineering Department - Universidad Técnica Federico Santa María (April 2015, Valparaíso, Chile)

27. Laboratoire de Reproduction et Développement des plantes and CBP Centre Blaise Pascal - ENS Lyon (April 2015, Lyon, France)

28. Higher Order Models - NetSci'15 Satellite meeting (June 2015, Zaragoza, Spain)

29. Cecam 2015: Recognizing the relevance of change: Analysis and control of time-evolving networks in epidemiology and evolution - Free University Berlin (July 2015, Berlin, Germany)

30. MARAMI 2015 (October 2015, Nîmes, France)

31. DPCN 2016 (January 2016, Wroclaw, Poland)

32. Mechanisms underlying local to global signals in networks (19 May 2016, Lyon, France)

33. Higher Order Models in Network Science, NetSci'16 Satellite (30 May 2016, Seoul, Korea)

34. Social Connectome, NetSci'16 Satellite (30 May 2016, Seoul, Korea)

35. SocioNet'16 workshop ENS Lyon (8 June 2016, Lyon, France)

36. Coarse-graining of Complex Systems, CCS'16 Satellite (21 September 2016, Amsterdam, The Netherlands)

37. BURSTINESS in human behaviour and other natural phenomena, CCS'16 Satellite (21 September 2016, Amsterdam, The Netherlands)

38. PhD course on Network Science Uppsala University, Department of Information Technology (18 November 2016, Uppsala, Sweden)

39. RIO 2017 Summer School on Computer Science, University of Rio Cuarto (13-18 February 2017, Rio Cuarto, Argentina)

40. PhD Course on Network Analysis and Applications, IMéRa – Aix-Marseille University (9 April 2017, Marseille, France)

41. Socioeconomic dependencies of linguistic patterns in Twitter, INRIA Almanach seminar (13 November 2017, Paris, France)

42. Spatial networks and human mobility, GoPro 2017, ENS Lyon (13 December 2017, Lyon, France)

43. Higher Order Models in Network Science, NetSci'18 Satellite
(12 June 2018, Paris, France)

44. Art, Networks and Technology, NetSci'18 Satellite
(12 June 2018, Paris, France)

45. BrainTime workshop, Institut de Neurosciences de la Timone
(18 September 2018, Marseille, France)

46. Language Seminar Series, Laboratoire d'Informatique de Grenoble
(20 September 2018, Grenoble, France)

47. Op-La-Dyn workshop, CCS'18 Satellite
(26 September 2018, Thessaloniki, Greece)

48. Complex systems for the most vulnerable – UNICEF workshop, CCS'18 Satellite
(27 September 2018, Thessaloniki, Greece)

49. SpaceNet workshop, CCS'18 Satellite
(27 September 2018, Thessaloniki, Greece)

CONFERENCE TALKS (peer-reviewed, oral presentation by me):

1. *Non-equilibrium phase transitions on complex networks*
Day of Statistical Physics 2006 (22 March 2006, Budapest, Hungary)

2. *Ferromagnetic Random Bond Potts model on scale-free network in the limit of an infinite number of state*
Journées de Physique Statistique 2007 (25-26 January 2007, Paris, France)

3. *Rounding of first-order phase transitions and optimal cooperation in scale-free networks*
The 32nd Conference of the Middle European Cooperation in
Statistical Physics (16-18 April 2007, Ladek Zdrój, Poland)

4. *Non-equilibrium phase transitions and finite-size scaling in weighted scale-free networks*
Journées de Physique Statistique 2008 (24-25 January 2008, Paris, France)

5. *Density of critical clusters in strips of strongly disordered systems*
Day of Statistical Physics 2008 (19 March 2008, Budapest, Hungary)

6. *Density of critical clusters in strips of strongly disordered systems*
The 33rd Conference of the Middle European Cooperation in Statistical Physics (14-16 April 2008, Puchberg/Wels, Austria)

7. *Rounding of first-order phase transitions and optimal cooperation in scale-free networks*
International Workshop on Challenges and Visions in the Social Science (18-23 August 2008, ETH-Zürich, Switzerland)

8. *Non-equilibrium dynamics of the triangular antiferromagnetic Ising model at zero temperature*
Day of Statistical Physics 2009 (16 April 2009, Budapest, Hungary)

9. *Dynamics and temporal correlations in mobile phone based social networks*
NetMob-NetSci 2010 - International School and Conference on Network Science (11 May 2010, MIT Cambridge, Boston, MA, USA)

10. *Timescales in evolving mobile networks*
NetMob-NetSci 2010 - International School and Conference on Network Science (11 May 2010, MIT Cambridge, Boston, MA, USA)

11. *Small but slow world*
Physics Days 2011 - Annual meeting of the Scandinavian Physics Society (29-31 March 2011, Helsinki, Finland)

12. *How network topology and burstiness slow down spreading*
Conference on Applications of Network Theory (7-9 April 2011, Stockholm, Sweden)

13. *Correlated bursty behaviour on human communication*
NetSci2011 - Spreading, Influencing and Cascading in Social and Information Networks Satellite (6-10 June 2011, Budapest, Hungary)

14. *Correlated dynamics in egocentric communication networks,*
Aalto Complex Networks Factory - (4-8 June 2012, Porvoo, Finland)

15. *Spatiotemporal correlations of handset-based service usage*
Connect1ons 2012 (December 17, 2012, MIT Media Lab, Cambridge, MA, USA)

16. *Time-varying networks and the weakness of strong tie*
NetMob 2013 (May 1-3, 2013, MIT Media Lab, Boston, MA, USA)

17. *Adoption Dynamics of Online Communication Networks*
TDNet 2013 (June 3-4, 2013, Technical University of Denmark, Copenhagen, Denmark)

18. *Time-varying networks and the weakness of strong tie*
NetSci 2013 (June 5-7, 2013, Technical University of Denmark, Copenhagen, Denmark)

19. *A new measure to detect global bridges*
TopoNets'14 - NetSci'14 Satellite (June 2, University of California, Berkeley, CA, USA)

20. *Data-driven spreading for the detection of weak ties*
ECCS'14 (23 September, Lucca, Italy)

21. *Socioeconomic correlations in communication networks*
NetMob'15 (8 April, MIT MediaLab, Cambridge, MA, USA)

22. *The anatomy of online adoption spreading*
NetSci'15 (5 June, Zaragoza, Spain)

23. *Complex contagion process in spreading of online innovation*
ICCSS'15 (9 June, Helsinki, Finland)

24. *Socioeconomic correlations in social communication networks*
ICCSS'15 (11 June, Helsinki, Finland)

25. Structure and dynamics of online service adoption spreading
COMPLENET'16 (30 March 2016, Dijon, France)

26. Socioeconomic Correlations and Stratification in Social Communication Networks
NetSci'16 (1 June 2016, Seoul, Korea)

27. Kinetics of Social Contagion
STATPHYS26 (22 June 2016, Lyon, France)

29. Correlations of consumption patterns in social-economic networks
IEEE/ACM ASONAM (21 August 2016, San Francisco CA)

30. Higher-order correlations of consumption patterns in social-economic networks
CCS 2016 (19 September 2016, Amsterdam, The Netherlands)

31. Higher-order correlations of consumption patterns in social-economic networks
NetMob'17 (5-7 April 2017, Milano, Italy)

32. All at once: a global representation of δt-connected time-respecting paths in temporal networks
CCS 2017 (17-22 September 2017, Cancún, Mexico)

33. Not all friends are equal: How heterogeneous social influence promotes or hinders behavioural cascades in complex networks
CCS 2017 (17-22 September 2017, Cancún, Mexico)

34. Socioeconomic dependencies of linguistic patterns in Twitter: a multivariate analysis.
WWW'18 The Web Conference (23-27 April 2018, Lyon, France)

35. Threshold driven contagion on multiplex networks.
NetSci'18 (11-15 June 2018, Paris, France)

36. Prediction of socioeconomic status in Twitter via network and language.
NetSci'18 (11-15 June 2018, Paris, France)

37. Linguistic and social network coevolution
NetSci'18 (11-15 June 2018, Paris, France)

38. Socioeconomic and network dependencies of linguistic patterns in Twitter.
IC2S2'18 (July 12-15, Evanston, IL, USA)

39. status inference in Twitter via network and language.
CCS'18 (24-28 September 2018, Thessaloniki, Greece)

40. Multiple phase transitions in threshold driven contagion on multiplex networks.
CCS'18 (24-28 September 2018, Thessaloniki, Greece)

PROFESSIONAL ACTIVITIES:

Referee for Nature Communications, PNAS, PRL, PRX, PRE, Scientific Reports, EPJ Data Science, SNAM, EPL, EPJ B, PLoS One, Journal of Statistical Mechanics, Physics Letter A, Advanced in Complex Systems, Journal of Physics: Condensed Matter, Complex Networks, New Journal of Physics, Physica Scripta, Network Science, ANR

MEDIA HIGHLIGHTS AND PUBLIC APPEARANCES:

1. Patchy communication
Nature 482, 7384 (2012)

2. A new model for our 'bursty behavior'

NEU News (by Angela Herring) - 14 May, 2012

3. Bursty behaviour found to have similar features across complex systems
Aalto News - 1 June, 2012
phys.org - 1 June, 2012

4. CampusChannel – TV interview about the ENS Lyon Complex Networks Master 2 program

YouTube - 27 December, 2014

5. Modéliser les dynamiques des réseaux #pandémie
Annual journal of CNRS en Rhône Auvergne (2015)

6. Skype data of 500 million people reveals the real patterns of social adoption
ENS Lyon News – 24 June 2016
Aalto News – 29 June 2016
Phys.org – 29 June 2016
Science Daily – 29 June 2016
Science Newsline – 29 June 2016
Alpha Galileo – 29 June 2016
Cornell University News – 29 June 2016

7. L'entre-soi social confirmé par les big data

Le Monde – 25 January 2017

8. Quand le big data s'intéresse aux riches
France Inter (radio interview) – 25 January 2017