

EMŐKE-ÁGNES HORVÁT

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ACADEMIC POSITIONS

Assistant professor	Department of Communication Studies, School of Communication Northwestern Institute on Complex Systems (affiliated faculty) Kellogg School of Management (by courtesy) Northwestern University, Evanston, IL	2016-now
Postdoctoral fellow	Northwestern Institute on Complex Systems Northwestern University, Evanston, IL	2014-2016
Research associate	Department of Theoretical Computer Science Technical University Kaiserslautern, Germany	2012

EDUCATION

PhD	Interdisciplinary Physics, Heidelberg University, Germany Dissertation: <i>Modelling and inferring connections in complex networks</i>	2013
MSc	Computational Physics, Babeş-Bolyai University, Romania Thesis: <i>Self-assembled micropatterns in carbon nanobristles</i>	2010
BSc	Physics and Computer Science, Babeş-Bolyai University, Romania Thesis: <i>Applications of spring-block type models in material sciences</i>	2008
BA	Photography, Film, and Media, Sapientia Hungarian University of Transylvania, Romania Thesis: <i>How do you remember thirst? The deleuzian time-image in the films of Chris Marker</i> Feature film script: <i>The big white</i>	2008

RESEARCH INTERESTS

Network theory (modelling and inference of topology and dynamics)
Data science (machine learning, statistics, exploratory visualization)
Creativity and cultural industries
Collective intelligence and crowdsourcing

PUBLICATIONS

Journal articles

- 2016 A Spitz, A Gimmler, T Stoeck, KA Zweig, **EÁ Horvát**
Assessing low-intensity relationships in complex networks, PLOS ONE 11(4): e0152536
- 2015 W Schlauch, **EÁ Horvát**, KA Zweig
Different flavors of randomness: comparing random graph models with fixed degree sequences, Social Network Analysis and Mining 5:36
- 2014 A Spitz and **EÁ Horvát**
Measuring long-term impact based on network centrality: unraveling cinematic citations, PLOS ONE 9(10): e108857
- 2013 **EÁ Horvát**, JD Zhang, S Uhlmann, Ö Sahin, KA Zweig
A network-based method to assess the statistical significance of mild co-regulation effects, PLOS ONE 8(9):e73413
- 2013 **EÁ Horvát** and KA Zweig
A fixed degree sequence model for the one-mode projection of multiplex bipartite graphs, Social Network Analysis and Mining 3(4):1209–1224
- 2013 A Spitz, KA Zweig, **EÁ Horvát**
SICOP: identifying significant co-interaction patterns, Bioinformatics 29(19):2503–2504
- 2012 **EÁ Horvát**, F Járαι-Szabó, Y Brechet, Z Néda
Spring-block approach for crack patterns in glass, Central European Journal of Physics 10(4):926–935
- 2012 **EÁ Horvát**, M Hanselmann, FA Hamprecht, KA Zweig
One plus one makes three (for social networks), PLOS ONE 7(4):e34740
Press coverage: Spiegel Online, New Scientist, IEEE Spectrum, Sci News, PC Mag, The Times of India, heise online, Der Standard, NDR Radio, InfoRadio RBB, DRadio Wissen, WDR 5, BR, NDR, Népszabadság, Transindex

- 2012 S Uhlmann, H Mannsperger, JD Zhang, **EÁ Horvát**, C Schmidt, M Küblbeck, F Henjes, A Ward, U Tschulena, KA Zweig, U Korf, S Wiemann, Ö Sahin
Global microRNA level regulation of EGFR-driven cell-cycle protein network in breast cancer, *Molecular Systems Biology* 8:570
News and views: M Malumbres, *miRNAs versus oncogenes: the power of social networking*, *Molecular Systems Biology* 8:569 (2012)
- 2011 F Járai-Szabó, **EÁ Horvát**, R Vajtai, Z Néda
Spring-block approach for nanobristle patterns, *Chem. Phys. Lett.* 511(4–6):378–383

Peer-reviewed conference papers

- 2015 **EÁ Horvát**, J Uparna, B Uzzi
Market- vs network relations: The effect of friends in crowdfunding, *Proc. IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, pages 226–233
- 2014 A Spitz and **EÁ Horvát**
A cookbook of cinematic delicacies that do not expire, *Leonardo* 47(3):271
- 2013 **EÁ Horvát**, M Hanselmann, FA Hamprecht, KA Zweig
You are who knows you: Predicting links between non-members of Facebook, In T Gilbert, M Kirkilionis, and G Nicolis, editors, *Proceedings of the European Conference on Complex Systems 2012*, Springer Proceedings in Complexity, Springer, pages 309–316
- 2012 **EÁ Horvát** and KA Zweig
One-mode projections of multiplex bipartite graphs, *Proc. IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining*, pages 598–605
- 2010 KA Zweig and **EÁ Horvát**
How to evaluate co-occurrences of products in market-baskets from real-world applications, *Proc. Mini-conference on Applied Theoretical Computer Science*
- 2010 GE Paziienza, K Karacs, **EÁ Horvát**, G Máté
Designing efficient CNN algorithms by combining manual and automatic techniques, *Proc. 12th IEEE International Workshop on Cellular Nanoscale Networks and Applications*
- 2010 G Máté, **EÁ Horvát**, T Roska, E Káptalan, Z Néda
Periodicity enhancement of two-mode stochastic oscillators in a CNN type architecture, *Proc. 12th IEEE International Workshop on Cellular Nanoscale Networks and Applications* **Student Paper Award**

Book contribution

- 2014 **EÁ Horvát**, KA Zweig
Multiplex networks, In R Alhajj and J Rokne, editors, *Encyclopedia of Social Network Analysis and Mining*, Springer

Under review and in preparation

- With Daniel Romero and Brian Uzzi:
A nature based solution to the collective wisdom problem in human organizations
- With Jay Uparna and Brian Uzzi:
Hidden indicators of collective intelligence in crowdfunding
- With Pramesh Singh, Jay Uparna, Panagiotis Karampournioutis, Boleslaw Szymanski, Gyorgy Korniss, Jonathan Z. Bakdash and Brian Uzzi:
Peer-to-peer lending and bias in crowd decision-making
- With Michael Mauskapf, Jared Lorince, Noah Askin and Brian Uzzi:
Women and creativity: Gender differences in the production of popular music
- With Matthias Leiss, Christian Schulz, Dirk Helbing and Brian Uzzi:
Social networks and stochastic decision-making

AWARDS, FELLOWSHIPS & GRANTS

- Research grant** from Northwestern University’s Data Science Initiative for the proposal *Is ours better than mine? Investigating collaborative consumption systems*, Co-PI with Amanda Stathopoulos and Ying Chen (\$30,000) 2017
- Best Talk Award** at the Annual Symposium of the Northwestern University Postdoctoral Forum 2014
- Karl Steinbuch Scholarship** for supporting innovative IT- and media-related projects, MFG Baden-Württemberg, Germany (\approx 10,000 €) 2012
- Project: *AFFINE: A network analytic approach to identifying characteristics of cinematic milestones*

PhD Fellowship of the Heidelberg Graduate School of Mathematical and Computational Methods for the Sciences, Heidelberg University, offered by the German Excellence Initiative ($\approx 55,000$ €)	2010–2013
Student Paper Award , second prize at the 12 th IEEE International Workshop on Cellular Nanoscale Networks and their Applications (CNNA), Berkeley, CA	2010
Fellowship awarded for academic excellence from the Babeş-Bolyai University, Romania	2004–2009
Fellowship awarded for academic excellence from the Sapientia Hungarian University of Transylvania, Romania	2004–2007
Prizes at the National Students’ Scientific Conference [Országos Tudományos Diákköri Konferencia, OTDK] (Hungary) and at the Transylvanian Students’ Scientific Conference [Tudományos Diákkörök Erdélyi Konferenciája, TUDEK] (Romania): first prizes (<i>Physics</i> 2007 and 2008, <i>Art Theory</i> 2007 and 2008), second prizes (<i>Cinema Studies</i> 2006 and 2009), and special prizes (<i>Pro Scientia Prize</i> 2007 and <i>Nanostructures</i> 2009)	2006–2009

TEACHING & TUTORING

Lecturer	Graduate seminar <i>Complex Network Analysis</i> , Northwestern University	2017
	Undergraduate course <i>Cultural Analytics</i> , Northwestern University	2017
	Masters course <i>Cultural and Art Analytics</i> , Northwestern University	2016
	Compact course <i>Social Network Analysis with R</i> , Heidelberg University, Germany	2014
Advisor	Independent studies, Northwestern University	2016–
	Software internships, Heidelberg University, Germany	2010–2012
Co-advisor	Bachelor and Diploma theses in the fields of Computer Science, Computer Linguistics, and Mathematics	2010–2012
Substitute lecturer	Undergraduate courses <i>Algorithms and data structures</i> and <i>Network analysis</i> , Heidelberg University and Technical University Kaiserslautern, Germany	2010–2012
Teaching assistant	Undergraduate courses <i>Network analysis</i> and <i>Algorithms and data structures</i> , Heidelberg University, Germany	2010–2011

KEYNOTE-, INVITED- & CONTRIBUTED CONFERENCE TALKS

2017	3 rd International Conference on Computational Social Science, Cologne, Germany
2017	Gendered Creative Teams Workshop, Budapest, Hungary
2017	8 th Workshop on Complex Networks (CompleNet), Dubrovnik, Croatia <i>Hidden structures in cultural citation networks</i>
2016	WebScience@10, Evanston, IL <i>Hidden indicators of collective intelligence in crowdfunding</i>
2016	Collective Intelligence Conference, New York, NY <i>Unraveling crowd IQ signals in crowdfunding</i>
2015	IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Paris, France <i>Market- vs network relations: The effect of friends in crowdfunding</i>
2015	International School and Conference on Network Science (NetSci), Zaragoza, Spain <i>Market vs network relations: The role of friends in crowdfunding & Leveraging collective intelligence in organizations</i>
2015	Collective Intelligence Conference, Santa Clara, CA <i>Leveraging collective intelligence in organizations</i>
2015	Computational Social Science Summit (CSSS), Evanston, IL <i>Market vs network relations: The role of friends in the early stages of bidding in crowdfunding</i>
2013	Quantifying Success Satellite at the European Conference on Complex Systems (ECCS), Barcelona, Spain <i>Lessons from cinema: Inferring markers of long-term success based on the film citation network</i>
2013	Multiplex Networks Satellite at the European Conference on Complex Systems (ECCS), Barcelona, Spain <i>Identifying central films in a multiplex film citation network</i>
2013	International School and Conference on Network Science (NetSci), Copenhagen, Denmark <i>Blockbusters or art cinema: Which productions write film history? Identifying central films in a multiplex film citation network</i>
2013	Arts, Humanities, and Complex Networks – 4th Leonardo satellite symposium at NetSci, Copenhagen, Denmark <i>A diverse menu of cinematic delicacies that do not expire</i>

- 2012 European Conference on Complex Systems (ECCS), Brussels, Belgium
You are who knows you: Predicting links between non-members of Facebook
- 2012 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Istanbul, Turkey
One-mode projection of multiplex bipartite graphs
- 2011 Annual Colloquium of the Heidelberg Graduate School for Mathematical and Computational Methods for the Sciences, Germany
You are who knows you: predicting links between non-members of Facebook
- 2011 International School and Conference on Network Science (NetSci), Budapest, Hungary
How to find the needle in the haystack – How network analysis can help biologists scan through high-throughput data
- 2010 Mini-conference on Applied Theoretical Computer Science (MATCOS), Koper, Slovenia
How to evaluate co-occurrences of products in market baskets from real-world applications
- 2010 12th IEEE International Workshop on Cellular Nanoscale Networks and their Applications (CNNA), Berkeley, CA
Periodicity enhancement of two-mode stochastic oscillators in a CNN type architecture

SPOKEN LANGUAGES

Hungarian: Native
English: Bilingual
German: Bilingual
Romanian: Bilingual
French: Conversational