

## EMŐKE-ÁGNES HORVÁT

School of Communication  
Northwestern University  
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### ACADEMIC POSITIONS

<b>Assistant professor</b>	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
<b>Postdoctoral fellow</b>	Northwestern Institute on Complex Systems Northwestern University, Evanston, IL	2014-2016
<b>Research associate</b>	Department of Theoretical Computer Science Technical University Kaiserslautern, Germany	2012

### EDUCATION

<b>PhD</b>	Interdisciplinary Physics, Heidelberg University, Germany Dissertation: <i>Modelling and inferring connections in complex networks</i>	2013
<b>MSc</b>	Computational Physics, Babeş-Bolyai University, Romania Thesis: <i>Self-assembled micropatterns in carbon nanobristles</i>	2010
<b>BSc</b>	Physics and Computer Science, Babeş-Bolyai University, Romania Thesis: <i>Applications of spring-block type models in material sciences</i>	2008
<b>BA</b>	Photography, Film, and Media, Sapientia University, 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)  
Collective intelligence, group behavior, and crowdsourcing  
Creativity and cultural industries

### AWARDS, FELLOWSHIPS & GRANTS

<b>NSF Award</b>	Research Initiation Initiative grant from the National Science Foundation's CISE IIS Division for the proposal <i>Early detection of collective misconceptions with network-aware machine learning tools</i> , PI (\$174,788)	2018–2020
<b>Research grant</b>	from Northwestern University's Data Science Initiative for the proposal <i>Is ours better than mine? Investigating collaborative consumption systems</i> , Co-PI with Amanda Stathopoulos and Ying Chen (\$30,000)	2017
<b>Best Talk Award</b>	at the Annual Symposium of the Northwestern University Postdoctoral Forum	2014
<b>Karl Steinbuch Scholarship</b>	for supporting innovative IT- and media-related projects, MFG Baden-Württemberg, Germany ( $\approx 10,000$ €) Project: <i>AFFINE: A network analytic approach to identifying characteristics of cinematic milestones</i>	2012

<b>PhD Fellowship</b> of the Heidelberg Graduate School of Mathematical and Computational Methods for the Sciences, Heidelberg University, offered by the German Excellence Initiative ( $\approx 55,000\text{€}$ )	2010–2013
<b>Student Paper Award</b> , second prize at the 12 <sup>th</sup> IEEE International Workshop on Cellular Nanoscale Networks and their Applications (CNNA), Berkeley, CA	2010
<b>Fellowship awarded for academic excellence</b> from the Babeş-Bolyai University, Romania	2004–2009
<b>Fellowship awarded for academic excellence</b> from the Sapientia Hungarian University of Transylvania, Romania	2004–2007
Prizes at the <b>National Students' Scientific Conference</b> [Országos Tudományos Diákköri Konferencia, OTDK] (Hungary) and at the <b>Transylvanian Students' Scientific Conference</b> [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
First prize in <i>Physics</i> at the International Conference of Young Scientists	2003

## PUBLICATIONS

### Refereed articles

- 2017 I Zakhlebin and **EÁ Horvát**  
*Network signatures of success: Emulating expert and crowd assessment in science, art, and technology*, Proceedings of the International Conference on Complex Networks and Their Applications, pages 437–449
- 2017 **EÁ Horvát** and T Papamarkou  
*Gender differences in equity crowdfunding*, Proceedings of the AAAI Conference on Human Computation and Crowdsourcing, pages 51–60
- 2016 A Spitz, A Gimmler, T Stoeck, KA Zweig, **EÁ Horvát**  
*Assessing low-intensity relationships in complex networks*, PLOS ONE 11(4): e0152536
- 2015 **EÁ Horvát**, J Uparna, B Uzzi  
*Market- vs network relations: The effect of friends in crowdfunding*, Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, pages 226–233
- 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
- 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
- 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 Járai-Szabó, Y Brechet, Z Nédá  
*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)
- 2012 **EÁ Horvát** and KA Zweig  
*One-mode projections of multiplex bipartite graphs*, Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining, pages 598–605
- 2011 F Járai-Szabó, **EÁ Horvát**, R Vajtai, Z Nédá  
*Spring-block approach for nanobristle patterns*, Chem. Phys. Lett. 511(4–6):378–383
- 2010 KA Zweig and **EÁ Horvát**  
*How to evaluate co-occurrences of products in market-baskets from real-world applications*, Proceedings of the 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*, Proceedings of the 12<sup>th</sup> IEEE International Workshop on Cellular Nanoscale Networks and Applications
- 2010 G Máté, **EÁ Horvát**, T Roska, E Káptalan, Z Nédá  
*Periodicity enhancement of two-mode stochastic oscillators in a CNN type architecture*, Proceedings of the 12<sup>th</sup> IEEE International Workshop on Cellular Nanoscale Networks and Applications **Student Paper Award**

#### Refereed 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, György 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*

#### SELECTED PRESENTATIONS AT PROFESSIONAL MEETINGS AND LECTURES

- 2017 European Symposium Series on Societal Challenges in Computational Social Science: Inequality and Imbalance, London, UK  
Contributed talk: *Women on the online capital market: Whats in a money network?*

- 2017 Weinberg College of Arts and Sciences, Department of Psychology, Evanston, IL  
Colloquium: *Collective intelligence in crowdfunding*
- 2017 5<sup>th</sup> AAAI Conference on Human Computation and Crowdsourcing (HCOMP), Quebec City, Canada  
Contributed talk: *Gender differences in equity crowdfunding*
- 2017 9<sup>th</sup> International Conference on Social Informatics (Socinfo), Oxford, UK  
Contributed talk: *Hidden indicators of collective intelligence in crowdfunding*
- 2017 3<sup>rd</sup> International Conference on Computational Social Science (IC2S2), Cologne, Germany  
Keynote: *Hidden indicators of collective intelligence in crowdfunding*
- 2017 Gendered Creative Teams Workshop, Budapest, Hungary  
Invited talk: *Gender differences in equity crowdfunding*
- 2017 8<sup>th</sup> Workshop on Complex Networks (CompleNet), Dubrovnik, Croatia  
Invited talk: *Hidden structures in cultural citation networks*
- 2016 WebScience@10, Evanston, IL  
Invited talk: *Hidden indicators of collective intelligence in crowdfunding*
- 2016 Kellogg School of Management, MORS Department Talk Series, Evanston, IL  
Colloquium: *Product-to-product networks in cultural industries: Measuring long-term influence in film*
- 2016 NICO Seminar, Northwestern Institute on Complex Systems, Evanston, IL  
Colloquium: *The network of cultural products: Measuring long-term influence in the film industry*
- 2016 Collective Intelligence Conference, New York, NY  
Contributed talk: *Unraveling crowd IQ signals in crowdfunding*
- 2015 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Paris, France  
Contributed talk: *Market- vs network relations: The effect of friends in crowdfunding*
- 2015 International School and Conference on Network Science (NetSci), Zaragoza, Spain  
Contributed talk: *Market vs network relations: The role of friends in crowdfunding & Leveraging collective intelligence in organizations*
- 2015 Collective Intelligence Conference, Santa Clara, CA  
Contributed talk: *Leveraging collective intelligence in organizations*
- 2015 Computational Social Science Summit (CSSS), Evanston, IL  
Contributed talk: *Market vs network relations: The role of friends in the early stages of bidding in crowdfunding*
- 2013 Quantifying Success Satellite at the European Conference on Complex Systems (ECCS), Barcelona, Spain  
Contributed talk: *Lessons from cinema: Inferring markers of long-term success based on the film citation network*
- 2013 Multiplex Networks Satellite at the European Conference on Complex Systems (ECCS), Barcelona, Spain  
Contributed talk: *Identifying central films in a multiplex film citation network*
- 2013 International School and Conference on Network Science (NetSci), Copenhagen, Denmark  
Contributed talk: *Blockbusters or art cinema: Which productions write film history? Identifying central films in a multiplex film citation network*
- 2013 Arts, Humanities, and Complex Networks – 4<sup>th</sup> Leonardo satellite symposium at NetSci, Copenhagen, Denmark  
Contributed talk: *A diverse menu of cinematic delicacies that do not expire*
- 2012 European Conference on Complex Systems (ECCS), Brussels, Belgium  
Contributed talk: *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  
Contributed talk: *One-mode projection of multiplex bipartite graphs*

- 2012 iCeNSA Talk, Interdisciplinary Center for Network Science and Applications, Notre Dame University, South Bend, IN  
Colloquium: *Predicting links between non-members of Facebook*
- 2011 Annual Colloquium of the Heidelberg Graduate School for Mathematical and Computational Methods for the Sciences, Germany  
Colloquium: *You are who knows you: predicting links between non-members of Facebook*
- 2011 International School and Conference on Network Science (NetSci), Budapest, Hungary  
Contributed talk: *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  
Contributed talk: *How to evaluate co-occurrences of products in market baskets from real-world applications*
- 2010 12<sup>th</sup> IEEE International Workshop on Cellular Nanoscale Networks and their Applications (CNNA), Berkeley, CA  
Contributed talk: *Periodicity enhancement of two-mode stochastic oscillators in a CNN type architecture*

## TEACHING & TUTORING

<b>Lecturer</b>	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
<b>Guest lecturer</b>	Graduate course <i>Data Analytics</i> , Northwestern University	2017
<b>Advisor</b>	Master's thesis, Northwestern University	2016–
	Independent studies, Northwestern University	2016–
	Software internships, Heidelberg University, Germany	2010–2012
<b>Co-advisor</b>	Bachelor and Diploma theses in the fields of Computer Science, Computer Linguistics, and Mathematics	2010–2012
<b>Substitute lecturer</b>	Undergraduate courses <i>Algorithms and data structures</i> and <i>Network analysis</i> , Heidelberg University and Technical University Kaiserslautern, Germany	2010–2012
<b>Teaching assistant</b>	Undergraduate courses <i>Network analysis</i> and <i>Algorithms and data structures</i> , Heidelberg University, Germany	2010–2011

## ACADEMIC SERVICE

### Editorial board member

*PLOS One*

### Reviewing

#### Journals

*Journal of Complex Networks*  
*Social Network Analysis and Mining (SNAM)*  
*American Sociological Review*  
*Big Data & Society*  
*IEEE Computer*  
*Entropy*  
*Computers*  
*Scientometrics*  
*Bioinformatics*

#### Conference proceedings

*Social Informatics (Socinfo)*  
*Data Mining for the Analysis of Performance and Success (DAPS ICDM)*

*Complex Networks (CompleNet)*  
*Annual Conference of the International Communication Association*  
*Encyclopedia of Social Network Analysis and Mining*

Edited volume

**Conference program committee membership**

Complex Networks (CompleNet) 2018  
Social Informatics (Socinfo) 2017, 2018  
International Conference on Computational Social Science (IC2S2) 2018  
Data Mining for the Analysis of Performance and Success (DAPS ICDM) 2017, 2018  
Digital Transformation & Global Society (DTGS) 2018

**Faculty search committee memberships**

Position in *Computational Social Science, Management and Organizations* Department, Kellogg School of Management, Northwestern University, 2016/2017

**Conference session chairing**

NetSci 2013  
IC2S2 2015, 2016  
CompleNet 2017

**AFFILIATIONS**

**Professional memberships**

Association for Computing Machinery (ACM)  
Network Science Society  
Society for Industrial and Applied Mathematics (SIAM)

**Graduate programs**

Technology and Social Behavior (TSB, core faculty)  
Media, Technology, and Society (MTS, core faculty)

**SPOKEN LANGUAGES**

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