

Elisa Omodei

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Professional Experience

- 2021-Present **Assistant Professor**, Dept. of Network and Data Science, Central European University, Vienna, Austria
2019-2021 **Lead Data Scientist**, Research, Assessment and Monitoring Division, UN World Food Programme, Rome, Italy
2017-2019 **Research Scientist**, Office of Innovation, UNICEF, New York City, USA
2015-2017 **Postdoc**, Dept. of Mathematics and Computer Engineering, Rovira i Virgili University, Tarragona, Spain

Education

- 2011-2014 **PhD in Applied Mathematics for the Social Sciences**, École Normale Supérieure, Paris, France
2009-2011 **M.Sc. in Applied Physics**, University of Bologna, Italy
2006-2009 **B.Sc. in Physics**, University of Padua, Italy

Publications

PREPRINTS

- Z. Kmetty, A. Stefkovics, J. Szamely, D. Deng, K. Aniko, E. Paul, **E. Omodei**, J. Koltai. 2023. Determinants of willingness to donate data from social media platforms. OSF Preprints. doi:10.31219/osf.io/ncwkt
R. Prieto-Curiel, O. Ali, E. Dervic, F. Karimi, **E. Omodei**, R. Stütz, G. Heiler, Y. Holovatch. 2023. The diaspora model for human migration. ArXiv Preprint. doi:10.48550/arXiv.2309.03070

JOURNAL ARTICLES

- S. Fiandrino, C. Dowd, G. Martini, Y. Mejova, **E. Omodei**, D. Paolotti, M. Tizzoni. 2023. Impact of food-related conflicts on self-reported food insecurity. *Frontiers in Sustainable Food Systems*, Volume 7
L. Gautheron, **E. Omodei**. 2023. How research programs come apart: the example of supersymmetry and the disunity of physics. *Quantitative Science Studies* 1–29.
P. Foini, M. Tizzoni, D. Paolotti, **E. Omodei**. 2023. On the forecastability of food insecurity. *Scientific Reports* 13, 2793
G. Martini, A. Bracci, L. Riches, S. Jaiswal, M. Corea, J. Rivers, A. Husain, **E. Omodei**. 2022. Machine learning can guide food security efforts when primary data are not available. *Nature Food* 3, 716–728
E. Omodei, M. Garcia-Herranz, D. Paolotti, M. Tizzoni. 2022. Complex Systems for the Most Vulnerable. *Journal of Physics: Complexity* 3, 021001
R.J. Oidtmann, **E. Omodei**, M.U.G. Kraemer, *et al.* 2021. Trade-offs between individual and ensemble forecasts of an emerging infectious disease. *Nature Communications* 12, 5379
E. Omodei, A. Arenas. 2018. A network approach to decentralized coordination of energy production-consumption grids. *PLoS One*, 13(1): e0191495
E. Omodei, M.E. Brashears, A. Arenas. 2017. A mechanistic model of human recall of social network structure and relationship affect. *Scientific Reports*, 7 17133
E. Omodei, M. De Domenico, A. Arenas. 2017. Evaluating the impact of interdisciplinary research: A multilayer network approach. *Network Science*, 5(2), 235–246
M. De Domenico, **E. Omodei**, A. Arenas. 2016. Quantifying the diaspora of knowledge in the last century. *Applied Network Science*, 1 15
E. Omodei, A. Arenas. 2016. Untangling the role of diverse social dimensions in the diffusion of microfinance. *Applied Network Science*, 1 14
D. Darmon*, **E. Omodei***, J. Garland*. 2015. Followers are not enough: a multifaceted approach to community detection in online social networks. *PLoS One*, 10(8): e0134860. *These authors contributed equally to this work

- E. Omodei**, M. De Domenico, A. Arenas. 2015. Characterizing interactions in online social networks during exceptional events. *Frontiers in Physics*, 3:59
- M. De Domenico, A. Solé-Ribalta, **E. Omodei**, S. Gómez, A. Arenas. 2015. Ranking in interconnected multilayer networks reveals versatile nodes. *Nature Communications*, 6 6868
- E. Omodei**, Y. Guo, J.-P. Cointet, T. Poibeau. 2015. Diversité sociale et sémantique: représentation socio-sémantique d'un corpus scientifique, le cas du corpus ACL Anthology. *Nouvelles perspectives en sciences sociales*, 11 1
- E. Omodei**, A. Bazzani, S. Rambaldi, P. Michieletto, B. Giorgini. 2014. The physics of the city: pedestrians dynamics and crowding panic equation in Venezia. *Quality & Quantity*, 48 1

PEER-REVIEWED CONFERENCE PROCEEDINGS

- E. Omodei**, Y. Guo, J.-P. Cointet, T. Poibeau. 2014. Social and semantic diversity: Socio-semantic representation of a scientific corpus. In *Proceedings of the 8th Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities (LaTeCH)*, pp. 71-79
- E. Omodei**, J.-P. Cointet, T. Poibeau. 2014. Reconstructing the Semantic Landscape of Natural Language Processing. In *Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC)*, pp. 2972-2978
- E. Omodei**, T. Poibeau, J.-P. Cointet. 2013. A symmetric approach to understand the dynamics of scientific collaborations and knowledge production. In *Proceedings of the 4e conférence sur les modèles et l'analyse des réseaux, France*
- E. Omodei**, T. Poibeau, J.-P. Cointet. 2012. Multi-level Modeling of Quotation Families Morphogenesis. In *Proceedings of the International Conference on Social Computing, Amsterdam*, pp. 392-401

BOOK CHAPTERS

- V. Sekara*, **E. Omodei***, L. Healy, J. Beise, C. Hansen, D. You, S. Blume, M. Garcia-Herranz. 2019. Mobile Phone Data for Children on the Move: Challenges and Opportunities. In A. Salah, A. Pentland, B. Lepri, E. Letouzé (eds) *Guide to Mobile Data Analytics in Refugee Scenarios*. Springer. *These authors contributed equally to this work
- S. Gómez, M. De Domenico, A. Solé-Ribalta, **E. Omodei**, A. Arenas. 2018. Multilayer Networks. In *Multiplex and Multilevel Networks*. Oxford University Press

Presentations

SELECTED INVITED TALKS AT WORKSHOPS, CONFERENCES AND UNIVERSITIES

- Sep 2023. *Linking survey and social media data to study misinformation and political polarization*. Sciences Po médialab, Paris, France
- Jul 2023. *Panel Debate - Using Computational Social Science for the Sustainable Development Goals*. International Conference on Computational Social Science IC2S2 2023, Copenhagen, Denmark
- May 2023. *Network and Data Science for the Sustainable Development Goals*. Ca' Foscari University of Venice, Italy.
- May 2023. *Complex Systems and Data Science for the Sustainable Development Goals*. ISI Foundation, Turin, Italy.
- Apr 2023. *Complex Systems and Data Science for the Sustainable Development Goals*. University of Bari Aldo Moro, Italy.
- Mar 2023. *Determinants of willingness to donate data from social media platforms*. Symposium "Social Media & Democracy", Mc Court Institute, Paris, France
- Mar 2023. *Data science approaches to monitor food insecurity* Institute of Science and Technology Austria.
- Dec 2022. *Computational approaches to monitor food insecurity*. Centre Marc Bloch, Berlin, Germany
- Oct 2022. *Complexity and data-driven approaches to monitor the SDGs*. Complexity Science Hub, Vienna, Austria
- Sep 2022. *Panelist on Data Analysis for Social Good and Making Sense on the Road to Achieving the Sustainable Development Goals.*, CIVICA Research Conference, Budapest, Hungary
- Jul 2022. *Data-driven models of food insecurity*. Workshop on Quantitative Human Ecology. ICTP, Trieste, Italy
- Apr 2022. *Physics of Data for Social Impact*. Spring Workshop on Physics of Data, Venice, Italy
- Nov 2021. *Nowcasting food insecurity on a global scale*. Workshop on "A.I. and the resilience of socio-ecosystems", French Agricultural Research Centre for International Development (CIRAD), Montpellier, France

Sep 2021. *Complexity science for the most vulnerable*. “Workshop on Co-produced complexity science for a just and sustainable transition”, Utrecht University, The Netherlands

Jun 2021. *Monitoring food insecurity with mobile technology and predictive analytics*. International AAAI Conference on Web and Social Media (ICWSM) Workshop: Data for the Wellbeing of Most Vulnerable, Online

May 2021. *Mapping socio-economic vulnerabilities with non-traditional data and predictive modeling*. CompleNet Live 2021: International Conference on Complex Networks, Online

Jan 2021. *Who, where, why: non-traditional data and predictive analytics to map vulnerabilities*. Sony Computer Science Laboratories, Paris, France

Dec 2020. *Monitoring and fighting food insecurity with mobile technology, two-way communication systems and predictive analytics*. Conference on Complex Systems 2020 Satellite: Citizen Social Science & Complex Systems Science, Online

Oct 2020. *Non-traditional data and predictive analytics to map socio-economic vulnerabilities*. Vermont Complex Systems Center, University of Vermont, USA

Oct 2020. *Who, where, why: non-traditional data and predictive analytics to map socio-economic vulnerabilities*. Center for Research and Interdisciplinarity, Paris, France

Apr 2019. *Complex Systems for the Most Vulnerable* NERCCS 2019: Second Northeast Regional Conference on Complex Systems, Binghamton, NY, USA

Sep 2018. *Big data for epidemic preparedness and response*. Forum Big Data and its applications to development and humanitarian action in Colombia, Universidad del Rosario, Bogota, Colombia

Sep 2017. *Data science for humanitarian response*. Conference on Complex Systems 2017 Satellite: Computational Social Science and Complexity, Cancun, Mexico

Sep 2017. *Multilayer network analysis for socio-economic development and humanitarian response*. Conference on Complex Systems 2017 Satellite: Multilayer and Interconnected Networks, Cancun, Mexico

PUBLIC TALKS

Nov 2022. *Data Science for the Sustainable Development Goals*. Vienna Data Science Meetup, CEU, Vienna, Austria

May 2022. *How can we use data science for social good?* Long Night of Research, CEU, Vienna, Austria

Sep 2020. *Data science for humanitarian response* Women in Data Science Turin, Italy

Oct 2019. *Hunger Map LIVE: Tracking and predicting hunger in near real-time* WFP Innovation Accelerator Pitch Night, Google HQ, Mountain View, CA, USA

Apr 2019. *Data science for international cooperation and for development* DataBeers Venezia #7

Teaching Experience

UNIVERSITY COURSES

Winter 2023 - **Data Science for the Sustainable Development Goals**, PhD in Network Science, CEU (4 ECTS)

Fall 2022 - **Social Networks 1**, PhD in Network Science and MS in Social Data Science, CEU (4 ECTS)

Fall 2022 - **Applied Statistics**, BA in Data Science & Society and MS in Social Data Science, CEU (4 ECTS)

Winter 2022 - **Introduction to Statistics**, BA in Data Science & Society, CEU (6 ECTS)

Winter 2013 **Information Extraction and Knowledge Representation**, Master in Multi-language Engineering, French National Institute for Oriental Languages and Civilizations, Paris, France (2 ECTS)

INVITED LECTURES AT GRADUATE PROGRAMS

Winter 2023 **Tracking food insecurity in near real-time: from data collection to predictive modeling (and back)**, MBA Health, UCL, London, UK

Winter 2022 **Data science for the Sustainable Development Goals: opportunities and challenges**, Master in Management of Sustainable Development Goals, LUMSA, Rome, Italy

Winter 2019 **Financial instruments to support sustainable development through technology**, Master in Management of Sustainable Development Goals, LUMSA, Rome, Italy

INVITED LECTURES AT PHD SUMMER SCHOOLS

Summer 2021	Tracking food insecurity in near real-time: From data collection to predictive modeling and back , 1st Social ComQuant Summer School, Online
Summer 2016	Science of Science , III Mediterranean School of Complex Networks, Italy
Summer 2015	Dynamics on social networks , II Mediterranean School of Complex Networks, Italy

Supervision

2023 -	PhD Supervisor of C. Eminente , PhD in Network Science, CEU, Vienna, Austria
2022 -	PhD Supervisor of Y. Chen and J. Szamely , PhD in Network Science, CEU, Vienna, Austria
2022	Ext. Supervisor of G. Vicentini , Master Thesis in Physics of Data, University of Padova
2021-2022	Ext. Supervisor of L. Gautheron , Master Thesis in History and Philosophy of Science, University of Paris
2019-2020	Ext. Supervisor of P. Foini , Lagrange Scholarship, ISI Foundation, Turin, Italy
Fall 2020	Mentor to L. Collett, C. Sotis, M. Koleva and B. Wellen , Data Science For All Women's Summit, Online
Summer 2018	Supervisor of R. Oidtman , PhD Internship, UNICEF Office of Innovation, NYC, USA
Summer 2018	Supervisor of P. Prasad , Master Internship, UNICEF Office of Innovation, NYC, USA

Conference Organization and Program Committees

International School and Conference on Network Science (NetSci) 2023, Program Chair

Network Science for the Sustainable Development Goals, Satellite Meeting of NetSci (2020 & 2023)

Complex Systems for the Most Vulnerable, Satellite Meeting of the Conference on Complex Systems (2018-2022)

Data Science for Social Good, Workshop of The Web Conference (2020 & 2021)

Network Science for Social Good, Satellite Meeting of NetSci (2019)

Member of the Program Committee: Conference on Complex Systems 2022, 2021, 2020, 2018 & 2017; NetSci 2022, 2020 & 2019; The Web Conference 2022, Web for good Special Track; Intl. Conference on Computational Social Science 2021; European Symposium on Computational Social Science 2018; CompleNet 2017; Complex Networks 2017 & 2016

Professional Service

Editorial Board Member, PCI Network Science

Guest Editor, Advances in Complex Systems (ACS)'s Topical Issue on "Complex Systems for Social Good".

Invited Editor, Frontiers in Big Data's Research Topic on "Are Machine Learning, AI, and Big Data Tools Ready to be Used for Sustainable Development? Challenges, and limitations of current approaches"

Reviewer for PNAS Nexus, Scientific Reports, Scientific Data, Humanities and Social Sciences Communications, PLOS ONE, EPJ Data Science, Frontiers in Big Data, Physical Review E

CIVICA Research Focus Area "Societies in Transition, Crises of Earth", CEU's Representative (2022-Present)

CEU Sustainability Advisory Committee Member (2022-Present)

Doctoral Committee Member, PhD Program in Network Science, CEU (2021-Present)

Vice-President Secretary, Complex Systems Society (Nov 2018 - Nov 2021)

Elected member of the Executive Committee of the Complex Systems Society (Nov 2015 - Nov 2018)

Chair of the Advisory Board of the Young Researchers of the Complex Systems Society (Apr 2015 - Apr 2018)

Elected member of the Council of the Complex Systems Society (Oct 2013 - Oct 2019)

Partnership on AI's working group on Fair, Transparent and Accountable AI, UNICEF's Representative (2018-2019)