# ALESSANDRO VESPIGNANI

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# PROFESSIONAL EXPERIENCE

2011 – present	Sternberg Distinguished University Professor   Northeastern University, USA  Joint appointments at the Physics department, College of Computer and Information Sciences, Bouvé College of Health Science. Director of the Network Science Institute.
2008 - 2011	J.H. Rudy Professor, School of Informatics and Computing   Indiana University, USA Associate Director of the Pervasive Technology Institute; Director of the Center for Complex Networks and Systems.
2004 - 2008	Professor, School of Informatics and Computing   Indiana University, USA Affiliate Biocomplexity Institute. & Cognitive Science program.
2002 - 2004	Senior Researcher 1 <sup>st</sup> class   National Council for Scientific Research (CNRS), France Core Faculty, Laboratoire de Physique Theorique, University of Paris-Sud, France.
1997 - 2002	Senior Researcher   International Center for Theoretical Physics, Trieste Italy The United Nations Educational, Scientific and Cultural Organization (UNESCO)
1995 - 1997	Marie Curie Post Doctoral fellow   Instituut Lorentz, Leiden University, The Netherlands Supervisor: Prof. J.M.J. van Leeuwen.
1994 - 1995	Research Associate   Mathematics Department, Yale University, USA Supervisor: Prof. B.B. Mandelbrot.

# **EDUCATION**

1994	Ph.D. in Theoretical Physics   University of Rome "La Sapienza", Rome, Italy
1990	Laurea cum Laude in Phsyics   University of Rome "La Sapienza", Rome, Italy

# **SHORT BIO**

Dr. Vespignani is currently Sternberg Family Distinguished University Professor at Northeastern University where he is the founding director of the Northeastern Network Science Institute. Prof. Vespignani received his undergraduate degree and Ph.D., both in physics, from the University of Rome "La Sapienza". He completed his postdoctoral research at Yale University and Leiden University. Prof. Vespignani worked at the International Center for Theoretical Physics (UNESCO) in Trieste and at the University of Paris-Sud in France as a member of the National Council for Scientific Research (CNRS). From 2004 to 2011, Vespignani was J.H.Rudy Professor of Informatics and Computing at Indiana University and the founding

Director of the Center for Complex Networks and Systems Research and Associate Director of the Pervasive Technology Institute. Vespignani is elected fellow of the American Physical Society, member of the Academy of Europe, and fellow of the Institute for Quantitative Social Sciences at Harvard University. Recently Vespignani's research activity focuses on the data-driven computational modeling of epidemic and spreading phenomena and the study of biological, social and technological networks.

### LEADERSHIP EXPERIENCE

#### Founding Director of the Network Science Institute, Northeastern University 2015 - present

Leadership of an interdisciplinary Institute with 10 tenured and tenure track faculty, ~35 research faculty and postdoctoral researchers, ~30 graduate students, and 5 professional staff, with >\$ 8M a year in research awards and contracts, 6 major research laboratories.

#### 2008 - present Leading PI of the Laboratory for the Modeling of Biological and Socio-technical systems

The laboratory developing data-driven models for the spread of infectious diseases; studying social human behavior; modeling the evolution of complex social and technological networks. The laboratory supports postdoctoral associates, professional staff and graduate students. It has been funded by grants from NSF, NIH, DTRA, IARPA and a number of foundation and corporate contracts.

#### 2012 - 2016 Founding Director of the Network Science Program, Northeastern University

Development and leadership of the first PhD program in Network Science in the USA. Leading the design and development of the interdisciplinary program that teaches and student tools and concepts to understand the structure and dynamics of networks. The program provides foundational training combining theoretically-driven inquiries with data collection and analytic tools and theories.

#### 2012 - 2017 Founding Editor in Chief of EPJ Data Science journal, Nature-Springer Publisher

The journal that has received its first impact factor in 2016. The journal is a top quartile journal according to the Clarivate Web of Science, publishing > 30 papers annually in the area of data science. human behavior, social interaction (including animal societies), economic and financial systems, management and business networks, socio-technical infrastructure, health and environmental systems, the science of science.

#### 2012 - 2015 President elected of the Complex System Society

The Society aims to promote complex systems research (pure and applied) and assist and advise on problems of complex systems education. The society was launched in 2004, and since 2006 Since 2004, the Conference on Complex Systems organized by the society, is the most important annual meeting for the complex systems research community (~1,000 participants).

#### 2008 - 2011 Founding Director of the Center for Complex Networks and Systems, Indiana University

#### 2008 - 2011 Associate Director, Pervasive Technology Institute, Indiana University

#### 2007 - 2009 Advisory Group, FET-ICT directorate of the European Commission

### HONORS AND AWARDS

- Knighted with the Order of the Star of Italy by the President of the Italian Government, June 6, 2021.
- Euler Award for outstanding research discoveries in the field of network science, Network Science Society 2020.
- John Graunt Award for extraordinary achievements in one of the population sciences, Radboud Institute for Health Sciences, The Netherlands, 2018.
- Senior Scientific Award for outstanding contributions to Complex Systems & Network sciences, Complex Systems Society, 2018.
- Fellow, Network Science Society, 2018.
- **Doctorate Honoris Causa**, Delft Technical University, The Netherlands, January 13, 2017.
- Best Paper Honorable Mention, WWW2017, Perth, Australia, April 3-7 2017.
- 2016 Aspen Institute Italia Award for scientific research and collaboration between Italy and the United States for the research on the "Spatiotemporal spread of the 2014 outbreak of Ebola virus disease in Liberia and the effectiveness of non-pharmaceutical intervention: a computational modelling analysis."
- International Society for Disease Surveillance 2016 Awards for Outstanding Research Articles in Biosurveillance, "Impact on Field" Category for the paper "The biosurveillance analytics resource directory (BARD): Facilitating the use of epidemiological models for infectious disease surveillance".
- Excellence in Research and Creative Activity Award, 2015 Northeastern University.
- **Elected member of the Academy of Europe**, section Physics and Engineering, 2011.
- Sternberg Family endowed chair, Northeastern University, 2011.
- Fellow, American Physical Society, 2008.
- James H. Rudy endowed chair Indiana University, 2008.
- **Top cited article 2005-2010 award** by the Theoretical Computer Science Journal, Elsevier.
- Congress of the United States briefing. "Harnessing Complex Networks to Solve the Nation's Grand Challenges", Washington, DC, Sept. 10,
- James Martin 21st Century School Seminar, Oxford University, February 25, 2010.
- Organizational Leadership Award, Global Information Technology Management Association, June 2007.
- Invited lecture National Academy of Engineering, U.S. Frontiers of Engineering Symposium, 2005.
- Top Five Finalist in the scientist category for the Wired Magazine Rave Award, San Francisco, 2004.
- Marie Curie Fellow (1995-1997), the Human and Capital mobility program of the European Economic Community.

### MEMBERSHIPS AND BOARDS

2020 – present	Supervisory Board of the Human Technopole Foundation, Milan, Italy
2015 - present	Advisory Board of the Indiana University Network Science Institute, Indiana University
2015 - present	Scientific Advisory Board, Institute for Scientific Interchange Foundation, Italy
2012 - present	Editorial Board, Nature Scientific Reports, Nature publishing Group

2010 – present	Editorial board of PLOS One, Public Library of Science
2012 - 2018	Area Editor, Network Science, Cambridge University Press
2013 - 2017	Advisory Board, WHO Collaborating Center on Complexity Science for Health Systems
2009 - 2013	Editorial Board of Journal of Computational Sciences, Elsevier
2010 - 2012	Editorial Board of Mathematical Biosciences, Elsevier
2002 - 2011	Editorial Board of Journal of Statistical Mechanics, IOP London, UK
2006 - 2011	Editorial Board, of European Physical Journal B, Springer
2007 - 2010	Advisory Board, Lisbon Epidemiology Consortium, Portugal
2009 - 2011	Advisory Board, CABDyN center, Oxford University, UK

# SOFTWARE AND ONLINE RESOURCES

- Network Workbench: A Large-Scale Network Analysis, Modeling and Visualization Toolkit for Biomedical, Social Science and Physics Research. http://nwb.slis.indiana.edu/index.html
- LaNet-vi provides images of large scale networks on a two-dimensional layout. http://xavier.informatics.indiana.edu/lanet-vi/
- GLEaMviz.org resource website on the Global Epidemic and Mobility modeler that integrates sociodemographic and population mobility data to provide a computational platform for the large-scale spreading of infectious diseases, www.gleamviz.org
- EpiC: A Computational Infrastructure for Epidemics Research. This project will the design, implementation, deployment, and maintenance of a computational infrastructure for epidemics research, called the Epidemics Cyberinfrastructure. <a href="http://epic.slis.indiana.edu/">http://epic.slis.indiana.edu/</a>
- The Epidemic Rapid Transit Map visualization was part of "The Art of Networks II" exhibition that was on view between March 26 May 31, 2015 at the New York Hall of Science (http://www.mobs-lab.org/epi-rail.html).
- The Twitter of Babel: Mapping World Languages through Microblogging Platforms (<a href="http://www.twitterofbabel.org/">http://www.twitterofbabel.org/</a>)
- Model based scenarios of the spatio-temporal spreading and impact of Zika virus (http://www.zika-model.org/).

### SELECTED CONFERENCE ORGANIZATION AND PROGRAM COMMITTEES

- Conference Chair, CompleNet 2018, Northeastern University, March 5-8, 2018, Boston, MA
- 2. Organizer, Digital Epidemiology and Surveillance, CCS2018 Satellite Workshop, September 26th 2018, Thessaloniki, Greece
- WHO Blueprint meeting, Northeastern University, Boston, October 30-November 1st, 2017.
- DELVE 2017 Second Workshop on Digital Epidemiology and Surveillance, Satellite of CCS2017, Cancún, Mexico, September 17-4. 22 2017
- Organizing committee, Complex Systems Society, 2016 Conference on Complex Systems Satellite Workshop, Amsterdam, The Netherlands, September 20, 2016, "Digital Epidemiology and Surveillance."

- Organizing Committee, EE2 EPIWORK/EPIFOR 2nd International workshop "Facing the challenge of infectious diseases", Courmayeur, Italy, January 18 - 20, 2012.
- Program leader of the year-long SAMSI program on Complex Networks, Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, North Carolina, 2010-2011.
- Advisory Committee, NetSci 2010, The International School and Conference on Network Science, Boston, 10-14 May, 2010.
- Organizing Committee Workshop "Frontiers in the computational modeling of disease spreading", International Conference of Computational Sciences ICCS2010 Amsterdam (The Netherlands), May 31 - June 2, 2010.
- Chair of the network track at the European Conference on Complex Systems ECCS'07, Dresden, Germany, October 1-5, 2007.
- Organizing committee of the workshop "Random and dynamics graphs and Networks", Institute for pure and applied mathematics (IPAM), University of California Los Angeles, May 7-11, 2007.
- Chair of the network track at the European Conference on Complex Systems ECCS'06, Oxford UK, September 25-29, 2006.
- Program Committee: ISMA Workshop on the Internet Topology (WIT), supported by CAIDA and the NSF, CAIDA, San Diego, May 10-12, 2006.
- Chair of the Focus session on Social Networks at the American Physical Society March Meeting, Baltimore, March 23-17, 2006.
- Organizing committee of International Workshop and Conference on Network Science NetSci-06, Bloomington IN, USA, May16-25, 2006.
- Organizing committee of ALIFE-X, 10th International Conference on the Simulation and Synthesis of Living Systems, Bloomington, June 3-7, 2006.
- Program Committee, The "European conference on complex systems", Paris France 14-18 November 2005.
- Organizing committee of the School and workshop on "The structure and function of complex networks", Trieste, Italy on May 16-28 2005.
- Chair of the Focus session on Complex networks at the American Physical Society March Meeting, Los Angeles, March 21-25 2005.
- Program Committee, "Workshop on combinatorial and algorithmic aspects of networking", Banff International Research Station (BIRS), Canada, August 5-7, 2004.
- Program Committee, "Third Workshop on Algorithms and Models for the Web-Graph (WAW 2004)", Rome, Italy, October 16, 2004.
- Program Committee, "Fluctuations and Noise in Biological, Biophysical and Biomed Systems", conference within the symposium "Fluctuations and Noise" sponsored by SPIE, May 25-28, 2004.
- Scientific committee of the international conference: "Frontier in science: a non-linear world", Pavia, Italy September 8-12, 2003.
- Organizing committee of the international conference: "Growing Networks and Graphs in Statistical Physics, Finance, Biology and Social Systems ", Rome, Italy, September 1-5, 2003.
- Scientific Director of the International Kas School of Physics "New Trends in Statistical Physics", Kas, Turkey, September 26 -October 5, 2002.
- Organizing committee of the research workshop: "Statistical mechanics of plastic deformation", ICTP-Trieste, Italy, 4-7 March 2002.
- Organizing committee for the 6<sup>th</sup> Italian Meeting on Statistical Physics (Parma, May, 2001), with the sponsorship of GNSM, INFM and ISI Foundation.
- Director of the research workshop: "Self-organized criticality and phase transitions in driven systems", ICTP-Trieste, Italy 1-4 March 2000.

# SELECTED INVITED TALKS AND LECTURES

Along with the following major speaking engagements, I have given a large number of seminars and colloquiums at major institutions and universities, nationally and internationally.

- "The Need For a Global Vaccine Strategy: A Fireside Chat on The Global Effects of the Pandemic and Vaccine", July 13, 2021, PIB & Italian Consulate in Boston (Invited speaker)
- Networks 2021: A Joint Sunbelt and NetSci Conference, July 8, 2021,

"A discussion about the role of networks research & understanding COVID-19" (Plenary speaker).

- MODCOV19, a French platform for the coordination of modeling work for the Math and Physics community, May 4, 2021.
- UC Davis Health, March 11, 2021,

COVID-19 Update: Testing, Sequencing, Variants, Vaccines (Invited speaker)

National Science Foundation PIPP, February 17, 2021,

"Pandemic Readiness for Emerging Pathogens (PREP)" workshop (Invited Speaker)

Physics@Veldhoven, January 18, 2021,

"Computational Epidemiology at the time of COVID-19" (Keynote Speaker) + Master class: "Modeling contagion processes".

Webinar TAM TAM Talks, Generali Insurance Group, January 12, 2021,

"Lessons from 2020 with Alessandro Vespignani".

Virtual COVID-19 Symposium, Columbia University, November 18th, 2020,

"Computational Epidemiology at the time of COVID-19" (Invited Speaker)

- SC20, The International Conference for High Performance Computing, Monday, November 16, 2020, (Plenary speaker and panelist).
- AIChE Annual Meeting, PAIC Town Hall, November 15, 2020.
- National Summit on the Science and Technology of Epidemiological Modeling and Prediction, Office of Science and Technology Policy, The White House, November 12, 2020 (Invited Speaker).
- 12. Centesimus Annus pro Pontifice Foundation's International Conference, Vatican City, Oct. 30th, 2020.

"Lessons from the Pandemic" (invited Speaker)

Multilayers and Beyond: AccelNet-MultiNet Satellite, hosted by Indiana University and NU's Network Science Institutes (virtual), October 13, 2020,

"MultiNet Epidemiology" (Invited speaker).

14. **12th International Conference on Social Informatics**, 6-9 October, 2020,

"Computational Epidemiology at the time of COVID-19", (Keynote speaker).

- National Geographic science festival, August 31, 2020. (Invited Speaker)
- 16. 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining, August 23, 2020 (Keynote speaker).
- 17. **Dean's Grand Round series,** Columbia University Mailman Public Health School, New York, January 4, 2019.

"Data Science and Epidemiology: More Than Forecast" (Invited Colloquium)

18. WHO Immunization and Vaccine related Implementation Research (IVIR) Advisory Committee, Geneva, March 13, 2019.

"Ebola Vaccine Modeling" (invited presentation)

19. **The 2019 Dondena Lecture,** Bocconi University, Milan, Italy, May 14 2019.

"Data science, society and forecasts advances and challenges".

UBICS Day 2019, Barcelona, Spain, June 18, 2019.

"Data Science, complex systems and forecasts: advances and challenges" (*Invited Talk*)

21. **Malaria Modeling Consortium Meeting**, September 24, University of Washington, Seattle.

"The RAPIDD Ebola forecasting challenge: Synthesis and lessons learned" (Invited talk).

22. Integration of novel data for disease prevention: a modeling showcase. European Center for Disease Prevention and Control, Solna, Sweden October 8-9, 2019.

"Forecasting and online data" (Invited Talk)

- 2018 BIFI International Conference on Complexity, Networks and Collective Behavior, Zaragoza, Spain, February 6-8 2018, "Complex Systems, Networks and Epidemic Modeling" (Keynote speaker).
- 24. WHO Health Emergencies Programme meeting "Zika research: looking ahead", Centre International de Conférences, Genève, Switzerland, 13-14 February 2018.

"Past, present and future of Zika Virus epidemiology".

- 25. National Academies of Sciences, Engineering, and Medicine webinar series on "Social and Biological Networks", April 10, 2018 (http://sites.nationalacademies.org/deps/bmsa/deps\_183972). (Panelist and speaker).
- BigData Innovators Gathering (BIG), WWW 2018. Lyon, France, April 23-24, 2018. "Big data epidemiology: more than forecast".
- 27. **Human Machine Systems Workshop,** HRL Laboratories, Malibu, CA, August 23-24, 2018. "Humans in the loop: Improving Machine learning and mechanistic disease forecasting".
- CSTE/CDC 2018 Seasonal Influenza Forecasting Workshop, Atlanta, GA, August 30-31, 2018. "Integrating ML with mechanistic models for influenza forecast".
- 29. International Conference on Network Medicine and Big Data: The Transformation of Medicine, Brigham and Women's Hospital Boston and the University of Rome La Sapienza, Rome, Italy, September 24-26, 2018. "Network Approaches to Infections and Epidemics".
- 30. CCS 2018, Annual Conference of the Complex Systems Society, Thessaloniki, Greece, September 24-28, 2018. (2018 CSS Senior Scientific Award Recipient Lecture).
- 31. IEEE International Conference on Data Science and Advanced Analytics (DSAA), Turin, Italy, October 1–3 2018. "Data Science and Epidemiology: more than forecast" (Keynote speaker).
- Northeastern University Global Health Initiative, Northeastern University, Boston, Ma, October 19-20, 2018. "Workshop tutorial on Monitoring and Tracking Epidemics".
- Radboud New Frontiers Symposium, "Big Data, Better Healthcare?", Nijmegen, The Netherlands, November 1st, 2018. (John Graunt Award Recipient Lecture).
- American Society of Tropical Medicine and Hygiene, 66th Annual Meeting, Baltimore, Maryland USA, November 5-9, 2017. "Large scale information networks to support the forecasting and response to Ebola and other Epidemics".
- Advances on Epidemics in Complex Networks, Delft, The Netherlands, 31 August 1 September 2017. "Forecasting diseases fusing novel data streams in mechanistic models".
- 36. **Seasonal Influenza Forecasting workshop**, Center for Disease Control, Atlanta, USA, August 28-29. "Results and Lesson learned during the 2016/17 forecast season".
- 37. **The IV AMMCS International Conference**, Waterloo, Ontario, Canada, August 20-25, 2017. "Mathematical and Computational Modeling of Epidemics Does More Than Forecast" (Plenary speaker).
- Institute for Cross-Disciplinary Physics and Complex Systems, Crossroads in Complex Systems, Mallorca, Spain, June 5-8, 2017, "Contagion processes in Complex Networks" (Keynote)
- WHO Workshop "Efficacy trials of ZIKV Vaccines: endpoints, trial design, site selection", Geneva, June 1-2, 2017. "Zika projections in 2017 and the future, potential for site selection".

23rd Global Development Conference, Kennedy School of Government at Harvard University, April 1st, 2017.

"Harnessing Big Data for Development Impact" (Panelist)

41. **Big Data Literacy Workshop**, New York Hall of Science, April 13-14, 2017.

"Big data and epidemic Forecast" (Keynote)

42. WHO Global Coordination Mechanism for R&D to prevent and respond to epidemics – Formal meeting to conclude the terms of reference, Wellcome Trust, London, United Kingdom, 28 March 2017.

" Modeling future Zika Virus transmission".

WHO SAGE Working Group on Ebola vaccines, Geneva, Switzerland 14-15 March 2017,

"Projected impact of different vaccination strategies generated by mathematical models".

World Health Organization, Rationale for a Vaccine efficacy trial during Public Health Emergencies: Integrating Infectious Disease Modelling, March 24-25, 2016, Chamonix-Mont-Blanc, France,

"Sharing Early Zika Modeling Experience."

Instituut-Lorentz, Colloquium Ehrenfestii 2016, University of Leiden, The Netherlands, March 23, 2016,

"Modeling of epidemics: from the physics of reaction-diffusion processes to infectious disease forecast."

- Vermont Complex Systems Center, Mini-symposium on Predicting Pandemics, University of Vermont, Burlington, April 4, 2016, "Epidemic modeling does more than forecast."
- International Union of Pure and Applied Physics, Satellite Meeting of Statphys26: Complex Networks: From Theory to **Interdisciplinary Applications**, Marseilles, France, July 11-13, 2016,

"From the physics of reaction-diffusion processes in complex networks to infectious disease forecast."

Leiden Complex Networks Network, Leiden Networks Day, Universiteit Leiden, The Netherlands, September 23, 2016, "From spreading processes in networks to infectious disease forecast."

London School of Tropical Medicine, London, England, February 16-18, 2015.

"Spatial data and modeling of Ebola"

**NETMOB 2015 conference**, MIT Media Lab, Cambridge, MA April 8, 2015

"Human mobility and the spreading of infectious disease" (Invited keynote).

MIT Distinguished Speaker Series, Cambridge, MA May 4, 2015.

"Modeling and forecast of contagion phenomena in the age of big data"

WIRED Magazine Fest, Milan, Italy May 23-24, 2015.

"Digital crumbs: studying the future of social systems (and beyond) through Big Data"

NETSCI 2015 International Conference, Zaragoza, Spain June 2-7, 2015

"Data-driven Modeling of Contagion Processes in Networks" (Invited opening keynote).

International Conference on Computational Social Science, Helsinki, Finaland, June 8-11, 2015

"Computational epidemiology does more than forecast" (Invited keynote).

Mathematical & Computational Epidemiology of Infectious Diseases, Erice, Italy September 1-5, 2015

"Computational epidemiology does more than forecast" (Invited keynote).

Next Generation Surveillance for the Next Pandemic, Santa-Fe Institute, Santa Fe, NM, May 19, 2014.

"From nowcasting to forecasting the evolution of the next pandemic by using digital surveillance"

American Society for Microbiology Conference for Undergraduate Educators (ASMCUE), Danvers MA, May 15-18, 2014.

"Modeling and Forecast of Network-Driven Contagion Processes"

CompleNet 2014, Bologna, Italy, March 12-14, 2014

(Keynote speaker)

- Workshop on Dynamic Networks 2013, Buenos Aires, Argentina November 5-7th, 2013.
- Public Health Sciences Grand Rounds, Rollins School of Public Health, Emory University, October 18, 2013.

- **5th Workshop on information in Networks**, NYU, October 4-5 2013 (plenary speaker)
- ECCS 2013, Barcelona, Spain, September 16-20, 2013. 62.
- **Digital Surveillance Meeting, CDC**, Atlanta, August 6, 2013.
- ARS'13 International Workshop, Rome Italy, June 20-22, 2013, "Networks in space and time: Models, Data collection and Applications" (Keynote speaker).
- IWSOS, 7th International Workshop on Self-Organizing Systems, Palma de Mallorca, Spain, May 9-10, 2013. (Keynote speaker)
- APS March Meeting, Invited Session: Statistical Physics for Systemic Risk and Infrastructural Interdependencies, Baltimore, Maryland, March 18-22, 2013.
- 67. **AAAS 2013 annual Meeting**, Boston, February 16, 2013, "Predictability: from physical to Data Sciences".
- FuturICT @ MediaLab, Boston, February 13-14, 2013.
- **5th Annual Global Empowerment Meeting (GEM12),** Harvard University, Boston, October 24 25, 2012.
- NICO Distinguished Speaker Series, Northwestern University, Evanston, October 10 11, 2012.
- Workshop on Information in Networks (WIN) 2011, New York City, September 28 29, 2012. 71.
- International Meeting "Complex Systems Analysis: Advancing Health System Policy Design and Planning", Rockefeller Foundation, Bellagio Center, Italy, September 24 - 28, 2012.
- SCOR Pandemic Risk Conference, Paris, July 9-10, 2012.
- International Workshop on Agent-Based Models and Complex Techno-Social Systems, ETH Zurich (Switzerland), July 2-4, 2012 (keynote speaker)
- **39th General Assembly of the Geneva Association**, Washington D.C. June 6-9, 2012.
- NSF workshop: Workshop on Complexity Science Applied to Coupled Infrastructure Systems (InfraPlex), Martha's Vineyard, June 3-4, 2012.
- Workshop Evolution and Spread of Diseases, Mathematical Biosciences Institute, Ohio State University, 19-23 March 2012.
- Workshop "Frontiers in multiscale computational modeling for zoonotic epidemics", Kansas City, October 10-12, 2011.
- Second International Business Complexity & the Global Leader Conference, Suffolk University, Boston, Massachusetts, October 17-19, 2011 (keynote speaker).
- Workshop "Data Science and Epidemiology", Center for Infectious Disease Dynamics (CIDD) at Penn State University, October 6 and 7, 2011.
- Workshop on Information in Networks (WIN) 2011, New York City, September 30th and October 1st, 2011.
- NetSci 2011, The International School and Conference on Network Science, Budapest, 6-10 June, 2011.
- First Global Symposium on Health Systems Research, Session on complex systems, Montreaux, Switzerland November 16-19, 2010. 83.
- Connecting the Dots Symposium, Harvard University, Cambridge, MA, October 22, 2010 (keynote speaker).
- 85. Influenza H1N1 modeling working group meeting, European Center for Disease Control ECDC, Stockholm, 19 October 2010.
- ESF-Cost Conference on Future Internet and Society: A Complex Systems Perspective, Acquafredda di Maratea, Italy, October 4-9, 2010 (keynote speaker).
- WIN 2010 Workshop on Information in Networks, New York University, New York, September 25-26, 2010.

- Socially Coupled Systems & Informatics-Science, Computing and Decision Making in a Complex Interdependent World 2010 Conference, Old Town Alexandria, VA, July 12-14, 2010.
- 89. Workshop on Cascading Events in Complex Financial Networks, The Fidelity Center for Applied Complexity May 11, 2010, Boston, MA (keynote speaker).
- Symposium "The Physics of Global Catastrophes and Countermeasures", American Physical Society (APS) March Meeting, Portland, OR, March 14-17, 2010.
- 91. Symposium "Human Mobility: the Statistical Physics of When, Where, and How", American Physical Society (APS) March Meeting, Portland, OR, March 14-17, 2010.
- International Workshop on Nonlinear Dynamics of Networks, Center for Scientific Computation & Mathematical Modeling (CSCAMM), University of Maryland, College Park, April 7, 2010.
- 93. International Conference: Networks, a framework for cross disciplinary applications, Zaragoza, Spain, February 3-6, 2010 (keynote speaker).
- Symposium on Frontiers in Network Science, Advances in Complex Networks, Berlin, Germany, September 28-30, 2009 (keynote
- NIH-Roadmap Methodology & Technology Grantee Meeting, Bethesda MD, Oct. 8, 2009.
- Joint Statistical Meeting, Statistics: from evidence to Policy, Washington DC, USA, August 1-6, 2009.
- NetSci 2009, International Conference on Network Science, Venice, Italy June 29- July 3, 2009 (Keynote speaker).
- CCSS, International Workshop on coping with crises in complex socio-economic systems, ETH Zurich, Switzerland June 8-12, 2009 (Plenary speaker).
- Complex 2009, International conference on complex systems, Shanghai, China February 23-29 (2009) (Keynote speaker)
- 100. NICO Complexity Conference 2008, Northwestern Institute on Complex Systems, Northwestern University, Evanston, IL, USA May 19-21, 2008.
- 101. Complex Systems and Networks, ONCE-CS, UNESCO Conference, Sovata, Romania, July 15-20 2007.
- 102. STATPHYS 23, the 23rd International Conference on Statistical Physics of the International Union for Pure and Applied Physics (IUPAP), Genova, Italy, July 9-13, 2007 (Plenary speaker).
- 103. Complex Networks: from Biology to Information Technology: Satellite of Statphys 23, Cagliari, Italy, July 2-6 2007.
- 104. 7th International Conference on Computational Science (ICCS 2007), Beijing, China, May 28-30, 2007 (Keynote speaker).
- 105. **NetSci 2007 International conference**, New York Hall of Science, New York, NY, USA, May 22-25, 2007.
- 106. March Meeting of the American Physical Society, focus session on Social Dynamics and Scaling, Denver, Colorado, USA, March 5-9, 2007.
- 107. Conference on Complex systems: from physics to biology and the social sciences, Center for theoretical and computational Physics, Lisbon, Portugal. November 22-25, 2006.
- 108. Europe's information Society Conference IST 2006, Helsinki, Finland, November 21-23, 2006 (Keynote speaker).
- 109. European Conference on Complex Systems (ECCS'06), Oxford, UK. September 25-29, 2006 (Plenary speaker).
- 110. Workshop on New directions in complex systems, (NDCOS 2006), Istanbul, Turkey September 3-9, 2006 (Opening speaker).
- 111. Workshop on Optimization in Complex Networks, Center for Non-linear Studies, Los Alamos National laboratory, New Mexico, USA, June 19-22, 2006.
- 112. Symposium on "Law in the age of Networks: Implications of network science for legal analysis, Illinois University, March 10, 2006.
- 113. International Workshop and Seminar on Dynamics on Complex Networks and Applications, MPIPKS Dresden, Germany, February 6 - March 3, 2006 (Opening speaker).

- 114. 19th Annual Conference on Neural Information Processing Systems NIPS05, Vancouver BC, Canada, December 5-8, 2005 (Keynote speaker).
- 115. Conference on "Complex Networks and Random Graphs", Physikzentrum Bad Honnef, Germany, 11-13 July, 2005.
- 116. **Symposium on Biological and Social Networks,** Physik seit Einstein, 69th Annual meeting of the German Physical Society, Berlin, Germany, 4-9 March 2005.
- 117. Santa Fe Institute Research Collaboration Program on "Robustness of multiple overlapping networks", Santa Fe Institute, New Mexico, USA, 25-29 April 2005.
- 118. March Meeting of the American Physical Society, focus session on Complex Networks, Los Angeles, USA, March 21-25 2005.
- 119. Workshop "Understanding and preventing infectious diseases", University of British Columbia and Canadian Center for Disease Control, Vancouver, Canada, January 19-22, 2005.
- 120. MiDAS consultation Group on Social Networks, Brookings Institution, Washington DC, USA 5-6 January 2005.
- 121. International Workshop on "Adaptive and Resilient Computing Security (ARCSO4)", Santa Fe Institute, New Mexico, USA, November 3-4, 2004 (keynote speaker).
- 122. International Conference on "Complex Systems across Disciplines", Northwestern University, Chicago, Illinois, USA, October 29-30, 2004.
- 123. International Conference "Science of Complex Networks: from Biology to the Internet and WWW", University of Aveiro, Aveiro, Portugal, 29 August - 2 September 2004.
- 124. Thematic Institute on Complex Systems "Networks and risks", Collegium Budapest, Institute for Advanced Study, Budapest, Hungary, May 31 - July 6, 2004 (Keynote speaker).
- 125. Max Planck Institute International workshop "Non-equilibrium statistical physics in low dimensions" Dresden, Germany, September 22- October 10, 2003.
- 126. Royal Institute for International Affairs conference, "Complexity, networks and resilience: interdependence and security in the 21st century", London, UK, September 17-18 2003.
- 127. Los Alamos National Laboratory 23rd Annual Conference, "Networks: Structure, Dynamics and Function", Santa Fe, New Mexico, USA, May 12 - 16, 2003.
- 128. 7th Granada Seminar on Computational and Statistical Physics, "Modeling of Complex Systems" Granada, Spain, September 2-7, 2002.
- 129. 15th International symposium on Mathematical Theory of Networks and Systems University of Notre Dame, South Bend, Indiana, USA, August 12-16 2002.
- 130. XVIII Sitges Conference on: "Statistical Mechanics of Complex Networks" Sitges, Barcelona, Spain, 10-14 June 2002.
- 131. March Meeting of the American Physical Society, focus session on Complex networks, Indianapolis, USA, March 18 22, 2002.
- 132. 6th APCTP Winter School "Scaling and Phase Transitions in Complex Networks and Non-equilibrium Systems" Pohang, Korea, Feb. 18-21, 2002.
- 133. Fourth Meeting on Fractals and Self-organization, ESPCI, Paris, France, October 25 26, 2001.
- 134. International Workshop on "Scaling and Disordered Systems", Paris, France, April 13-14, 2000.
- 135. International Conference on Statistical Physics Calcutta III, Bose Center for Basic Sciences, Calcutta, India, January 4-9, 1999.
- 136. VIII Swiss-Italian workshop on Computational Material Science, Cagliari-Italy, September 18-22, 1998.
- 137. Third International Conference on Renormalization Group "RG 96", Dubna, Russia, August 26-31, 1996.
- 138. International Network Program on Classical Statistical Mechanics with Special Emphasis on Nonlinear, Non-equilibrium and Disordered Systems, Torino, Italy October 22 - November 12, 1995.

# **Summer Schools and PhD programs (invited lecturer)**

139. 2021 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 19 – July 21, 2021.

Teaching Module on Statistics and Modeling with Novel Data Streams (Lecturer)

140. 2020 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 22 - July 24, 2020.

Teaching Module on Statistics and Modeling with Novel Data Streams (Lecturer)

141. 2018 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 9 - July 25, 2018.

"Teaching Module on Statistics and Modeling with Novel Data Streams." (Lecturer)

- 142. Complex networks: theory, methods, and applications, Lake Como School of Advanced Studies Como, Italy, May 14-18, 2018 "Contagion process in complex networks" (*Lecturer*)
- 143. Summer School Series on Methods for Computational Social Science, Sardinia, Italy, July 24th 29th 2017 "Modelling contagion processes in complex societies" (Keynote lecture)
- 144. Advances in complex systems, Lake Como School of Advanced Studies, Como, Italy, July 3-7, 2017 "Contagion process in complex networks" (Lecturer)
- 145. International School on Network Science, NetSci 2017, Indianapolis, USA, June 19 -20, 2017 "Contagion and spreading processes on networks" (Lecturer)
- 146. 2017 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 10 - July 26, 2017.

"Teaching Module on Statistics and Modeling with Novel Data Streams." (Lecturer)

- 147. 2015 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 6-22, 2015.
- 148. 2014 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 7-23, 2014
- 149. 2013 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA July 16-19, 2013.
- 150. Master's class: From Data to Decision, British Columbia Center for Disease Control, Vancouver, May 30-June 1st, 2012.
- 151. 2012 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, July 15-19, 2012.
- 152. **2011 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID),** University of Washington School of Public Health, Seattle, WA, June 13-29, 2011.
- 153. 2010 Summer Institute in Statistics and Modeling in Infectious Diseases (SISMID), University of Washington School of Public Health, Seattle, WA, June 14-30, 2010.
- 154. Les Houches Summer School on "Complex Systems", Les Houches Physics School, France, July 3-28, 2006.
- 155. Isaac Newton Institute School Non-Equilibrium Dynamics of Interacting Particle Systems, Newton Institute, Cambridge UK, March 27 - April 7, 2006.
- 156. **ESAS Master in Methods for Management of Complex Systems**, University of Pavia, Italy 17-18 May 2005.
- 157. International School "From functional genomics to molecular networks", Evry, France, May 30th-June 4th, 2005.
- 158. International School "Models for Complex Systems in Human and Social Sciences", Ecole Normale Supérieure de Lyon, Lyon, France, July 19-31, 2004.
- 159. Winter School on Complex Systems, Ecole Normale Superieure de Lyon, Lyon, France, December, 2002.

As of Summer 2021, Vespignani's publications have received more than 70,000 citations in Google Scholar (h-index=115). Several papers have been placed in the top 1% within their field according to the Essential Science Indicators and the number of citations received in ISI Thomson's Web of Science database. Vespignani's works are featured in several science and popular science books. Among those:

- The rules of Contagion by A.Kucharski, Basic Book NY, 2020
- Critical Mass by P. Ball, Random House Group, 2004
- Six Degrees by D. J. Watts, Norton Publisher, 2003
- Nexus by M. Buchanan, Norton Publisher, 2002
- Linked by A.L. Barabasi, Perseus Publishing, 2002
- Ubiquity, by M. Buchanan, Weidenfeld and Nicholson Pub. 2000
- Branches, by P. Ball, Oxford University Press, 2009
- **Design for Information**, I. Meirelles, Rockport Publishers, 2013

Vespignani's research activities have been featured in TV and Film documentaries:

- "Connected" by A. Talas, ABC, BBC, Discovery channel, 2008
- "Anatomy of a Pandemic", CBS special series, 2009
- "Breakthrough", National Geographic series, 2015 (http://breakthrough.nationalgeographic.com/pandemics/gleam)
- "Using the power of prediction to halt Ebola in its tracks", PBS newshour with Miles O'Brien, 2015 (www.pbs.org/newshour/bb/using-power-prediction-halt-ebola-tracks/)

### **Press Coverage**

(a complete list is available at http://www.mobs-lab.org/media.html)

- MIT Technology Review | All together now: the most trustworthy covid-19 model is an ensemble, May 2021
- Scientific American | The Mathematics of How Connections Become Global, March 2021
- The Wall Street Journal | Shape-Shifting Virus Threatens Cycles of Illness, Lockdowns, January 2021
- News@Northeastern | Diseases spread differently, region by region. This mathematical model shows how, January 2021
- Experience Magazine | This scientist sees a way to spot the next pandemic, December 2020
- WIRED | The Vulnerable Can Wait. Vaccinate the Super-Spreaders First, November 2020
- Financial Times | How New York's missteps let Covid-19 overwhelm the US, October 2020
- News@Northeastern | They're Modeling How the Pandemic Will Play Out And What We Think About It, October 2020
- Wall Street Journal | Coronavirus Hit the U.S. Long Before We Knew, October 2020
- NBC News | Vindicated Covid-19 models warn pandemic is far from over, September 2020
- Popular Science | A coronavirus vaccine will save more lives if we share it widely, September 2020
- Smithsonian Magazine | New Report Details Impacts of Covid-19 Pandemic on Global Health, September 2020
- National Geographic | Distributing a COVID-19 vaccine equitably could avert hundreds of thousands of deaths, September 2020
- The New York Times | Special Report on COVID-19, July 2020
- The New York Times | How the Virus Won, June 2020
- PBS NewsHour | What computer-based models can tell us about coronavirus and what they can't, May 2020

- Forbes | How The World Became Data-Driven, And What's Next, May 2020
- News@Northeastern | 'A network is crucial to describe how infectious disease spreads, and this is what we do', May 2020
- NPR | Different Coronavirus Models Are Starting To Converge: 110,000 Dead In U.S. By June 6, May 2020
- The Atlantic | You'll Probably Never Know If You Had the Coronavirus in January, May 2020
- The New York Times | Travel From New York City Seeded Wave of U.S. Outbreaks, May 2020
- The Wall Street Journal | The Search Is On for America's Earliest Coronavirus Deaths, May 2020
- National Geographic | How to measure your nation's response to coronavirus, May 2020
- FiveThirtyEight | Where The Latest COVID-19 Models Think We're Headed And Why They Disagree, May 2020
- WIRED | Covid-19 Was Here Earlier Than Most Americans Thought. Now What?, April 2020
- Boston Globe | Northeastern model shows Boston's coronavirus outbreak began much earlier than previously thought, April 2020
- CNN with Anderson Cooper | (Video) New Modeling Finds Spread Much Wider by March 1st Than Known, April 2020
- The New York Times | Hidden Outbreaks Spread Through U.S. Cities Far Earlier Than Americans Knew, Estimates Say, April 2020
- The New York Times | What 5 Coronavirus Models Say the Next Month Will Look Like, April 2020
- The Wall Street Journal | Economics vs. Epidemiology: Quantifying the Trade-Off, April 2020
- Science Magazine | Ending coronavirus lockdowns will be a dangerous process of trial and error, April 2020
- News@Northeastern | Northeastern models are helping shape US COVID-19 policy, April 2020
- The New York Times | Coronavirus Could Overwhelm U.S. Without Urgent Action, Estimates Say, March 2020
- The New York Times | Mapping the Social Network of Coronavirus, March 2020
- Time | Exclusive: Here's How Fast the Coronavirus Could Rapidly Infect Over 1 Million Americans, March 2020
- News@Northeastern | Closing borders can delay, but can't stop the spread of COVID-19, new report says, March 2020
- CBS Boston | Northeastern Researcher Helps CDC Predict Coronavirus Spread With Mapping Technology, February 2020
- Science Magazine | The coronavirus seems unstoppable. What should the world do now?, February 2020
- The Wall Street Journal | The Coronavirus Scare: This Time Is Different, February 2020
- IEEE Spectrum | How Computer Scientists Are Trying to Predict the Coronavirus's Next Moves, February 2020
- New York Times | Coronavirus Map: Tracking the Spread of the Outbreak, February 2020
- Stat | Disease modelers gaze into their computers to see the future of Covid-19, and it isn't good, February 2020
- Scientific American | Here's How Computer Models Simulate the Future Spread of New Coronavirus, February 2020
- Bloomberg | Coronavirus Could Infect Two-Thirds of Globe, Research Shows, February 2020
- WIRED | How Al Is Tracking the Coronavirus Outbreak, February 2020
- Science Magazine | Scientists are racing to model the next moves of a coronavirus that's still hard to predict, February 2020
- Science Magazine | 'This beast is moving very fast.' Will the new coronavirus be contained—or go pandemic?, February 2020
- Quartz | Coronavirus is a proving ground for scientific transparency, February 2020
- News@Northeastern | The coronavirus outbreak is an international public health emergency. Here's what that means., January 2020
- Boston Globe | These maps are tracking the spread and risk of the Wuhan coronavirus in real time, January 2020
- Nature World News | China Virus Outbreak Expected to Last for Months, January 2020
- Nature Outlook | Real-time flu tracking, September 2019
- News@Northeastern | Tracking an epidemic requires computer models. But what if those models are wrong?, November 2018
- Quanta Magazine | Scant Evidence of Power Laws Found in Real-World Networks, February 2018
- NPR Commentary on Science and Society | The Big Idea Behind Big Data, November 2017
- Pulitzer Center Story | Can Math Be Used to Predict an Outbreak?, November 2017
- CNN-tech | How Twitter can predict flu outbreaks 6 weeks in advance, May 2017

- The Conversation | Zika virus: Only a few small outbreaks likely to occur in the continental US, September 2016
- WBUR | Boston-Based Researchers Model The Future Of The Zika Epidemic, August 2016
- Reuters | New research finds low risk of Zika virus at Olympics, June 2016
- NPR | Does attending the Olympics in Rio put the world in danger of Zika?, June 2016
- Wired | See how diseases spread in these mesmerizing graphics, April 2015
- Boston Globe | Forecasts may soon predict flu patterns, February 2015
- Le Monde | Epidémies: des prédictions entre science et politique, January 2015
- Boston Globe | New England researchers help shape the fight on Ebola, November 2014
- Politico | Travel Ban, Visa Ban- Either Way, It Won't Work, October 2014
- Science Magazine | Congressional Ebola debate invokes PLOS paper, October 2014
- Wall Street Journal | Using Air Traffic Data to Predict Ebola's Spread, October 2014
- Vox | Where Is Ebola Likely To Go Next?, October 2014
- Focus Italy | Here's how the forecast epidemic of Ebola, September 2014
- Washington Post | Ebola outbreak in the U.S.? Probably not happening, September 2014
- New York Times | U.S. Scientists See Long Fight Against Ebola, September 2014
- NPR | A Frightening Curve: How Fast Is The Ebola Outbreak Growing?, September 2014
- Quanta Magazine | The Mathematical Shape of Things to Come, October 2013
- Daily Mail | Study reveals how a bioterrorism attack could spread..., July 2013
- The Atlantic | Cities Might Not Be as Prepared as They Think for a Bioterrorism Attack, July 2013
- Science | News&Analysis: Network Science at Center of Surveillance Dispute, June 2013
- Scientific American | Idol Tweets: Mapping the Social Space with Twitter, May 2013
- The Atlantic Cities | The World's Leading Science Cities, May 2013
- Wired | The Cities of Science, April 2013
- MIT Technology Review | How Strong Social Ties Hinder the Spread of Rumours, March 2013
- Wired UK | Strong social ties impede spread of rumours, March 2013
- The Economist | Dr Seldon I presume, February 2012
- Science News | When Networks networks, September 2012
- Boston Globe | Tweets helped team predict 'American Idol' winner, May 2012
- INsolution research Blog | Random acts of the Twitterverse, April 2012
- Vanguardia | Exhiben con matemáticas a Twitter, April 2012
- PhysOrg | Whether tweets live or die depends more on network...., April 2012
- The Atlantic | What Fuels the Most Influential Tweets?, April 2012
- BrainYard News | Science Probes Why Tweets Go Viral, April 2012
- Wired Italia | Contagio, December 2011
- Scientific American | The Machine that would predict the future, December 2011
- CNN | Social networking 'utopia' isn't coming, June 2011
- ABC | Dunbar's number rules the Twitterverse, June 2011
- Le Monde | Sur les réseaux sociaux, difficile d'avoir plus de 200 amis, June 2011
- Sud Ouest | La taille du cerveau limite le nombre d'amis sur les réseaux sociaux, June 2011
- Time Magazine, Techland | It's Science: You Can Only Really Follow 150 People on Twitter, June 2011
- MSNBC | Human brain limits Twitter friends, June 2011

- La Capital | Las redes sociales y la amistad, June 2011
- CorpComms | Online relationships mirror real life, May 2011
- Psychology Today | Even With Social Networking, Do Our Brains Limit Our Number Of Friends?, May 2011
- Slashdot | Human Brain Places Limit On Twitter Friends, May 2011
- PCWorld | Study: Friends Hard to Keep Up with on Twitter, Facebook, May 2011
- El Comercio | El cerebro humano solo puede reconocer hasta 150 amigos, May 2011
- TechnologyReview.com | Human Brain Limits Twitter Friends To 150, May 2011
- Le Scienze | Dai virus virtuali a quelli reali, February 2010

# **PUBLICATIONS**

More than 200 publications in major peer reviewed international scientific journals and conference proceedings. Among those: Science, Nature, Lancet ID, the Proceedings of the National Academy of Sciences USA, Review of Modern Physics and Physical Review Letters. Vespignani is author of several book chapters and editor of four books and special journal issues. Vespignani has also authored three monographic volumes: "Evolution and structure of the Internet: a statistical physics approach", together with Romualdo Pastor-Satorras, published by Cambridge University Press (2004, paperback reprint 2007) and translated and published in France by Belin Editeur (2004); "Dynamical Processes on Complex Networks", with A. Barrat and M. Barthelemy, published by Cambridge University Press (2008) [4th reprint in 2011; published in kindle format in 2012 and in paperback edition in 2013]; "Charting the Next Pandemic", with A. Pastore y Piontti, N. Perra, L. Rossi & N. Samay, Springer (2019).