

Christos Nicolaides

James S. McDonnell Postdoctoral Fellow
MIT Sloan School of Management

100 Main Street, Room E62-489,
Cambridge MA 02142, USA
tel: 617-642-9830
email: chrisnic@mit.edu
website: cnicolaides.mit.edu

RESEARCH INTERESTS

I am a physicist by training with strong interest in data analytics. I apply mathematical, statistical and computational tools to large-scale empirical and data driven research questions with applications in identification of social influence that is mediated, amplified, or directed by interactive technologies.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA

PhD in Civil and Environmental Engineering 2014

SM in Civil and Environmental Engineering 2011

Imperial College London, London, UK

MSc in Applied Mathematics (Distinction) 2009

Aristotle University, Thessaloniki, GR

BSc in Physics (Distinction – highest GPA in department’s history 9.88/10) 2008

PROFESSIONAL EXPERIENCE

MIT Sloan School of Management, Cambridge, MA

James S. McDonnell Postdoctoral Fellow

Sep 2014 – May 2017

MIT Civil and Environmental Engineering Department, Cambridge, MA

Postdoctoral Research Associate

May 2014 – Aug 2014

HONORS AND AWARDS

Doctoral Thesis Achievement Award, The Circle of Hellenic Academics in Boston, 2016 – \$1,000

James S. McDonnell Foundation Postdoctoral Fellowship, 2014-2016 – \$200,000

George and Marie Vergottis MIT Fellowship, 2009-2010, 2011-2012, 2013-2014 – \$240,000

MIT Research Assistantship, 2010-2011, 2012-2013 – \$160,000

Graduate studies fellowship, Cyprus National Studentship Institution, 2009-2012 – \$37,000

Makarios/Theodore and Wally Lappas Award, 2010 – \$5,000

Panpaphian Association of America Award, 2009 – \$2,000

Master Degree fellowship, Cyprus National Studentship Institution, 2008-2009 – \$8,000

Fullbright Scholarship for Master Degree in US, 2008 (gratefully declined)

Award for the highest GPA in the Physics Department (9.88/10), University of Thessaloniki, 2008

Undergraduate Scholarship from the Greek National Studentship Institution, 2004-2008 – \$18,000

JOURNAL PUBLICATIONS

S. Aral* and C. Nicolaides*, Is Exercise Contagious? Peer Effects in a Global Health Behavior.

(**Job Market Paper**), *Nature Communications*, **8**, 14753, doi:10.1038/ncomms14753 (2017).

*authors listed in alphabetical order.

Selected Press Coverage: New York Times; Los Angeles Times; NBC News; Nature; Science Magazine; New York Magazine; New York Daily News; Metro (UK); Vice; Daily Mail (UK); EL Pais (Spain); Scientific American

C. Nicolaides, R. Juanes, and L. Cueto-Felgueroso, Self-organization of network dynamics into local quantized states, *Nature Scientific Reports*, **6**, 21360, doi:10.1038/srep21360 (2016).

C. Nicolaides, B. Jha, L. Cueto-Felgueroso, and R. Juanes. Interplay between viscous-fingering and permeability heterogeneity in the prediction of mixing in porous media flows, *Water Resources Research*, **51**, doi:10.1002/2014WR015811 (2015).

C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes. The price of anarchy in mobility-driven contagion dynamics, *Journal of the Royal Society Interface*, **10**(87), 20130495 (2013).

Selected Press Coverage: MIT Homepage Spotlight; MIT News; NPR; Fox News; LiveScience
MIT press release: <http://web.mit.edu/newsoffice/2013/controlling-contagion-by-restricting-mobility-0730.html>

C. Nicolaides, L. Cueto-Felgueroso, M. C. González, and R. Juanes. A metric of influential spreading during contagion dynamics through the air transportation network, *PLoS ONE*, **7**(7), e40961 (2012).

Selected Press Coverage: MIT Homepage Spotlight; MIT News; Science News; Nature Medicine; NPR; LA Times; Scientific American; Discovery Channel; The Atlantic; NY Daily News; USA Today; CNN; ABC News; Huffington Post; Time Magazine; CBS news; Fox News; Huffington Post; US News; The Guardian (US); Daily Mail (UK); Time Magazine; Wired Magazine; NASDAQ; Smart Planet; International Business Times. MIT press release: <http://web.mit.edu/newsoffice/2012/spread-of-disease-in-airports-0723.html>

C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes. Anomalous Physical Transport in Complex Networks, *Physical Review E*, **82**(5), 055101(R) (2010).

WORKING
PAPERS

Social Influence and Changing Circumstances in the Creation, Maintenance, and Disruption of Habits in Global Health Behavior (with Dean Eckles and Sinan Aral). *To be submitted in 2017 at a Management Journal*.

Social Influence in Multiscale Social Networks (with Sinan Aral). *To be submitted in 2017 at an interdisciplinary journal*.

REVIEWER FOR
SCIENTIFIC
JOURNALS

Management Science, Journal of the Royal Society Interface, Nature Scientific Reports, BMC Infectious Diseases

INVITED TALKS

Is Exercise Contagious? Peer Effects in a Global Health Behavior.

Emerging Media Studies, Boston University, Boston, USA February 21, 2017; **Network Science Institute, Northeastern University**, Boston USA February 15, 2017; **IESE Business School, University of Navarra**, Barcelona, Spain January 31, 2017; **Rotterdam School of Management, Erasmus University**, Rotterdam, NL January 10, 2017; **UCL School of Management**, London, UK December 7, 2016; **IE Business School**, Madrid, Spain November 29, 2016; **Dept. of Management and Technology, EPFL**, Lausanne, Switzerland October 31, 2016; **Initiative of Digital Economy MIT**, Cambridge MA, October 12, 2016; **University of Cyprus Business School**, September 24, 2016, Nicosia, Cyprus; **MODUL Business School**, Vienna, Austria, August 09, 2016.

OTHER
CONFERENCE
CONTRIBUTIONS

C. Nicolaides, and S. Aral . Social Contagion in a Global Exercise Network. *Oral Presentation*, Workshop on Information Systems and Economics (WISE 2016), December 14-16, 2016, Dublin, Ireland (**Nominee for Best Paper Award**).

C. Nicolaides, D. Eckles and S. Aral. Changing Circumstances and the Disruption of Habits in Exercise *Invited Talk*, INFORMS Annual Meeting, November 13-16, 2016, Nashville TN, USA

C. Nicolaides, D. Eckles and S. Aral. Changing Circumstances and the Disruption of Habits in News Readership *Poster Presentation*, Conference on Digital Experimentation (CODE16), October 14-15, 2016, MIT, Cambridge MA, USA

C. Nicolaides, and S. Aral. Is Exercise Contagious? Peer Effects in a Global Health Behavior. *Invited Talk*, INFORMS Annual Meeting, November 1-3, 2015, Philadelphia PA, USA

C. Nicolaides, and S. Aral . Is Exercise Contagious? Evidence from a Global Natural Experiment. *Oral Presentation*, Conference on Digital Experimentation (CODE15), October 16-17, 2015, MIT, Cambridge MA, USA

C. Nicolaides, and S. Aral . Is Exercise Contagious? Evidence from a Global Natural Experiment. *Oral Presentation*, Workshop on Information Networks (WIN15), October 1-2, 2015, New York University, New York NY, USA

C. Nicolaides, R. Juanes and L. Cueto-Felgueroso. Self-organization of network dynamics into local quantized states. *Oral Presentation*, Conference on Complex Systems, September 23-27, 2015, Tempe AR, USA

C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes. Interplay between viscous-fingering and permeability heterogeneity in the prediction of mixing in porous media flows. *Poster Presentation*, AGU Fall Meeting, December 8-13, 2013, San Francisco CA, USA

C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes. Activator-inhibitor systems on heterogeneous ecological networks *Poster Presentation*, AGU Fall Meeting, December 2-7, 2012, San Francisco CA, USA

C. Nicolaides, L. Cueto-Felgueroso, and R. Juanes. Coupled contagion-policy spreading and the price of anarchy in networks *Oral Presentation*, NetSci2012, June 3-7, 2012, Chicago IL, USA

C. Nicolaides, P. K. Kang, L. Cueto-Felgueroso, M. Dentz, and R. Juanes. Scaling of reactive transport in fracture networks: a fermionic network approach *Oral Presentation*, CMWR2012, June 2012, Urbana IL, USA

C. Nicolaides, P. K. Kang, L. Cueto-Felgueroso, M. Dentz, and R. Juanes. Disease Spreading in Lattice Networks With Traffic Heterogeneity. *Poster Presentation*, AGU Fall Meeting, December 4-7, 2011, San Francisco CA, USA

C. Nicolaides, L. Cueto-Felgueroso, M. C. González, and R. Juanes. Spreading and Contact Dynamics in Metapopulation Networks: A Stochastic Agent Model of Disease Spreading in the Air Transportation Network. *Oral Presentation*, NetSci2011, June 4-8, 2011, Budapest, HU

C. Nicolaides, L. Cueto-Felgueroso, R. Juanes. Anomalous Transport in Complex Networks Under A Driving Force. *Poster Presentation*, AGU Fall Meeting, December 14-17, 2010, San Francisco CA, USA

C. Nicolaides, L. Cueto-Felgueroso, R. Juanes. Anomalous Physical Transport in Complex Networks. *Poster Presentation*, Gordon Conference on Flow and Transport in Permeable Media, July 14-17, 2010, ME, USA

C. Nicolaides, L. Cueto-Felgueroso, R. Juanes. Anomalous Physical Transport in Complex Networks. *Oral Presentation*, International Conference on Network Science (NetSci2010), May 10-14, 2010, Boston MA, USA

RESEARCH
EXPERIENCE

MIT Sloan School of Management, Cambridge, MA

Postdoctoral Fellow, Sinan Aral's Research Group

Sep 2014 – present

Big data; peer effects; social networks; causal inference; digital experimentation in social network.

Massachusetts Institute of Technology, Cambridge, MA

Research Assistant, Juanes Research Group

Sep 2009 – Jul 2014

Dynamical processes in complex networks; transport processes in mobility networks; transportation networks; cities; human mobility patterns; disease spreading; economic networks; big data processing and visualizations; social networks dynamics; network optimization; physics of multiphase flow in porous media with applications in oil and gas recovery.

Imperial College London, London, UK

Research Assistant, Papageorgiou Research Group

Aug 2008 – Jul 2009

Fluid Mechanics; fluid dynamics; film flows under magnetic and electric field

TEACHING
EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA

Teaching Assistant

Spring 2013

Lectured recitations, conducted office hours and graded weekly assignments for over 20 graduate students in the course, Computation Methods for Flow in Porous Media.

Instructors: Ruben Juanes, Luis Cueto-Felgueroso. Evaluation score: 6.7/7.

Teaching Assistant

Fall 2011

Lectured recitations, conducted office hours and graded weekly assignments for over 10 graduate students in the course, Computer Modeling: From Human Mobility to Transportation Networks.

Instructor: Marta C. González

CONSULTING

Exxon Mobil Corporation, Houston, TX

The Internet of Things in Oil and Gas Industry: Opportunities and Challenges.

Feb 2013 – May 2013

MANAGEMENT/
ADMINISTRATIVE
SKILLS Devise the Network Speed-Dating Application to map in real time research connections between participants of a conference or workshop. First launched in the Civil and Environmental Engineering Research Speed-Dating event on February 7, 2014. The application was featured at MIT News:
<http://web.mit.edu/newsoffice/2014/cee-research-speed-dating-identifies-new-synergies-among-faculty-and-students.html>

MEMBERSHIPS Institute for Operations Research and the Management Sciences (INFORMS); Association for Information Systems (AIS); American Physical Society (APS), American Geophysical Union (AGU), MIT Energy Club, International Society of Network Science.

SKILLS *Programming Languages:* MATLAB; Python; Java; Mathematica; C++
Statistical Tools: STATA, R
Data visualizations: Processing; Cytoscape; D3 Library in Javascript
Databases: MySQL; Oracle
Text Editing: L^AT_EX, MS Word
Operating Systems: Unix; Windows; iOS

REFEREES Ruben Juanes (*PhD advisor*)
ARCO Associate Professor in Energy Studies
Massachusetts Institute of Technology
77 Massachusetts Av. Room 48-319, Cambridge, MA 02139, USA
+1617-253-7191
juanes@mit.edu

Marta C. González (*PhD committee member*)
Gilbert Winslow Career Development Associate Professor
Massachusetts Institute of Technology
77 Massachusetts Av. Room 1-153, Cambridge, MA 02139, USA
+1617-715-4140
martag@mit.edu

Sinan Aral (*Postdoc Advisor*)
David Austin Professor of Management and Professor of Information Technology and Marketing
MIT Sloan School of Management
100 Main Street Office: E62-364 Cambridge, MA 02142, USA
+1617-324-7535
sinan@mit.edu

Dean Eckles (*Collaborator*)
Assistant Professor of Marketing
MIT Sloan School of Management
100 Main Street Office: E62-541 Cambridge, MA 02142, USA
+1617-258-9102
eackles@mit.edu