## NETWORK

CAMBRIDGE UNIVERSITY PRESS

Published online by Cambridge University Press

## **Network Science Editorial Team**

EDITORS

Ulrik Brandes (Coordinating Editor),

Computer Science and Mathematics, ETH Zürich, Switzerland

**Ronald Breiger,** Social and Political Science, University of Arizona, USA

Noshir Contractor, Communication, Management, and Computational Social Science, Northwestern University, USA

Marta Gonzalez, Physics, UC Berkeley, USA

Laura Koehly, Psychology, Public Health, and Medicine, National Human Genome Research Institute, USA

Filippo Menczer, Information Science, Indiana University, USA

Fernando Vega-Redondo, Economics, Bocconi University, Italy Stanley Wasserman, Statistics and Behavioral Science,

Stanley Wasserman, Statistics and Behavioral Sc. Indiana University, USA

DEPUTY EDITOR

Christoph Stadtfeld, ETH Zürich, Switzerland

ASSOCIATE EDITORS

Sinan Aral, Information Science, Management, New York University, USA

Alain Barrat, Physics, CNRS, France

Yann Bramoulle, Economics, Aix-Marseille University, France

**Dirk Brockmann**, Computer Science, Applied Mathematics, Northwestern University, USA

Nicholas Christakis, Sociology, Medicine, Public Health, Yale University, USA

Jonathon Cummings, Business, Duke University, USA

Padraig Cunningham, Computer Science, University College Dublin, Ireland

Matthew Elliott, Economics, California Institute of Technology, USA

Christos Faloutsos, Computer Science, Data Mining, Carnegie-Mellon University, USA

Katherine Faust, Sociology, University of California, Irvine, USA

James Fowler, Political Science, Public Health, Genetics, University of California, San Diego, USA Andrea Galeotti, Economics, University of Essex, UK

David Hunter, Statistics, Pennsylvania State University, USA

Yoshihisa Kashima, Psychology, University

of Melbourne, Australia

Peter Key, Mathematics, Microsoft Research, UK

Laura Koehly, Psychology, Nationl Human Genome Research Institute, USA

Eric Kolaczyk, Statistics, Boston University, USA

**David Krackhardt**, Public Policy, Business, Carnegie-Mellon University, USA

**David Lazer**, Information Science, Political Science, Northeastern University, USA

**Roger Leenders**, Business, Organization Studies, Tilburg University, Netherlands

Kristina Lerman, Computer Science, ISI and University of Southern California, USA

Mark Lubell, Political Science, Environmental Policy, University

of California, Davis, USA Winter Mason, Psychology, Cognitive Science, Stevens Institute, USA

James Moody, Sociology, Duke University, USA

**Sue Moon**, Computer Science, Korea Advanced Institute of Science and Technology, Republic of Korea

**Romualdo Pastor-Satorras**, Mathematics, Physics, Polytechnic University of Catalunia, Spain

Bernice Pescosolido, Sociology, Indiana University, USA

**Richard Rothenberg**, Public Health, Epidemiology, Georgia State University, USA

Olaf Sporns, Psychology, Neuroscience, Indiana University, USA Douglas Steinley, Psychology, Statistics, University of Missouri, USA Adam Szeidl, Economics, Central European University, Hungary Zoltan Toroczkai, Physics, University of Notre Dame, USA

Marco van der Leij, Economics, University of Amsterdam, Netherlands

MANAGING EDITOR

Denise Weber, ETH Zürich, Switzerland

## **Network Science**

**Network Science** is an important journal for an important discipline - one using the network paradigm, focusing on actors and relational linkages, to inform research, methodology, and applications from many fields across the natural, social, engineering and informational sciences. Given growing understanding of the interconnectedness and globalization of the world, network methods are an increasingly recognized way to research aspects of modern society along with the individuals, organizations, and other actors within it.

The discipline is ready for a comprehensive journal, open to papers from all relevant areas. *Network Science* is a defining work, shaping this new discipline. The journal welcomes contributions from researchers in all areas working on network theory, methods, and data.

SUBSCRIPTION INFORMATION

Network Science (ISSN: 2050-1242) is published four times per year, in March, June, September, and December, by Cambridge University Press, One Liberty Plaza, 20th floor, New York, NY 10006, USA. Periodicals postage rate paid at New York, NY, and at additional mailing offices. POSTMASTER: Send address changes in the USA, Canada, and Mexico to: Network Science, Cambridge University Press, Journals Fulfillment Department, One Liberty Plaza, 20th floor, New York, NY 10006. Send address changes elsewhere to Network Science, Cambridge University Press, Journals Fulfillment Department, UPH, Shaftesbury Road, Cambridge CB2 8BS, England.

The subscription price of Volume 8 (2020) including delivery by air where appropriate (but excluding VAT), is \$846.00 (£530.00) for institutions print and online; \$803.00 (£501.00) for institutions online only.

Orders, which must be accompanied by payment, may be sent to a bookseller, subscription agent or direct to the publisher: Cambridge University Press, Journals Fulfillment Department, Cambridge University Press, One Liberty Plaza, New York, NY 10006, USA; or Cambridge University Press, University Printing House, Shaftesbury Road, Cambridge CB2 8BS, UK.

For further information, please contact journals@cambridge.org.

ADVEDTISING

For information on display ad sizes, rates, and deadlines for copy, please contact USAdSales@cambridge.org.

SUBMISSIONS

For submissions information, please visit cambridge.org/NWS.

ISSN: 2050-1242

EISSN: 2050-1250

Copyright © Cambridge University Press 2020. All rights reserved. No part of this publication may be reproduced, in any form or by any means, electronic, photocopying, or otherwise, without permission in writing from Cambridge University Press. Policies, request forms and contacts are available at: cambridge.org/about-us/rights-permissions

Permission to copy (for users in the U.S.A.) is available from Copyright Clearance Center <a href="http://www.copyright.com">http://www.copyright.com</a>, email: <a href="mailto:info@copyright.com">info@copyright.com</a>.

## **NETWORK SCIENCE**

Volume 8 Number 4

CONTENTS	
Articles	
Homophily in the formation and development of learning networks among university students	
HANNES WEBER, MARC SCHWENZER AND STEFFEN HILLMERT	469
The structure of emotional support networks in families affected by Lynch syndrome	
CHRISTOPHER STEVEN MARCUM, DAWN LEA, DINA ELIEZER,	
DONALD W. HADLEY AND LAURA M. KOEHLY	492
Cognition and communication: situational awareness and tie preservation in disrupted task environments	
SEAN M. FITZHUGH, ARWEN H. DECOSTANZA, NORBOU BUCHLER	
AND DIANE M. UNGVARSKY	508
Linear work generation of R-MAT graphs	
LORENZ HÜBSCHLE-SCHNEIDER AND PETER SANDERS	543
Measuring directed triadic closure with closure coefficients	
HAO YIN, AUSTIN R. BENSON AND JOHAN UGANDER	551
Dynamic network prediction	
RAVI GOYAL AND VICTOR DE GRUTTOLA	574
Commentary	
Commentary: A network science summer course for high-school students	

596

FLORIAN KLIMM AND BENJAMIN F. MAIER