VOL. 3 • 2015 • NO. 2

# NETWORK SCIENEE

CAMBRIDGE UNIVERSITY PRESS

Published online by Cambridge University Press

#### Network Science Editorial Team

EDITORS Andrea Galeotti, Economics, University of Essex, UK David Hunter, Statistics, Pennsylvania State University, USA Ulrik Brandes, Computer Science and Mathematics, University of Konstanz, Germany Yoshihisa Kashima, Psychology, University of Melbourne, Australia Noshir Contractor, Communication, Engineering, and Peter Key, Mathematics, Microsoft Research, UK Management, Northwestern University, USA Laura Koehly, Psychology, Public Health, National Institutes of Filippo Menczer, Information Science, Indiana University, USA Health, USA Garry Robins, Psychology and Political Science, University of Eric Kolaczyk, Statistics, Boston University, USA Melbourne, Australia David Krackhardt, Public Policy, Business, Carnegie-Mellon Jaideep Srivastava, Web Science and Computer Engineering, University, USA University of Minnesota, USA David Lazer, Information Science, Political Science, Northeastern Thomas Valente, Public Health and Medicine, University of University, USA Southern California USA Roger Leenders, Business, Organization Studies, Tilburg University, Netherlands Fernando Vega-Redondo, Economics, Bocconi University, Italy Alessandro Vespignani, Physics, Northeastern University, USA Kristina Lerman, Computer Science, ISI and University of Southern California, USA Stanley Wasserman (Coordinating Editor), Statistics and Sociology, Indiana University, USA Mark Lubell, Political Science, Environmental Policy, University of California, Davis, USA Winter Mason, Psychology, Cognitive Science, Stevens Institute, USA ASSOCIATE EDITORS James Moody, Sociology, Duke University, USA Sinan Aral, Information Science, Management, New York University, USA Sue Moon, Computer Science, Korea Advanced Institute of Science and Technology, Republic of Korea Alain Barrat, Physics, CNRS, France Romualdo Pastor-Satorras, Mathematics, Physics, Polytechnic Yann Bramoulle, Economics, Aix-Marseille University, France University of Catalunia, Spain Dirk Brockmann, Computer Science, Applied Mathematics, Bernice Pescosolido, Sociology, Indiana University, USA Northwestern University, USA Richard Rothenberg, Public Health, Epidemiology, Georgia Nicholas Christakis, Sociology, Medicine, Public Health, Yale State University, USA University, USA Olaf Sporns, Psychology, Neuroscience, Indiana University, USA Jonathon Cummings, Business, Duke University, USA Douglas Steinley, Psychology, Statistics, University of Missouri, USA Padraig Cunningham, Computer Science, University College Adam Szeidl, Economics, Central European University, Hungary Dublin, Ireland Zoltan Toroczkai, Physics, University of Notre Dame, USA Matthew Elliott, Economics, California Institute of Technology, USA Marco van der Leij, Economics, University of Amsterdam, Christos Faloutsos, Computer Science, Data Mining, Netherlands 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

MANAGING EDITOR

Ann McCranie, Sociology, Indiana University, USA

#### **Network Science**

*Network Science* is a new journal for a new 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, 32 Avenue of the Americas, New York, NY 10013, USA.

The subscription price of Volume 3 (2015) including delivery by air where appropriate (but excluding VAT), is  $638.00 (\pounds 399.00)$  for institutions print and online;  $605.00 (\pounds 378.00)$  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, 100 Brook Hill Drive, West Nyack, NY 10994-2133, USA; or Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 8RU, England. Alternatively, you can place an order online at <journals.cambridge.org/nws>.

For single issues, please contact customer\_service@cambridge.org.

#### ADVERTISING

For information on display ad sizes, rates, and deadlines for copy, please visit the journal homepage at <journals.cambridge.org/nws> or contact ad\_sales\_cambridge.org.

#### INTERNET ACCESS

*Network Science* is included in the Cambridge Journals Online service, which can be accessed at <journals.cambridge.org>. For information on other Cambridge titles, visit <www.cambridge.org>.

### ISSN: 2050-1242

EISSN: 2050-1250

**Copyright** © **Cambridge University Press 2015.** 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: http://journals.cambridge.org/action/rightsAndPermissions

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="http://www.copyright.com">info@copyright.com</a>, email: <a href="http://www.copyright.com">http://www.copyright.com</a>, email: <a href="http://www.copyright.com"/>http://www.copyright.com

# **NETWORK SCIENCE**

# Volume 3

# Number 2

## CONTENTS

Articles A clustering coefficient for complete weighted networks MICHAEL P. MCASSEY AND FETSJE BIJMA	183
Vulnerability and power on networks ENRICO BOZZO, MASSIMO FRANCESCHET AND FRANCA RINALDI	196
Distance closures on complex networks TIAGO SIMAS AND LUIS M. ROCHA	227
The origins of asymmetric ties in friendship networks: From status differential to self-perceived centrality WEIHUA AN AND WILL R. MCCONNELL	269
End Note Glee's McKinley High: Following Middle America's sexual taboos JIMI ADAMS	293