

2013 IEEE 2nd Network Science Workshop

(NSW 2013)

**West Point, New York, USA
29 April – 1 May 2013**



IEEE Catalog Number: CFP13NSA-POD
ISBN: 978-1-4799-0201-9

TABLE OF CONTENTS

Distributed & Physical Networks 1 (Technical Session)

Price based Routing for Event Driven Prioritized Traffic in Wireless Sensor Networks	1
<i>S. Yousaf Shah and Boleslaw K. Szymanski</i>	
Asynchronous Message-Passing Binary Consensus over Non-Complete Graphs	9
<i>Goitom Weldenawaryat and Stephen D. Wolthusen</i>	
Limits in Modeling Power Grid Topology	16
<i>Brian Cloteaux</i>	

Complex Networks 1 (Technical Session)

A Scalable Null Model for Directed Graphs Matching All Degree Distributions: In, Out, and Reciprocal	23
<i>Nurcan Durak, Tamara G. Kolda, Ali Pinar and C. Seshadhri</i>	
Using Rare Event Modeling and Networking to Build Scenarios and Forecast the Future	31
<i>Chris Arney, Kate Coronges, Hilary Fletcher, John Hagen, Kira Hutchinson, Allen Moss and Charles Thomas</i>	
A Coauthorship Network and Preliminary Results of Binary Agreement Model Simulations	37
<i>Matthew Dippel and Chjan Lim</i>	

Social Computational 1 (Technical Session)

Network Evolution in Disaster Management: A Comparison of Response Systems Evolving after the 2005 and 2008 Gulf Coast Hurricanes	42
<i>Louise K. Comfort, Namkyung Oh, Gunes Ertan and Thomas Haase</i>	
A Meta-Network Approach for Analysing the Information System Access Vulnerabilities in Organizations	50
<i>W. Hasala Peiris and Helen Armstrong</i>	
Prominence in Networks: A Co-Evolving Process	58
<i>Yang Yang, Nitesh V. Chawla, Xiaohui Lu and Sibel Adali</i>	

Distributed & Physical Networks 2 (Technical Session)

Exploiting Routing Information in Wireless Sensor Networks Localization	66
<i>Federica Pascucci, Gabriele Oliva, Stefano Panzieri and Roberto Setola</i>	

Economic Networks 1 (Technical Session)

On the Relation between Tourism and Trade: A Network Experiment	74
<i>Jigar Brahmbhatt and Ronaldo Menezes</i>	

Social Computational 2 (Technical Session)

Social Patterns: Community Detection Using Behavior-Generated Network Datasets	82
<i>Alice Leung, William Dron, Jon Purnell, Jaideep Srivastava, Amogh Mahapatra, Atanu Roy, John P. Hancock, Matthew Aguirre, Jiawei Han, Chi Wang and Lisa Scott</i>	

Communication Networks 1 (Poster/Short Paper Session)

Information-Maximizing Caching in Ad Hoc Networks with Named Data Networking	90
<i>William Dron, Alice Leung, Md Uddin, Shiguang Wang, Tarek Abdelzaher, Ramesh Govindan and John Hancock</i>	

Bipartite Internet Topology at the Subnet-Level	94
<i>Mehmet Burak Akgun and Mehmet Hadi Gunes</i>	

Economic Networks 2 (Poster/Short Paper Session)

United States Congress Relations According to Liberal and Conservative Newspapers	98
<i>Basim Mahmood and Ronaldo Menezes</i>	

Community-Based Identification of Banking Networks	102
<i>Max Planck and Peter C. Anselmo</i>	

Epidemics (Poster/Short Paper Session)

Smartphone Viruses Propagation on Heterogeneous Composite Networks	106
<i>Xuetau Wei, Nicholas C. Valler, Michalis Faloutsos, Iulian Neamtiu, B. Aditya Prakash and Christos Faloutsos</i>	

Improving Music Artist Recommendations through Analysis of Influences	110
<i>Matt Grimm and Bilal Gonen</i>	

Command and Control (Poster/Short Paper Session)

Cyber-Physical Situation Awareness and Decision Support	114
<i>John James, Frank Mabry, Aaron St. Leger, Tom Cook and Kevin Huggins</i>	

Geospatial Optimization Problems	118
<i>Paulo Shakarian and V.S. Subrahmanian</i>	

Challenges of Social Cognitive Network Science: Network Science Collaborative Technology Alliance Perspective	122
<i>Keryl Ann Cosenzo and Boleslaw Karol Szymanski</i>	

Biological Networks (Technical Session)

- Naming Game with Greater Stubbornness and Unilateral Zealots** 126
Yosef Treitman, Chjan Lim, Weituo Zhang and Andrew Thompson

- Assessing Protein Resilience via a Complex Network Approach** 131
Gabriele Oliva, Luisa Di Paola, Alessandro Giuliani, Federica Pascucci and Roberto Setola

Social Computational 3 (Technical Session)

- LabelRank: A Stabilized Label Propagation Algorithm for Community Detection in Networks** 138
Jierui Xie and Boleslaw K. Szymanski

- Networks of Nurses: A Case Study in Informal Networks of Advice** 144
Helen Armstrong and Desmond Klass

Complex Networks 2 (Poster/Short Paper Session)

- Weighted Node Degree Centrality for Hypergraphs** 152
Komal Kapoor, Dhruv Sharma and Jaideep Srivastava

- Lowering Six Degrees of Kevin Bacon by Genetic Algorithm** 156
Brendan J. Babb and Bilal Gonen

Communication Networks 2 (Poster/Short Paper Session)

- Initial Indicators of Topic Success in Twitter – Using Topology Entropy to Predict the Success of Twitter Hashtags** 160
Max Planck, Isis Lyman Pollard, Charles Brock and Alex George

- Application of Information Diffusion in Social Networks – Verifying the use of Web/Blog Topology Entropy as an Indicator for Real World Impact** 164
Max Planck, Charles Brock, Dietrich Bachman, Jeffrey Fenchel and Isis Lyman Pollard

Biological and Complex Networks (Poster/Short Paper Session)

- On the Robustness of the Drosophila Neural Network** 168
Hsiu-Ming Chang, Ann-Shyn Chiang, Walter Didimo, Ching-Yao Lin, Giuseppe Liotta and Fabrizio Montecchiani

- Cooperative, Dynamic Twitter Parsing and Visualization for Dark Network Analysis** 172
Patrick M. Dudas