

MIT Lincoln Laboratory

GRAPH EXPLOITATION SYMPOSIUM

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA



WIN
MAC

512757

GES-8

Issued: 25 October 2017

Approved for public release: distribution unlimited.

This material is based upon work supported by the Assistant Secretary of Defense for Research and Engineering under Air Force Contract No. FA8721-05-C-0002 and/or FA8702-15-D-0001. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the Assistant Secretary of Defense for Research and Engineering.

© 2017 Massachusetts Institute of Technology.

Delivered to the US Government with Unlimited Rights, as defined in DFARS Part 252.227-7013 or 7014 (Feb 2014). Notwithstanding any copyright notice, U.S. Government rights in this work are defined by DFARS 252.227-7013 or DFARS 252.227-7014 as detailed above. Use of this work other than as specifically authorized by the U.S. Government may violate any copyrights that exist in this work.



PREFACE

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA

Graph Exploitation Symposium

The GraphEx Symposium brought together leading experts from universities, industry, and government to explore the state of the art and define a future road map in network science. The event was limited to a small group of invited attendees. The symposium took place at the MIT Endicott House.

Symposium Highlights

The two-day technical program topics of interest included:

- Modeling noise, uncertainty and interference
- Multi-modal and heterogeneous networks
- Algorithms and processing architectures for large-scale data
- Models and techniques for dynamic graphs
- Analysis of hidden and covert communities
- Network visualization and visual analytics
- Implications of adversarial settings for future research

Group Photograph of the GraphEx Symposium attendees

Report Documentation and Contract Acknowledgment Pages



ACKNOWLEDGMENTS

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA

Organizers

Chairs

Sanjeev Mohindra MIT Lincoln Laboratory
William Streilein MIT Lincoln Laboratory

Technical Co-Chairs

Rajmonda Caceres MIT Lincoln Laboratory
Benjamin Miller MIT Lincoln Laboratory

Technical Committee

Edoardo Airoldi Harvard University
Nadya Bliss Arizona State University
Robert Bond MIT Lincoln Laboratory
Jordan Crouser Smith College
Kara Greenfield MIT Lincoln Laboratory
Edward Kao MIT Lincoln Laboratory
Christopher Long U.S. Department of Defense
David Martinez MIT Lincoln Laboratory
Ali Pinar Sandia National Laboratories
Steven Smith MIT Lincoln Laboratory

Administrative Contact

Joan Meehan-Dion
Annette Abruzzese
MIT Lincoln Laboratory
244 Wood Street, S4-483
Lexington, MA 02421-6426

Voice: (781) 981-4842
Fax: (781) 981-6958
Email: graphex@ll.mit.edu



AGENDA

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA
 - 16 MAY 2017
 - 17 MAY 2017
 - POSTER SESSION

16 May 2017

01	Symposium Overview	B. Miller	MIT Lincoln Laboratory
02	Day 1 Keynote	P. Kegelmeyer	Sandia National Laboratories
	Counter-Adversarial Community Detection		
03	Protecting Networks from a Strategic Adversary	P. Basu	BBN Technologies
04	Human Dynamic Dark Networks (HDDN) Analytics	L. Li	MIT Lincoln Laboratory
05	Streaming Graphical Analytic Algorithms in DARPA's HIVE Challenge	S. Smith	MIT Lincoln Laboratory
06	Distributed Particle Filters: Stability Results and Graph-Based Compression of Weighted Particle Clouds	M. Rabbat	McGill University
07	Influence Maximization on Complex Networks with Intrinsic Nodal Activation - Methods and Applications	A. Sathanur	Pacific Northwest National Laboratory
08	Graph Partitioning Using Random Walks: A Convex Optimization Perspective	L. Orecchia	Boston University
09	Motif-Driven Graph Analysis	B. Tsourakakis	Boston University
10	Banquet Speaker	D. Lazer	Northeastern University
	The Prevalence and Mechanisms of Spread of Fake News*		

*Presentation not included in proceedings.



AGENDA (continued)

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA
 - 16 MAY 2017
 - 17 MAY 2017
 - POSTER SESSION

17 May 2017

- | | | | |
|----|--|-----------------------|--|
| 01 | Day 2 Keynote | N. Cesa-Bianchi | Università degli Studi di Milano |
| | Nonstochastic Bandit Problems on Graphs | | |
| 02 | Ruffled Feathers: When Can Gender Be Predicted on Social Networks?* | J. Ugander..... | Stanford University |
| 03 | Causal Inference in the Presence of Networks: Randomization and Observation | A. Volfovsky..... | Duke University |
| 04 | Threat Network Detection: Social Media as a Sensor for Dark Network Activities | O. Simek..... | MIT Lincoln Laboratory |
| 05 | Automating Graph Processing | T. Tran | DARPA |
| 06 | Quantum Algorithms for Testing Graph Expansion and Bipartiteness | Y.-K. Liu | National Institute of Standards and Technology |
| 07 | CUDA 9.0 nvGraph | J. Eaton..... | NVIDIA |

*Presentation not included in proceedings.



AGENDA (continued)

- PREFACE
- ACKNOWLEDGMENTS
- AGENDA
 - 16 MAY 2017
 - 17 MAY 2017
 - POSTER SESSION

Poster Session

- | | | | |
|----|--|-------------------------------|------------------------------------|
| 01 | Model-Assisted Design of Experiments with Network-Correlated Outcomes | G. Basse | Harvard University |
| 02 | IMAGINE: Interactive MASSive Graph Interpretations via the Nucleus treE | W. Bolden/
R. Tran | Univ. of California,
Santa Cruz |
| 03 | Accelerating Sparse Computation | J. Fryman | Intel |
| 04 | Parallel Local Algorithms for Core, Truss, and Nucleus Decompositions | A.E. Sariyuce | Sandia National
Laboratories |
| 05 | Network Topology Identification from Spectral Templates | S. Segarra | MIT IDSS |
| 06 | Threat Network Detection: Social Media as a Sensor for Dark Network Activities | O. Simek/
D. Shah/S. Smith | MIT Lincoln Laboratory |
| 07 | Graph Matching the Matchable Nodes When Some Nodes are Unmatchable | D. Sussman | Boston University |
| 08 | Counter-Adversarial Community Detection | J. Wendt | Sandia National
Laboratories |
| 09 | Introducing ESCAPE, Gunrock and Pluros: Groundbreaking Performance through Algorithms, Hardware and Abstractions | V. Vaidyanathan | Royal Caliber |