

## RESEARCH INTERESTS

I am interested in the underlying rules and organizing principles of complex physical and social systems. My work combines mathematical models with large-scale data analysis to better understand these systems, with a particular emphasis on network science and human dynamics. My goal is to strengthen the connections between network data and network models. Other interests include stochastic and nonlinear dynamics, dynamical systems, and novel optimization methods.

## EXPERIENCE

- Assistant Professor,** **08/2013 – present**  
Mathematics and Statistics & Complex Systems Center,  
University of Vermont, Burlington, VT, USA.
- Research Assistant Professor,** **08/2011 – 07/2013**  
Engineering Sciences and Applied Mathematics & Northwestern Institute on Complex Systems (NICO),  
Northwestern University, Evanston, IL, USA.
- Visiting Researcher,** **06/2009 – 08/2011**  
Dana-Farber Cancer Institute, Harvard University, Boston, MA, USA.
- Postdoctoral Researcher,** **05/2008 – 08/2011**  
Center for Complex Network Research, Northeastern University, Boston, MA, USA.
- NSF Graduate Research Fellowship,** Clarkson University, Potsdam, NY, USA. **06/2006 – 05/2008**
- T-7 Summer Graduate Research,** Los Alamos National Laboratory. **06/2005 – 08/2005**
- Graduate Teaching Assistantship,** Clarkson University **08/2004 – 05/2006**
- NSF REU Internship,** Rensselaer Polytechnic Institute, Troy, NY, USA. **05/2002 – 08/2002**
- Academic Peer Mentor,** SUNY Cobleskill, Cobleskill, NY, USA. **01/2000 – 05/2001**

## EDUCATION

- Ph.D., Physics,** Clarkson University, Potsdam, NY, USA **08/2004 – 05/2008**  
Dissertation Topic: “Analysis and Applications of Complex Networks”  
Advisors: Daniel ben-Avraham, Erik Bollt
- M.S., Physics,** Clarkson University **08/2004 – 12/2005**
- B.S., Physics** with Great Distinction, Clarkson University **08/2001 – 05/2004**
- A.S., Liberal Arts & Sciences,** SUNY Cobleskill, Cobleskill, NY, USA **08/1999 – 05/2001**

## SUPPORT

- NSF BIGDATA award, \$600,000** **09/2014 – 08/2018**  
“Hunch & Crunch: Iterative Crowdsourced Hypothesis Generation”, PI

## PUBLICATIONS

44. L. Mitchell, C. M. Danforth, and J. P. Bagrow, “**Information and prediction limits in online social activity.**” In preparation, 2016.
43. M. Korkali, J. G. Veneman, B. F. Tivnan, J. P. Bagrow, and P. D. Hines, “**Reducing cascading failure risk by increasing infrastructure network interdependence.**” In preparation, 2016.
42. T. C. McAndrew and J. P. Bagrow, “**Reply & supply: Efficient crowdsourc exploration for growing question sets and nets.**” Under review, 2016.
41. T. C. McAndrew, J. C. Bongard, C. M. Danforth, P. S. Dodds, P. D. Hines, and J. P. Bagrow, “**What we write about when we write about causality: Features of causal statements across large-scale social discourse,**” in *International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*. 2016. [[arXiv:1604.05781](#)].
40. M. D. Wagy, J. C. Bongard, J. P. Bagrow, and P. D. Hines, “**Crowdsourcing predictors of residential electric energy useage.**” Under review, 2016.
39. E. M. Cody, J. C. Stephens, J. P. Bagrow, P. S. Dodds, and C. M. Danforth, “**Transitions in climate and energy discourse between Hurricanes Katrina and Sandy,**” *Journal of Environmental Studies and Sciences* (2016) 1–15, [[arXiv:1510.07494](#)].
38. M. Klug and J. P. Bagrow, “**Understanding the group dynamics and success of teams,**” *Royal Society Open Science* **3** no. 4, (2016) , [[arXiv:1407.2893](#)].
37. J. R. Williams, J. P. Bagrow, A. J. Reagan, S. E. Alajajian, C. M. Danforth, and P. S. Dodds, “**Zipf’s law is a consequence of coherent language production.**” Preprint, 2016. [[arXiv:1601.07969](#)].
36. J. R. Williams, E. M. Clark, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, “**Identifying missing dictionary entries with frequency-conserving context models,**” *Phys. Rev. E* **92** (2015) 042808, [[arXiv:1503.02120](#)].
35. J. R. Williams, P. R. Lessard, E. M. Clark, S. Desu, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, “**Zipf’s law holds for phrases, not words,**” *Nature Scientific Reports* **4** no. 12209, (2015) , [[arXiv:1406.5181](#)].
34. J. P. Bagrow, S. Lehmann, and Y.-Y. Ahn, “**Robustness and modular structure in networks,**” *Network Science* **3** (2015) 509–525, [[arXiv:1102.5085](#)].
33. P. S. Dodds, E. M. Clark, S. Desu, M. R. Frank, A. J. Reagan, J. R. Williams, L. Mitchell, K. D. Harris, I. M. Kloumann, J. P. Bagrow, K. Megerdoomian, M. T. McMahon, B. F. Tivnan, and C. M. Danforth, “**Reply to Garcia et al.: Common mistakes in measuring frequency-dependent word characteristics,**” *Proc. Natl. Acad. Sci. U. S. A.* **112** no. 23, (2015) E2984–E2985, [[arXiv:1505.06750](#)].
32. J. R. Williams, J. P. Bagrow, C. M. Danforth, and P. S. Dodds, “**Text mixing shapes the anatomy of rank-frequency distributions,**” *Phys. Rev. E* **91** (2015) 052811, [[arXiv:1409.3870](#)].
31. T. C. McAndrew, C. M. Danforth, and J. P. Bagrow, “**Robustness of spatial micronetworks,**” *Phys. Rev. E* **91** (2015) 042813, [[arXiv:1501.05976](#)].
30. P. S. Dodds, E. M. Clark, S. Desu, M. R. Frank, A. J. Reagan, J. R. Williams, L. Mitchell, K. D. Harris, I. M. Kloumann, J. P. Bagrow, K. Megerdoomian, M. T. McMahon, B. F. Tivnan, and C. M. Danforth, “**Human language reveals a universal positivity bias,**” *Proc. Natl. Acad. Sci. U. S. A.* **112** no. 8, (2015) 2389–2394, [[arXiv:1406.3855](#)].
29. M. Price, M. Evans, and J. P. Bagrow, “**PTSD symptoms, disability, and social support in the acute period after a traumatic injury: A preliminary investigation of competing hypotheses,**” *J Trauma Stress Disor Treat* **4** (2014) .
28. M. R. Frank, J. R. Williams, L. Mitchell, J. P. Bagrow, P. S. Dodds, and C. M. Danforth, “**Constructing a taxonomy of fine-grained human movement and activity motifs through social media.**” Under review, 2014. [[arXiv:1410.1393](#)].

27. D. Wang, Y.-R. Lin, and J. P. Bagrow, “**Social networks in emergency response**,” in *Encyclopedia of Social Network Analysis and Mining*, R. Alhajj and J. Rokne, eds., pp. 1904–1914. Springer New York, 2014.
26. L. Gao, C. Song, Z. Gao, A.-L. Barabási, J. P. Bagrow, and D. Wang, “**Quantifying information flow during emergencies**,” *Nature Scientific Reports* **4** no. 3997, (2014) , [arXiv:1401.1274].
25. J. P. Bagrow, S. Desu, M. R. Frank, N. Manukyan, L. Mitchell, A. J. Reagan, E. E. Bloedorn, L. B. Booker, L. K. Branting, M. J. Smith, B. F. Tivnan, C. M. Danforth, P. S. Dodds, and J. C. Bongard, “**Shadow networks: Discovering hidden nodes with models of information flow**.” In preparation, 2013. [arXiv:1312.6122].
24. L. M. Shekhtman, J. P. Bagrow, and D. Brockmann, “**Robustness of skeletons and salient features in networks**,” *Journal of Complex Networks* **2** no. 2, (2014) 110–120, [arXiv:1309.3797].
23. O. Woolley-Meza, D. Grady, C. Thiemann, J. P. Bagrow, and D. Brockmann, “**Eyjafjallajökull and 9/11: The impact of large-scale disasters on worldwide mobility**,” *PLoS ONE* **8** no. 8, (2013) e69829.
22. C. Noble, J. P. Bagrow, and D. Brockmann, “**The role of caretakers in disease dynamics**,” *J. Stat. Phys.* **152** no. 4, (2013) , [arXiv:1209.2419].
21. J. P. Bagrow and D. Brockmann, “**Natural emergence of clusters and bursts in network evolution**,” *Phys. Rev. X* **3** (2013) 021016, [arXiv:1209.3307].
20. S. Saavedra, S. Mukherjee, and J. P. Bagrow, “**Is coaching experience associated with effective use of timeouts in basketball?**,” *Nature Scientific Reports* **2** no. 676, (2012) , [arXiv:1205.1492].
19. J. P. Bagrow, “**Communities and bottlenecks: Trees and treelike networks have high modularity**,” *Phys. Rev. E* **85** (2012) 066118, [arXiv:1201.0745].
18. J. P. Bagrow and Y.-R. Lin, “**Mesoscopic structure and social aspects of human mobility**,” *PLoS ONE* **7** no. 5, (2012) e37676, [arXiv:1202.0224].
17. Y.-R. Lin, J. P. Bagrow, and D. Lazer, “**Quantifying bias in social and mainstream media**,” *SIGWEB Newsletter* no. Summer, (July, 2012) 5:1–5:6.
16. Y.-Y. Ahn, S. E. Ahnert, J. P. Bagrow, and A.-L. Barabási, “**Flavor network and the principles of food pairing**,” *Nature Scientific Reports* **1** no. 196, (2011) , [arXiv:1111.6074].
15. L. S. Schulman, J. P. Bagrow, and B. Gaveau, “**Visualizing relations using the “observable representation”**,” *Advances in Complex Systems* **14** no. 6, (2011) 829–851.
14. Y.-R. Lin, J. P. Bagrow, and D. Lazer, “**More voices than ever? Quantifying bias in social and mainstream media**,” in *International AAAI Conference on Weblogs and Social Media*. 2011. [arXiv:1111.1227].
13. J. P. Bagrow, D. Wang, and A.-L. Barabási, “**Collective response of human populations to large-scale emergencies**,” *PLoS ONE* **6** no. 3, (2011) e17680, [arXiv:1106.0560].
12. J. P. Bagrow, Y.-Y. Ahn, and S. Lehmann, “**Link communities reveal multiscale complexity in networks**,” *Nature* **466** (2010) 761–764, [arXiv:0903.3178]. (All authors contributed equally and were listed alphabetically in the final publication.)
11. J. P. Bagrow and T. Koren, “**Investigating bimodal clustering in human mobility**,” *International Conference on Computational Science and Engineering* **4** (2009) 944–947, [arXiv:0911.0674].
10. J. Sun, J. P. Bagrow, E. M. Bollt, and J. D. Skufca, “**Dynamic computation of network statistics via updating schema**,” *Phys. Rev. E* **79** (2009) 036116, [arXiv:0809.4707].
9. J. M. Campuzano, J. P. Bagrow, and D. ben-Avraham, “**Kleinberg navigation on anisotropic lattices**,” *Research Letters in Physics* **2008** (2008) , [arXiv:0805.0807].
8. J. P. Bagrow, J. Sun, and D. ben-Avraham, “**Phase transition in the rich-get-richer mechanism due to finite-size effects**,” *J. Phys. A: Math. Theor.* **41** (2008) 185001, [arXiv:0712.2220].
7. J. P. Bagrow, “**Evaluating local community methods in networks**,” *J. Stat. Mech.* **2008** no. 5, (2008) P05001, [arXiv:0706.3880].

6. J. P. Bagrow, E. M. Bollt, J. D. Skufca, and D. ben-Avraham, “**Portraits of complex networks**,” *Europhysics Letters* **81** (2008) 68004, [arXiv:cond-mat/0703470].
5. J. P. Bagrow, E. M. Bollt, and L. da F. Costa, “**Network structure revealed by short cycles**.” Unpublished, 2006. [arXiv:cond-mat/0612502].
4. J. P. Bagrow and D. ben-Avraham, “**On the google-fame of scientists and other populations**,” in *Proc. Am. Inst. of Physics Conf.*, vol. 779, pp. 81–89. 2005. [arXiv:physics/0504034].
3. J. P. Bagrow and E. M. Bollt, “**A local method for detecting communities**,” *Phys. Rev. E* **72** (2005) 046108, [arXiv:cond-mat/0412482].
2. J. P. Bagrow, H. D. Rozenfeld, E. M. Bollt, and D. ben-Avraham, “**How famous is a scientist? – famous to those who know us**,” *Europhysics Letters* **67** (2004) 511, [arXiv:cond-mat/0404515].
1. M. K. Nordhaus, H. J. Newberg, J. P. Bagrow, C. Rider, D. Tucker, H. A. Rave, and J. A. Smith., “**Photometric separation of physical properties of stars**,” *American Astronomical Society, 201st AAS Meeting, #16.12; Bulletin of the American Astronomical Society* **34** (2002) 1126.

## INVITED TALKS

<b>Models and Mechanisms in Network Science</b>	<b>10/2016</b>
Complex Systems/Applied Math seminar, University of Vermont, Burlington, VT, USA	
<b>An introduction to Network Science</b>	<b>10/2016</b>
Burlington Data Science meetup, Burlington, VT, USA	
<b>Machines, Algorithms, and Minority Report</b>	<b>05/2016</b>
Burlington High School Year End Studies presentation, Burlington, VT, USA	
<b>Data-driven approaches to studying human dynamics</b>	<b>07/2015</b>
Center for Nonlinear Studies seminar, LANL, Los Alamos, NM, USA	
<b>Data-driven approaches to studying human dynamics</b>	<b>06/2015</b>
DTU Compute seminar, Department of Applied Mathematics and Computer Science, Technical University of Denmark	
<b>Symbolic Regression: a tool to advance our understanding of complex systems</b>	<b>06/2015</b>
NetSci Backstage 2015, NetSci 2015, Zaragoza, Spain	
<b>Shadow Networks: Discovering Hidden Nodes with Models of Information Flow</b>	<b>05/2015</b>
MS102 Complex Network Theory Based Approaches in the Analyses of Complex Systems and Data - Part II of II, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA	
<b>Shadow Networks: Discovering Hidden Nodes with Models of Information Flow</b>	<b>05/2015</b>
Cambridge Networks Day 2015, University of Cambridge, Cambridge, UK	
<b>Flight or Fight: Predicting Human Dynamics with Tweets and Phones</b>	<b>04/2014</b>
Macmillan Symposium, University of Vermont, Burlington, VT, USA	
<b>Natural emergence of clusters and bursts in network</b>	<b>11/2013</b>
Physics Department Condensed Matter Theory, Weekly Seminar, University of Vermont, Burlington, VT, USA	
<b>Mesoscopic Structure and Social Aspects of Human Mobility</b>	<b>05/2013</b>
MS75 Computational Social Science: An Exploration of Human Dynamics, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA	
<b>Human dynamics through the lens of modern data</b>	<b>03/2013</b>
University of Vermont, Burlington, VT, USA	
<b>Natural emergence of clusters and bursts in network</b>	<b>01/2013</b>
2013 ACCA Seminar Series on Systems Biology, Benedictine University, Lisle, IL, USA	
<b>Natural emergence of clusters and bursts in network</b>	<b>10/2012</b>
Networks and Complex Systems Talk Series, Indiana University, Bloomington, IN, USA	
<b>Introduction to networks (half-day school)</b>	<b>06/2012</b>
NetSci 2012 School, Lecturer, Northwestern University, Evanston, IL, USA	
<b>Human dynamics through the lens of modern data</b>	<b>04/2012</b>
Engineering Science and Applied Mathematics, Weekly seminar, Northwestern University, Evanston, IL, USA	
<b>Cell phones, communities, and complex networks</b>	<b>01/2012</b>
Northwestern Institute on Complex Systems (NICO), Weekly seminar, Northwestern University, Evanston, IL, USA	
<b>Response of human populations to large-scale emergencies</b>	<b>10/2011</b>
NetMob 2011, MIT, Boston, MA, USA	
<b>Robustness of overlapping modular networks</b>	<b>05/2011</b>

MS73: Collective Behavior - Part I of II, SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA	
<b>Exploring mesoscopic structure in complex networks</b> Senseable City, MIT, Boston, MA, USA	<b>05/2011</b>
<b>Exploring mesoscopic structure in complex networks</b> Northwestern Institute on Complex Systems, Northwestern University, Evanston, IL, USA	<b>05/2011</b>
<b>Exploring mesoscopic structure in complex networks</b> Center for Nonlinear Studies seminar, LANL, Los Alamos, NM, USA	<b>04/2011</b>
<b>Communities and Complex Networks</b> Network Science Class, Northeastern University, Boston, MA, USA	<b>04/2011</b>
<b>Exploring mesoscopic structures in complex networks</b> Department of Physics and Department of Mathematics and Computer Science, Joint Colloquium, Clarkson University, Potsdam, NY, USA	<b>10/2010</b>
<b>Response of human populations to large-scale emergencies</b> MIT Media lab, Boston, MA, USA	<b>04/2010</b>
<b>Network Reading Group: Extracting the multiscale backbone of complex weighted networks</b> Harvard Medical School, Boston, MA, USA	<b>12/2009</b>
<b>A Toy Model of Animal Locomotion -or- Hey, what's that smell?</b> JointNet Seminar, Northeastern University, Boston, MA, USA	<b>02/2009</b>
<b>Communities and Complex Networks</b> Center for International Development, Harvard University, Cambridge, MA, USA	<b>10/2008</b>
<b>Detecting communities in complex networks</b> Math department seminar, RIT, Rochester, NY, USA	<b>05/2007</b>
<b>Methods for detecting communities</b> Center for Nonlinear Science, Los Alamos National Laboratory, Los Alamos, NM, USA	<b>06/2005</b>
<b>A local method for detecting communities</b> CP43: Network Structures - Part II of II (presenter and session chair), SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, USA	<b>05/2005</b>

## PRESS COVERAGE

Our study “**Human language reveals a universal positivity bias**” on the Pollyanna principle, received quite a bit of press coverage, including [CBS This Morning \(YouTube\)](#), [NPR Marketplace](#), [Science Magazine](#), [The Atlantic](#), and [The New York Times](#), among others.

Our “**Shadow Networks**” project, on uncovering hidden nodes in networks, was covered by the [Nutonian blog](#).

“**Is coaching experience associated with effective use of timeouts in basketball?**” was featured in [Physics Buzz Blog at Physics Central](#) and [The Wall Street Journal](#).

My work with Yu-Ru Lin, “**Mesoscopic Structure and Social Aspects of Human Mobility**” was featured in [the Spring 2012 issue of McCormick Magazine](#), the biannual magazine of Northwestern University’s McCormick School of Engineering.

“**Flavor network and the principles of food pairing**” received quite a bit of attention. Outlets covering it include: [Wired](#), [Nature News](#), [NPR](#), [The Daily Mail](#), [MIT Technology Review](#), [Popular Science](#), [Inside Science](#), [Physorg.com](#), [Gizmodo](#), [The Huffington Post](#), [Chemistry World](#), [Flowingdata.com](#), [FoodNavigator.com](#), [Indiana University News Room](#), and [News@Northeastern](#). This paper received over 100,000 downloads in its first few months of publication at *Nature Scientific Reports*. During that time, it was the most downloaded article of any Nature Publishing Group journal, including Nature itself.

“**Collective response of human populations to large-scale emergencies**” was featured in [news@northeastern](#) and [physorg.com](#).

“**Link communities reveal multiscale complexity in networks**” was featured in [news@northeastern](#) and [Science On \(Hankyoreh\)](#).

My undergraduate project, “**How famous is a scientist? — Famous to those who know us**” was covered in [Nature News in Brief](#), [Sci-Tech Today](#), [the Inquirer](#), [NewsFactor Innovation](#), [WebOptimiser](#), [physicsworld.com](#), [Felix](#) (student newspaper of Imperial College), and we were interviewed on “The Science Guy”, [NewsTalk Radio KFRU](#).

## COLLABORATORS (since 2012)

- Yong-Yeol Ahn<sup>1</sup>
- Sebastian Ahnert<sup>2</sup>
- Sharon Alajajian<sup>3</sup>
- Albert-László Barabási<sup>4</sup>
- Daniel ben-Avraham<sup>5</sup>
- Eric Bloedorn<sup>6</sup>
- Erik Bollt<sup>5</sup>
- Joshua Bongard<sup>7</sup>
- Lashon Booker<sup>6</sup>
- Luther Branting<sup>6</sup>
- Dirk Brockmann<sup>8</sup>
- J. Mauricio Campuzano<sup>9</sup>
- Eric Clark<sup>7</sup>
- Emily Cody<sup>7</sup>
- Christopher Danforth<sup>7</sup>
- Suma Desu<sup>7</sup>
- Peter Dodds<sup>7</sup>
- Maggie Evans<sup>7</sup>
- Morgan Frank<sup>7</sup>
- Liang Gao<sup>10</sup>
- Ziyu Gao<sup>10</sup>
- Bernard Gaveau<sup>11</sup>
- Daniel Grady<sup>12</sup>
- Kameron Harris<sup>13</sup>
- Paul D.H. Hines<sup>7</sup>
- Isabel Kloumann<sup>14</sup>
- Michael Klug<sup>7</sup>
- Tal Koren<sup>15</sup>
- David Lazer<sup>4</sup>
- Sune Lehmann<sup>16</sup>
- Paul Lessard<sup>17</sup>
- Yu-Ru Lin<sup>18</sup>
- Narine Manukyan<sup>7</sup>
- Thomas McAndrew<sup>7</sup>
- Matthew McMahon<sup>19</sup>
- Karine Megerdooian<sup>19</sup>
- Lewis Mitchell<sup>20</sup>
- Satyam Mukherjee<sup>21</sup>
- Charleston Noble<sup>22</sup>
- Matthew Price<sup>7</sup>
- Andrew Reagan<sup>7</sup>
- Hernán Rozenfeld<sup>23</sup>
- Serguei Saavedra<sup>24</sup>
- Lawrence Schulman<sup>5</sup>
- Louis Shekhtman<sup>25</sup>
- Joseph Skufca<sup>5</sup>
- Michael Smith<sup>6</sup>
- Chaoming Song<sup>26</sup>
- Jennie Stephens<sup>7</sup>
- Jie Sun<sup>5</sup>
- Christian Thiemann<sup>21</sup>
- Brian Tivnan<sup>6</sup>
- Mark Wagyu<sup>7</sup>
- Dashun Wang<sup>27</sup>
- Jake Williams<sup>3</sup>
- Olivia Woolley-Meza<sup>28</sup>

<sup>1</sup>Indiana University <sup>2</sup>Cambridge University <sup>3</sup>University of California, Berkeley <sup>4</sup>Northeastern University <sup>5</sup>Clarkson University <sup>6</sup>MITRE Corporation <sup>7</sup>University of Vermont <sup>8</sup>Humboldt University of Berlin, Robert Koch Institute <sup>9</sup>Stevens Institute of Technology, Hoboken NJ <sup>10</sup>Beijing Jiaotong University <sup>11</sup>Laboratoire analyse et physique mathématique, Paris, France <sup>12</sup>SPAWAR Systems Center Pacific <sup>13</sup>University of Washington <sup>14</sup>Cornell University <sup>15</sup>Weizmann Institute <sup>16</sup>Technical University of Denmark <sup>17</sup>University of Colorado, Boulder <sup>18</sup>University of Pittsburgh <sup>19</sup>MITRE Corporation <sup>20</sup>University of Adelaide <sup>21</sup>Northwestern University <sup>22</sup>Lund University <sup>23</sup>Physical Review <sup>24</sup>Estación Biológica de Doñana <sup>25</sup>Bar-Ilan University <sup>26</sup>University of Miami, Coral Gables <sup>27</sup>Pennsylvania State University <sup>28</sup>ETH Zurich

## COURSES TAUGHT

### University of Vermont, Burlington, Vermont

- F '16: Data Science I (STAT/CS 287)
- S '16: Data Science II (STAT 387)
- F '15: Data Science I (STAT/CS 287)
- S '15: Advanced Engineering Mathematics (MATH 271)
- F '14: Data Science II (MATH 295)
- S '14: Intro to Data Science and Visualization (MATH/CS 195/295)
- F '13: Calculus I (MATH 21)

(Developed Data Science I and II courses from scratch.)

## THESIS AND DISSERTATION COMMITTEES

### University of Vermont, Burlington, Vermont

- 2014: Math & Stats Masters Examining Committees, Oral Exams of Lindsay Van Leir (Mar. 12), Peter Froncek (Mar. 21), Brandon Tries (Apr. 1).

### Technical University of Denmark (DTU), Copenhagen, Denmark

- 2015: DTU Compute (Dept. Applied Mathematics and Computer Science), PhD Examining Committee of Vedran Sekara (Thesis: *Dynamics of High-Resolution Networks*).

## STUDENTS ADVISED

### University of Vermont, Burlington, Vermont

- 2014–2016 Thomas McAndrew, PhD student (Prof. C. Danforth co-advisor),
- 2016–present Xipei Liu, MS student,

- 2016–present Yuhang Lin, MS student.

## **SERVICE**

### **Editorial Board Member**

- Nature Scientific Reports, Physics (2012–present)

### **Reviewer**

- Proceedings of the National Academy of Sciences of the United States of America (PNAS)
- Nature Communications
- Physical Review Letters
- Physical Review E
- Physical Review X
- National Science Foundation
- Wellcome Trust
- Journal of the Royal Society Interface
- PLoS ONE
- Nature Scientific Reports
- SIAM Journal on Applied Mathematics (SIAP)
- New Journal of Physics
- Journal of Complex Networks
- Europhysics Letters (EPL)
- European Physical Journal B (EPJB)
- Journal of Statistical Physics
- IET Systems Biology
- Entropy
- Journal of Supercomputing
- Physics Letters A
- Internet Mathematics
- OTKA (Hungarian Scientific Research Fund)
- Chemical Engineering Science
- International Journal of Bifurcation and Chaos
- Networks and Spatial Economics
- ACM Transactions on Modeling and Computer Simulation (TOMACS)
- ACM Transactions on Knowledge Discovery from Data (TKDD)
- Journal of Selected Topics in Signal Processing
- Computational Intelligence
- Physica A

### **UVM Committee Member**

- Math & Stats Graduate (2013–present)
- Math & Stats Undergraduate Curriculum (2014–2015)
- Math & Stats Online & Hybrid Course (2014–2015)

### **Program Committee Member**

- FindingNEMO 2011 workshop (part of ECML-PKDD 2011)
- 5th International AAAI Conference on Weblogs and Social Media (ICWSM 2011)
- 21st International World Wide Web Conference (WWW 2012)
- SIAM Workshop on Network Science (NS14)
- NetSci-X 2015 Network Science Conference (NetSci-x2015)
- Workshop on Complex Networks and their Applications, part of 11th International Conference on Signal Image Technology & Internet Based Systems (SITIS 2015)
- 9th ACM International Conference on Web Search and Data Mining (WSDM 2016)
- 2016 International School and Conference on Network Science (NetSci 2016)
- 5th International Workshop on Complex Networks and their Applications (Complex Networks 2016)

### **Organizer**

- 2014 International School and Conference on Network Science (NetSci 2014), Chair of Social Media.
- 2014 KDD Workshop on Learning about Emergencies from Social Information (KDD-LESI 2014), Co-Organizer with Yu-Ru Lin.

In 2012 and 2015 I served on NSF multi-disciplinary grant review panels.

## **SOCIETY MEMBERSHIPS**

American Physical Society (APS)  
 Society of Industrial and Applied Mathematicians (SIAM)  
 Society of Physics Students (SPS), formerly

---

## HONORS AND AWARDS

Excellence in Teaching Award, UVM Graduate Student Senate, 2015–2016  
National Science Foundation Graduate Research Fellowship, 2006  
Presidential Scholar, Clarkson University, 2001-2004  
Elected to Phi Kappa Phi (all-discipline honor society), 2002  
Elected to Phi Theta Kappa (international two-year college honor society), 2000

## REFERENCES

**Dr. Albert-László Barabási** — Research Supervisor

Distinguished University Professor  
Director, Center for Complex Network Research  
Department of Physics  
Northeastern University, Boston, MA, USA  
<http://www.barabasi.com/> • [alb@neu.edu](mailto:alb@neu.edu)

**Dr. Daniel ben-Avraham** — Academic/Research Supervisor

Professor, APS Fellow  
Department of Physics  
Clarkson University, Potsdam, NY, USA  
<http://people.clarkson.edu/~dbenavra/> • [benavraham@clarkson.edu](mailto:benavraham@clarkson.edu)

**Dr. Erik Bollt** — Academic/Research Supervisor

W. Jon Harrington Professor of Mathematics  
Department of Mathematics and Computer Science  
Clarkson University, Potsdam, NY, USA  
<http://people.clarkson.edu/~bolltem/> • [bolltem@clarkson.edu](mailto:bolltem@clarkson.edu)

**Dr. Pieter Swart** — Research Supervisor

Group Leader  
Applied Mathematics and Plasma Physics T-5  
Los Alamos National Laboratory, Los Alamos, NM, USA  
<http://math.lanl.gov/~swart/> • [swart@lanl.gov](mailto:swart@lanl.gov)