Todd Bodnar

Last updated 6/2/2015
CV on GitHub

Contact Information

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Interests

Data Science, Social Networks, Machine Learning, Big Data

Degrees

Pennsylvania State University, State College, Pennsylvania USA

PhD, Biology, Summer 2015 (Expected)
Advisor: Marcel Salathé

Pennsylvania State University

B.S., Computer Science, May, 2012
Junior/Senior GPA 3.90
Minor in Mathematics

Experience

Research Assistant at the Salathé Group (2012 - Present)
Datamined large datasets including Twitter ($\approx$ 2.5 Billion Tweets) and Open Street Map
Text classification and Sentiment analysis involving Weka and hand-built tools
Rapid analysis of novel data source involving cellphone-based movement.

Consultant at Human Longevity (Spring 2015)
Social media analytics for trend analysis.

Contractor at Wright Patterson Air Force Base (May - July 2014)
Developed large-scale, unsupervised event detection system using social network data.

Complex Systems Summer School (CSSS) at Santa Fe Institute. (June 2013)
Surveys of the fields of: complexity, nonlinear dynamics, network structure and dynamics, computation theory and adaptive computation techniques, and machine learning.

Teaching Experience: (2012-2015)
JavaScript for modeling for non-programmers (Spring 2015, TA)
Social media analytics (Fall 2014, Guest Lecturer)
Undergraduate microbiology lab (Fall 2013)
Introduction to the Theory of Computation (Spring 2012, Grader)

Computer Skills

- Cluster Computing / Hadoop
- Web based psychological game development through Amazon Mechanical Turk
- Machine Learning, Data Mining, Database Management
- General software design / programing
- Java, Python, BASH, R, Hive LaTeX

Select Software Developed

Weka Hadoop
https://github.com/ToddBodnar/weka-hadoop
Map-Reduce port of Weka's experiment platform

Crowdbreaks
www.crowdbreaks.com
Online disease surveillance system using social media.
Worked on backend, developed system for fast processing of large geospatial data sets.

Peer Reviewed Publications

7. Cosme Adrover, **Todd Bodnar**, Zhuojie Huang, Amalio Asensio Telenti, Marcel Salathé. *Identifying Adverse Effects of HIV Drug Treatment and Associated Sentiments Using Twitter* Journal of Medical Internet Research 2015 (in press)
6. **Todd Bodnar**, Conrad Tucker, Kenneth Hopkinson, and Sven G. Bilén. *Increasing the Veracity of Event Detection on Social Media Networks Through User Trust Modeling* IEEE BigData 2014 Link
5. **Todd Bodnar**, Victoria Barclay, Nilam Ram, Conrad Tucker and Marcel Salathé. *On the Ground Validation of Online Diagnosis with Twitter and Medical Records* WWW 2014 Link
4. Zhuojie Huang, Udayan Kumar, **Todd Bodnar** and Marcel Salathé. *Understanding Population Displacements on Location-Based Call Records Using Road Data* SIGSPATIAL 2013, Link
3. **Todd Bodnar** & Marcel Salathé. *Validating Models for Disease Detection Using Twitter* WWW 2013 Companion, May 13-17, 2013, Rio de Janeiro, Brazil. Link
2. Marcel Salathé, Linus Bengtsson, **Todd J. Bodnar**, Devon D. Brewer, John S. Brownstein, Caroline Buckee, Ellsworth M. Campbell, Ciro Cattuto, Shashank Khandelwal, Patricia L. Mabry, Alessandro Vespignani. *Digital Epidemiology* Plos Computational Biology, 2012 Link
1. **Todd Bodnar** & Marcel Salathé. *Governing the Global Commons with Local Institutions.* PloS One, 2012 Link

In prep and non-peer reviewed publications

- Cheryl Abundo, **Todd Bodnar**, John Driscoll, Ian Hatton, and Jody Wright *City population dynamics and fractal transport networks* (Proceedings of Santa Fe Institute Complex Systems Summer School) Link
- **Todd Bodnar** & Marcel Salathé. *The Social Maintance of Cooperation Through Hypocrisy* (arXiv prepub) Link

Select Presentations

- Todd Bodnar. *How 14 Million Twitter Users Can Inform Us About Disease Transmission* Digital Disease Detection 3 / WWW2015, May 2015
- Todd Bodnar. *Moocdemic.* Game On, March 2014
- Todd Bodnar. *Processing Big-Data for Cheap through Amazon's Elastic Map Reduce.* Hacking Science Seminar, Feburary 2013
- Todd Bodnar, Orhan Kislal, Ying Sun, Hui Yang,Marcel Salathé, Conrad Tucker. *Webs, Clouds and Tweets: Using Social Media to Study the Spatial Dynamics of Influenza.* Center for Integrated Healthcare Delivery Systems, May 2012

Outreach

- Session chair at WWW2014 title *Systems for Surveillance and Outbreaks*
- Ran local meet up for Machine Learning coursera course
- TA for Coursera course on epidemiology
- Communicated with 655 journalists as part of a launch of a Massively Multiplayer Online game

Miscellaneous

- Erdős number: 3 (Todd Bodnar → Alessandro Vespignani → Fan Chung → Paul Erdös)
- American citizenship
- Links to software and publications available on ToddBodnar.com