
CONTACT INFORMATION

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WORK EXPERIENCE

Research Assistant at the Salathé Group (2012 - 2015)
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.

EDUCATION

Pennsylvania State University, State College, Pennsylvania USA

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

Santa Fe Institute, Santa Fe, New Mexico USA

Complex Systems Summer School, 2013
Surveys of the fields of: complexity, nonlinear dynamics, network structure and dynamics, computation theory and adaptive computation techniques, and machine learning.

Pennsylvania State University

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

SELECT SOFTWARE DEVELOPED

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

Moocdemic
<https://www.moocdemic.com>
Mobile game simulating outbreaks ($\tilde{10,000}$ users)
Developed press release tools using Amazon Turk and A/B testing
Created visualizations of gameplay elements (available at link)

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

COMPUTER SKILLS

- Cluster Computing / Hadoop
- Web based psychological game development through Amazon Mechanical Turk
- Machine Learning, Data Mining, Database Management
- Java, Python, BASH, R, Hive, L^AT_EX, some C and JavaScript

SELECT
PUBLICATIONS

- **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](#)
- **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](#)
- 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](#)
- 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](#)