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Research Spotlight Forum

Social Sciences & Decision Making

# Computational Social Science Research and Applications

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# ABOUT YOURSELF

- **Background** - Industrial Engineering, Information Science, Cognitive Psychology
- **Current Position** – Chief Technology Officer (interim) Georgia Tech Research Institute (GTRI); Lab Chief Scientist at Aerospace, Transportation and Advanced Systems (ATAS) Laboratory
- **Research Focus** - Behavior Modeling and Computational Social Science programs focus on predictive analysis tools, computation, and quantifiable methods related to modeling human behavior and improving computational social science
- **Research areas** – Technology Profiling, Public Health Monitoring, Behavioral & Societal Modeling, Social Media Analytics, Information Environment and Influence, Science of (Social) Science
- **Research group interests, size and demographics** - Varies
- **Keywords –** Computational Social Science, Natural Language Processing, Computational Linguistics, Machine Learning, Graph Analytics, High Performance Computing, Knowledge Representation, Machine Reasoning

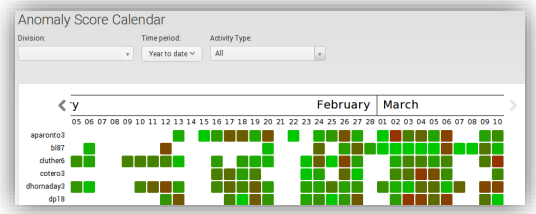
# CURRENT WORK IN SOCIAL SCIENCES & DECISION MAKING

**My research** combines machine learning, NLP, and information science with the social sciences, such as experimental psychology, sociology, cognitive science and policy studies, to address fundamental national and international challenges in defense, stability, and security

## Public Health Awareness

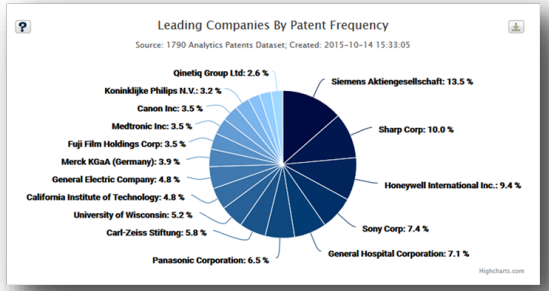
Discovery of disease and hazards in open and closed information sources

*Appling, E. Briscoe, A. Carpenter, L. McCook, G. Scott, T. Allen, R. Buettner, C. Oros. (2015). Social Media for Situational Awareness: Joint-Interagency Field Experimentation (2015). Humanitarian Technology.*



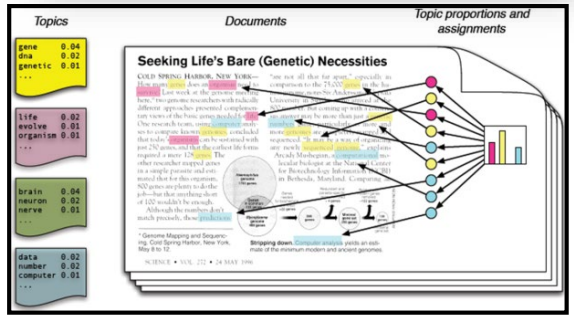

## Large-scale social experimentation: Experimental studies in information and influence with large N

*Galloway, E., Mappus, C., & Briscoe, E. (2013). Social Price Targeting: Use of Network Structure in Firm Decision Making. 9th Conference of the European Social Simulation Association Warsaw School of Economics, Warsaw, Poland, September 16-20, 2013.*




## Behavioral Analytics: Analysis of open source and human derived data sets

*Appling, D. and Briscoe, E. (2016). Individual Differences in Strategic Deception. Workshop on Computational Approaches to Deception Detection, North American Chapter of the Association for Computational Linguistics. June 17, 2016. San Diego, CA.*




## Data Science: Utilization of large data for complex statistical analyses

*Ediger, D., Appling, S., Briscoe, E., McColl, R., & Poovey, J. (2014). Real-Time Streaming Intelligence: Integrating Graph and NLP Analytics. 2014 IEEE High Performance Extreme Computing Conference.*

## Multi-scale Modeling and Analysis of Terrorism and Radicalization: Characterizing influences through integrating multi-scale behavioral models

*Weiss, L., Briscoe, E., Wright, W. Kline, K., Horgan, J., Cushenbery, L. & Hilland, C. (2013). A Model Docking System for Understanding Radicalization. Proceedings of the IEEE Intelligence and Security Informatics Conference. Seattle, Washington..*

## User Profiling and Insider Threat Detection:

Profiling and identifying anomalous users with computer behavioral trace modeling

*Mappus, C. & Briscoe, E. (2013). Layered behavioral trace modeling for threat detection. Proceedings of the 2013 IEEE Intelligence and Security Informatics Conference. Seattle, Washington..*

## Technology Scanning and New Science:

Utilizing open-source data to understand and visualize the global technology landscape and create business intelligence

*Briscoe, E. J., Appling, S., & Schlosser, J. (2015). Passive Crowd Sourcing for Technology Prediction. In Social Computing, Behavioral-Cultural Modeling, and Prediction (pp. 264-269)*

## Influence, Credibility and Deception: Experimental work towards modeling of belief formation, influence, and misinformation

*Briscoe, E., Appling, S., & Hayes, H. (2014). Cues to Deception in Social Media Communications. Proceedings of the 47th Hawaii International Conference on System Sciences. Hawaii, Hawaii. .*

# RESEARCH NEEDS

- Help with extraction of scientific concepts, methods, approaches from text
- Reconciliation of social science with hard science (philosophy of science)
- Development of technology case studies
- Approaches for characterizing technology impacts