

Victor Benjamin

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EDUCATION

Ph.D.	Eller College of Management, University of Arizona Major: Management Information Systems Minor: Linguistics	2016
M.S.	Eller College of Management, University of Arizona Management Information Systems	2012
B.S.	Eller College of Management, University of Arizona Management Information Systems, with Honors	2011

RESEARCH INTERESTS

Methodology: Web Mining, Natural Language Processing, Machine Learning
Applications: Cybersecurity, Security Informatics, Social Media Analytics

DISSERTATION

Title: Securing Cyberspace: Analyzing Hacker Communities through Web and Text Mining Perspectives
Committee: Dr. Hsinchun Chen, Dr. Jay Nunamaker, and Dr. Joseph Valacich
Summary: Cybersecurity is a critical problem facing society. Research investigating online hacker social media is commonly suggested as a way to learn more about cybercriminals and improve cybersecurity capabilities. My dissertation seeks to address the following questions:

- How can we create a secure, large-scale hacker social media identification and collection pipeline?
- What methods can be used to automatically identify key hacker community participants?
- How can we detect emerging cyber threats based on hacker social media?

REFEREED JOURNAL ARTICLES

Benjamin, V., Chung, W., Abbasi, A., Chuang, J., Larson, C.A., and Chen, H. "Evaluating Text Visualization for Authorship Analysis." Security Informatics. (2014).

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Benjamin, V., Chen, H., and Zimbra, D. "*Bridging the virtual and real: The relationship between web content, linkage, and geographical proximity of social movements.*" Journal of the Association for Information Science and Technology. (2014).

Benjamin, V., Zhang, B., Nunamaker, J., & Chen, H. "*Examining Cybercriminal Participation Length within Cybercriminal IRC Communities.*" Journal paper under review at *Journal of Management Information Systems (JMIS)*. Forthcoming.

REFEREED CONFERENCE PAPERS (* indicates I was the presenting author)

* Benjamin, V., and Chen, H. "*Developing Understanding of Hacker Language through the use of Lexical Semantics.*" IEEE Intelligence and Security Informatics. (2015).

* Benjamin, V., Li, W., Holt, T., and Chen H. "*Exploring Threats and Vulnerabilities in Hacker Web Forums, IRC, and Carding Shops.*" IEEE Intelligence and Security Informatics. (2015). **(Best paper, runner-up)**

* Chung, W., He, S., Zeng, D., and Benjamin, V. "*Emotion Extraction and Entrainment in Social Media: The Case of U.S. Immigration and Border Security.*" IEEE Intelligence and Security Informatics. (2015).

Benjamin, V., and Chen, H. "*Time-to-event Modeling for Predicting Hacker Community IRC Participant Trajectory.*" IEEE Intelligence and Security Informatics. (2014).

Abbasi, A., Li, W., Hu, S., Benjamin, V., Chen H. "*Modeling Interactions in Web Forums.*" In the 6th ASE International Conference on Social Computing. Stanford, May 27-31. (2014).

Abbasi, A., Li, W., Benjamin, V., Hu, S., Chen H. "*Descriptive Analytics: Investigating Expert Hackers in Web Forums.*" IEEE Intelligence and Security Informatics. (2014).

Chadha, K., Benjamin, V., Al-Nashif, Y., Haririm S., Chen, H. "Automated and Scalable Infrastructure for Hacker IRC Collection." International Conference on Cloud and Autonomic Computing (CAC). (2014).

* Benjamin, Victor, Wingyan Chung, Ahmed Abbasi, Joshua Chuang, Catherine A. Larson, and Hsinchun Chen. "*Evaluating text visualization: An Experiment in Authorship Aanalysis.*" In Intelligence and Security Informatics (ISI), 2013 IEEE International Conference on, pp. 16-20. (2013). **(Best paper, runner-up)**

* Benjamin, Victor A. and Hsinchun Chen. "*Machine learning for attack vector identification in malicious source code.*" In Intelligence and Security Informatics (ISI), 2013 IEEE International Conference on, pp. 21-23. (2013).

* Benjamin, Victor and Hsinchun Chen. "*Securing cyberspace: Identifying key actors in hacker communities.*" Intelligence and Security Informatics (ISI) 2012. 24-29. (2012).

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WORKING PAPERS

Benjamin, V., Valacich, J., & Chen, H. "*Diving into the Hacker Web: A Guide for Conducting Large-scale Hacker Forum Research.*" Journal paper under review.

Benjamin, V., & Chen, H. "*Detecting Emerging Threats in Hacker Forums using Recurrent Neural Network Language Models.*" Journal paper in preparation.

Benjamin, V., & Chen, H. "*Mapping Knowledge Transfer in Cybercriminal Communities with Recurrent Neural Networks.*" Journal paper in preparation.

BOOK CHAPTERS

Benjamin, V., & Chen, H. "*Exploring the Hacker Web: A Computational Approach*" Book Title TBD. Routledge Press. In preparation.

INVITED TALKS

INFORMS Annual Meeting, Session on Social Media Analytics and Big Network Data, Artificial Intelligence Cluster, 2015

Univ. of Arizona Management Information Systems Department Speaker Series, 2015

HONORS

Best Paper Runner-up, IEEE Conference on Intelligence and Security Informatics, 2015

Best Paper Runner-up, IEEE Conference on Intelligence and Security Informatics, 2013

University of Arizona Paul S. and Shirley Goodman Award, 2015

National Science Foundation *Research Experiences for Undergraduates* Grant Awardee

SELECTED GRADUATE COURSEWORK

Research Methodology	Behavioral Research Methodologies Design Science, Analytical, and Computational Research Methods Models for Quantitative Analysis Statistical Methods in Psychological Research
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Machine Learning and Data Mining	Machine Learning Web Mining
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Natural Language Processing	Information Retrieval Computational Linguistics Advanced Computational Linguistics Statistical Natural Language Processing
Cyber Security	Information Security in the Public & Private Sectors Risk Management and Disaster Recovery

TEACHING EXPERIENCE

Lecturer	MIS 111 – Computers and the Internetnetworked Society Summer 2014, University of Arizona Enrollment: 25 Undergraduate Students Overall Teaching Effectiveness: 4.9 / 5.0
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SERVICE

Peer-reviewer for the following publications:

- *ACM Transactions on Management Information Systems*
- *Communications of the International Information Management Association*
- *Journal of the American Society for Information Science and Technology*
- *IEEE Intelligent Systems*
- *IEEE Transactions on Human-Machine Systems*
- *INFORMS Journal on Computing*
- *International Conference on Information Systems*

PROFESSIONAL ASSOCIATIONS

- Association for Information Systems (AIS), Member.
- Institute for Operations Research and the Management Sciences, Member.
- The Institute of Electrical and Electronics Engineers (IEEE), Member.
- The Association of Computing Machinery (ACM), Member.
- Committee on National Security Systems (CNSS):
 - CNSS 4011 – Information Systems Security Professionals
 - CNSS 4012 – Senior Systems Managers
 - CNSS 4016 – Risk Analyst