Benjamin (Ben) W. Priest

CONTACT INFORMATION

Graduate Student
Thayer School of Engineering
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PROFESSIONAL INTERESTS

Space-efficient analysis of large, evolving datasets, especially graphs: streaming algorithms, sketching, machine learning, network analysis, numerical linear algebra, compressed sensing, high performance computing, optimization, and natural language processing

PROFESSIONAL EXPERIENCE

MIT Lincoln Laboratory, Lexington, MA, USA

Assistant Research Scientist **August 2011 to July 2015**

- Cyber Analytics and Decision Systems Group
- Supervisor: Dr. Kevin M. Carter
- Application of machine learning algorithms to network protocol traffic; behavioral analysis for network situational awareness.
- Development of cognitive multi-agent systems to perform high-fidelity traffic generation for cyber range experiments.
- Development of multi-agent simulation platform to evaluate moving target defenses.

Air Force Institute of Technology, Wright-Patterson Air Force Base, OH, USA

Engineering Technician GS-05 **June to September, 2008 & 2009**

- Supervisor: Professor J. Todd McDonald
- Development of obfuscation metrics of combinatorial circuits using abstract interpretation-based software semantic models.

TECHNICAL SKILLS

Computer Programming:
- Python, C, C++, Java, NetLogo, UNIX shell scripting, SQL, MySQL, and others

Numerical Analysis:
- MATLAB, Mathematica, R

Version Control and Software Configuration Management:
- Git, VCS (CVS, SVN)

Desktop Editing and Productivity Software:
- Emacs, Eclipse, IntelliJ, Vim
- TEX (LATEX, BIBTEX),
- Microsoft Office, OpenOffice.org, LibreOffice, Corel WordPerfect, Google Docs

EDUCATION

Dartmouth College, Hanover, NH, USA 2015-Present

Ph.D., Engineering, Ongoing

- Adviser: Professor George Cybenko
- Area of Study: Sublinear Space Analysis of Massive Graphs

The Ohio State University, Columbus, OH, USA 2007-2011

B.S., Mathematics, *Cum Laude*, June 2011

B.S., Computer and Information Science, *Cum Laude*, June 2011

Teaching Experience

Thayer School of Engineering at **Dartmouth College**, Columbus, OH

Teaching Assistant

- Instructor for ENGS/QBS 108: Applied Machine Learning **Autumn 2017**
  - Weekly recitation and writing and grading student assignments
- Instructor for ENGS 177: Decision Making Under Risk and Uncertainty **Winter 2017**
  - Weekly recitation and writing and grading student assignments

The Ohio State University, Columbus, OH

Teaching Assistant

- Instructor for CSE 625: Automata and Formal Languages **Summer & Autumn 2010**
  - Weekly recitation and grading student assignments
- Grader for CSE 560: System Software Design and Devlopment **Summer 2010**
  - Summer 2006

Conference Publications

[1] Benjamin W. Priest and George Cybenko. Approximating centrality in evolving graphs: toward sublinearity. In *Proceedings of the 2017 SPIE Defense and Security Conference*, SPIE '17. SPIE, 2017

[2] Benjamin W. Priest and George Cybenko. Efficient inference of hidden Markov models from large observation sequences. In *Proceedings of the 2016 SPIE Defense and Security Conference*, SPIE '16. SPIE, 2016

[3] Benjamin Priest, Era Vuksani, Neal Wagner, Brady Tello, Kevin M. Carter, and William W. Streilein. Agent-based simulation in support of moving target cyber defense technology development and evaluation. In *Proceedings of the 2015 ACM Spring Simulation Multi-Conference - Communications and Networking Simulation Symposium*, SpringSim '15, 2015

[4] Benjamin Priest and Kevin M. Carter. Characterizing latent user interests on enterprise networks. In *Proceedings of the Twenty-Seventh International Florida Artificial Intelligence Research Society Conference, FLAIRS 2014, Pensacola Beach, Florida, May 21-23, 2014.*, 2014. URL http://www.aaai.org/ocs/index.php/FLAIRS/FLAIRS14/paper/view/7820

[5] Kevin M. Carter, Rajmonda S. Caceres, and Ben Priest. Latent community discovery through enterprise user search query modeling. In *Proceedings of the 37th International ACM SIGIR Conference on Research & Development in Information Retrieval*, SIGIR '14, pages 871–874, New York, NY, USA, 2014. ACM. ISBN 978-1-4503-2257-7. doi:10.1145/2600428.2609462. URL http://doi.acm.org/10.1145/2600428.2609462

[6] Kevin Gold, Zachary J. Weber, Ben Priest, Josh Ziegler, Karen Sittig, William W. Streilein, and Mark Mazumder. Modeling how thinking about the past and future impacts network traffic with the GOSMR architecture. In *International conference on Autonomous Agents and Multi-Agent Systems, AAMAS '13, Saint Paul, MN, USA, May 6-10, 2013*, pages 127–134, 2013b. URL http://dl.acm.org/citation.cfm?id=2484944

[7] Kevin Gold, Ben Priest, and Kevin M. Carter. An expectation maximization approach to detecting compromised remote access accounts. In *Proceedings of the Twenty-Sixth International Florida Artificial Intelligence Research Society Conference, FLAIRS 2013, St. Pete Beach, Florida. May 22-24, 2013.*, 2013a. URL http://www.aaai.org/ocs/index.php/FLAIRS/FLAIRS13/paper/view/5844

Conference Posters

[8] Carter, K.M., R. Caceres and B. Priest Characterization of latent social networks discovered through computer network logs. In *Networks in the Social and Information Sciences workshop of the 29th Annual Conference on Neural Information Processing Systems (NIPS 2015)*, Montreal, Canada, December, 2015.

[9] Ben Priest and Kevin Gold. Utility discounting explains informational website traffic patterns before a hurricane. In *22nd International World Wide Web Conference, WWW '13, Rio de Janeiro, Brazil, May 13-17, 2013, Companion Volume*, pages 53–54, 2013. URL http://dl.acm.org/citation.cfm?id=2487808

Awards

MIT Lincoln Laboratory

- Lincoln Scholar Program recipient, 2015 (declined)

The Ohio State University

- Mathematics Kenneth Cummings Scholarship, 2008–2011
- Distinguished Merit Scholarship, 2007–2011
- Ohio Academic Scholarhship, 2007-2011
- Bingham Award in Philosophy, 2010