

# Alan Kuhnle

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**RESEARCH INTERESTS**      Approximation algorithms; large-scale, complex networks; multiplex and multilayer networks; scalable algorithms; dynamic and uncertain networks

**EDUCATION**      *Doctor of Philosophy*, Computer Science (in progress)  
University of Florida, Gainesville, FL, expected May 2018.  
Advisor: Professor My T. Thai  
Dissertation title: “Scalable Algorithms for Vulnerability Assessment of Large-Scale Networked Systems”

*Master of Science*, Mathematics  
University of Florida, Gainesville, FL, received May 2013.

*Bachelor of Science*, Mathematics  
Florida State University, Tallahassee, FL, received May 2010.  
Minor: Physics  
Summa cum Laude

**AWARDS**

- Selected for Best Papers of ICDM (2017)
- NSF Travel Grant Award for INFOCOM (\$1000, 2017)
- Best Paper Award, 10th International Conference on Mobile Ad-hoc and Sensor Networks (2014)
  
- University of Florida Graduate Fellowship (2013 – 2017)
- Barry M. Goldwater Scholarship (\$7500, 2009)
- Florida Senate Spirit of Service Award (2009)
- FSU Undergraduate Research Award (\$4000, 2009)

## PUBLICATIONS

### JOURNAL ARTICLES

1. Alan Kuhnle, Victoria G. Crawford, My T. Thai. Network Resilience and the Length-Bounded Multicut Problem: Reaching the Dynamic Billion-Scale with Guarantees. *Journal Proc. ACM Meas. Anal. Comput. Syst. (POMACS)*, ACM 2018.
2. Alan Kuhnle, Md A. Alim, Xiang Li, Huiling Zhang, My T. Thai. Multiplex Influence Maximization in Online Social Networks with Heterogeneous Diffusion Models. *Transactions on Computational Social Systems*, IEEE 2018.
3. Alan Kuhnle, Nam P. Nguyen, Thang N. Dinh, My T. Thai. Vulnerability of clustering under node failure in complex networks. *Social Network Analysis and Mining*, Springer 2017.

4. Alan Kuhnle, Xiang Li, J. David Smith, My T. Thai. Online set multicover algorithms for dynamic D2D communications. *Journal of Combinatorial Optimization*, Springer 2017.
5. Subhankar Mishra, Xiang Li, Tianyi Pan, Alan Kuhnle, My T. Thai. Price Modification Attack and Protection Scheme in Smart Grid. *Transactions on Smart Grid*, IEEE 2015.

#### CONFERENCE PUBLICATIONS

1. Alan Kuhnle, Victoria G. Crawford, My T. Thai. Network Resilience and the Length-Bounded Multicut Problem: Reaching the Dynamic Billion-Scale with Guarantees. *International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*, ACM 2018.
2. J. David Smith, Alan Kuhnle, My T. Thai. An Approximately Optimal Bot for Non-Submodular Social Reconnaissance. *Conference on Hypertext and Social Media (HT)*, ACM 2018.
3. Tianyi Pan, Alan Kuhnle, Xiang Li, My T. Thai. Vulnerability of Interdependent Networks with Heterogeneous Cascade Models and Timescales. *International Conference on Distributed Computing Systems (ICDCS)*, IEEE 2018.
4. Alan Kuhnle, J. David Smith, Victoria G. Crawford, My T. Thai. Fast Maximization of Non-Submodular, Monotonic Functions on the Integer Lattice. *International Conference on Machine Learning (ICML)*, 2018.
5. Alan Kuhnle, Tianyi Pan, Md A. Alim, My T. Thai. Scalable Bicriteria Algorithms for the Threshold Activation Problem in Online Social Networks. *International Conference on Computer Communications (INFOCOM)*, IEEE 2017.
6. Alan Kuhnle, Tianyi Pan, Victoria G. Crawford, Md A. Alim, My T. Thai. Pseudo-Separation for Assessment of Structural Vulnerability of a Network. *International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS)*, ACM 2017.
7. Tianyi Pan, Alan Kuhnle, Xiang Li, My T. Thai. Dynamic Propagation Rates: New Dimension to Viral Marketing in Online Social Networks. *International Conference on Data Mining (ICDM)*, IEEE 2017.
8. Alan Kuhnle, Victoria G. Crawford, My T. Thai. Scalable and Adaptive Algorithms for the Triangle Interdiction Problem on Billion-Scale Networks. *International Conference on Data Mining (ICDM)*, IEEE 2017. **(Invited to KAIS Journal Special Issue: ICDM Best Papers)**
9. Huiyuan Zhang, Huiling Zhang, Alan Kuhnle, My T. Thai. Profit Maximization for Multiple Products in Online Social Networks. *International Conference on Computer Communications (INFOCOM)*, IEEE 2016.
10. Huiling Zhang, Alan Kuhnle, Huiyuan Zhang, My T. Thai. Detecting Misinformation in Online Social Networks Before It Is Too Late. *International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, IEEE 2016.
11. Subhankar Mishra, Xiang Li, Alan Kuhnle, My T. Thai, Jungtaek Seo. Rate Alteration Attacks in Smart Grid. *International Conference on Computer Communications (INFOCOM)*, IEEE 2015.
12. Md A. Alim, Alan Kuhnle, My T. Thai. Are communities as strong as we think?. *International Conference on Advances in Social Networks Analysis and Mining (ASONAM)*, IEEE 2014.

13. Alan Kuhnle, Xiang Li, My T. Thai. Online Algorithms for Optimal Resource Management in Dynamic D2D Communications. *International Conference on Mobile Ad-hoc and Sensor Networks (MSN)*, IEEE 2014. (**Best Paper Award**)