

Curriculum Vitae

Dr. Vladimir L. Boginski

Assistant Professor, Industrial & Systems Engineering
University of Florida

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Professional Preparation

- ◇ **Ph.D. in Industrial and Systems Engineering**, August 2005 (GPA 4.0/4.0)
Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL
- ◇ **M.S. in Industrial and Systems Engineering**, May 2003 (GPA 4.0/4.0)
Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL
- ◇ **B.S. in Applied Mathematics**, June 2000, *Honor of Excellence Diploma*
Moscow Institute of Physics and Technology, Moscow, Russia

Current Appointment

- ◇ Assistant Professor/Graduate Faculty/Systems Engineering Graduate Program Advisor, Research and Engineering Education Facility (UF-REEF) & Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL/Shalimar, FL.

Publications¹

• **Refereed Journal Articles (Published/Accepted)**

1. A. Veremyev, V. Boginski, P.A. Krokhmal, and D.E. Jeffcoat. Dense Percolation in Large-Scale Mean-Field Random Networks Is Provably “Explosive”. *PLoS ONE* 7(12): e51883, 2012. DOI:10.1371/journal.pone.0051883.
2. O. Shirokikh, G. Pastukhov, V. Boginski, and S. Butenko. Computational study of the U.S. stock market evolution: A rank correlation-based network model. *Computational Management Science*, 2012 (accepted). DOI: 10.1007/s10287-012-0160-4.
3. J. Pattillo, A. Veremyev, S. Butenko, and V. Boginski. On the maximum quasi-clique problem. *Discrete Applied Mathematics*, 2012 (accepted). DOI: 10.1016/j.dam.2012.07.019.
4. A. Kammerdiner, A. Sprintson, E.L. Pasiliao, and V. Boginski. Optimization of discrete broadcast under uncertainty using conditional value-at-risk. *Optimization Letters*, 2012 (accepted). DOI: 10.1007/s11590-012-0542-0.
5. G. Pastukhov, A. Veremyev, V. Boginski, and E.L. Pasiliao. Optimal design and augmentation of strongly attack-tolerant two-hop clusters in directed networks. *Journal of Combinatorial Optimization*, 2012 (accepted). DOI: 10.1007/s10878-012-9523-6.
6. M. Carvalho, A. Sorokin, V. Boginski, and B. Balasundaram. Topology design for on-demand dual-path routing in wireless networks. *Optimization Letters*, 2012 (accepted). DOI: 10.1007/s11590-012-0453-0.
7. A. Veremyev and V. Boginski. Identifying Large Robust Network Clusters via New Compact Formulations of Maximum k -club Problems. *European Journal of Operational Research*, 218:316–326, 2012.

¹The names of graduate students advised/co-advised by Boginski (at the time of paper preparation) are underlined. The names of graduate students advised/co-advised by faculty co-authors (at the time of paper preparation) are dash-underlined.

8. S. Stefan, M. Ehsan, W. Pearson, A. Aksenov, V. Boginski, B. Bendiak, and J. Eyler. Differentiation of Closely Related Isomers: Application of Data Mining Techniques in Conjunction with Variable Wavelength Infrared Multiple Photon Dissociation Mass Spectrometry for Identification of Glucose-Containing Disaccharide Ions. *Analytical Chemistry*, 83(22):8468–8476, 2011.
 9. A. Sorokin, V. Boginski, A. Nahapetyan, and P.M. Pardalos. Computational Risk Management Techniques for Fixed Charge Network Flow Problems with Uncertain Arc Failures. *Journal of Combinatorial Optimization*, 2011 (accepted). DOI: 10.1007/s10878-011-9422-2.
 10. K. Kalinchenko, A. Veremyev, V. Boginski, D.E. Jeffcoat, and S. Uryasev. Robust connectivity issues in dynamic sensor networks for area surveillance under uncertainty. *Pacific Journal of Optimization*, 7(2): 235–248, 2011.
 11. N. Boyko, T. Turko, V. Boginski, D.E. Jeffcoat, S. Uryasev, G. Zrazhevsky, and P.M. Pardalos. Robust Multi-Sensor Scheduling for Multi-Site Surveillance. *Journal of Combinatorial Optimization*, 22(1): 35–51, 2011.
 12. V. Boginski, C.W. Commander, and T. Turko. Polynomial-time Identification of Robust Network Flows under Uncertain Arc Failures. *Optimization Letters*, 3(3):461–473, 2009.
 13. A. Sorokin, N. Boyko, V. Boginski, S. Uryasev, and P.M. Pardalos. Mathematical Programming Techniques for Sensor Networks, *Algorithms*, 2: 565–581, 2009.
 14. A. Arulsevan, G. Baourakis, V. Boginski, E. Korchina, and P.M. Pardalos. Analysis of Food Industry Market using Network Approaches. *British Food Journal*, 110(9): 916–928, 2008.
 15. V. Boginski, S. Butenko, and P.M. Pardalos. Mining Market Data: A Network Approach. *Computers and Operations Research*, 33: 3171–3184, 2006 (**Ranked in Top 25 hottest articles in Computers and Operations Research by ScienceDirect during 01-09/06**).
 16. A. Arulsevan, V. Boginski, A. Kammerdiner, and P.M. Pardalos. Analysis of Stock Market Structure by Identifying Connected Components in the Market Graph. *Journal of Financial Decision Making*, 1(1): 27–37, 2005.
 17. V. Boginski, S. Butenko, and P.M. Pardalos. Statistical Analysis of Financial Networks. *Computational Statistics and Data Analysis*, 48(2): 431–443, 2005 (**Ranked in Top 25 hottest articles in Computational Statistics and Data Analysis by ScienceDirect during 10/04-03/05**).
 18. V. Boginski, S. Butenko, and P.M. Pardalos. Network Models of Massive Datasets. *Computer Science and Information Systems*, 1: 75–89, 2004.
- **Refereed Book Chapters (Published/Accepted)**
19. O. Shirokikh, V. Stozhkov, and V. Boginski. Combinatorial optimization techniques for network-based data mining. To appear in *Handbook of Combinatorial Optimization, 2nd edition*, P.M. Pardalos et al. (eds.), Springer, 2013.
 20. D. Jallo, D. Budai, V. Boginski, B. Goldengorin, and P.M. Pardalos. Network-Based Representation of Stock Market Dynamics: An Application to American and Swedish Stock Markets. In *Models, Algorithms, and Technologies for Network Analysis*, B. Goldengorin et al. (eds.), pp. 93–106, Springer, 2013.
 21. A. Veremyev and V. Boginski. Robustness and strong attack tolerance of low-diameter networks. In *Dynamics of Information Systems: Mathematical Foundations*, A. Sorokin et al. (eds.), pp. 137–156, Springer, 2012.
 22. V. Boginski. Network-Based Data Mining: Operations Research Techniques and Applications. In *Wiley Encyclopedia of Operations Research and Management Science*, J. Cochran et al. (eds.), pp. 3498–3508, John Wiley and Sons, 2011.
 23. V. Boginski and C.W. Commander. Identifying Critical Nodes in Protein-Protein Interaction Networks. In *Clustering Challenges in Biological Networks*, S. Butenko et al. (eds.), pp. 153–167, World Scientific, 2009.

24. O. A. Prokopyev, V. Boginski, W. Chaovallitwongse, P.M. Pardalos, J.C. Sackellares, and P.R. Carney. Network-based Techniques in EEG Data Analysis and Epileptic Brain Modeling, In *Data Mining in Biomedicine*, P.M. Pardalos et al. (eds.), pp. 559–573, Springer, 2007.
25. W. Chaovallitwongse, L.D. Iasemidis, P.R. Carney, J.C. Sackellares, D.-S. Shiau, L.K. Dance, O. A. Prokopyev, V. Boginski, and P.M. Pardalos. Data Mining in EEG: Application to Epileptic Brain Disorders. In *Data Mining in Biomedicine*, P.M. Pardalos, et al. (eds.), pp. 459–481, Springer, 2007.
26. V. Boginski, P.M. Pardalos, and A. Vazacopoulos. Network-based Models and Algorithms in Data Mining and Knowledge Discovery, In *Handbook of Combinatorial Optimization*, D.-Z. Du and P.M. Pardalos (eds.), Supplementary Volume B, pp. 217–258, 2005.
27. P.M. Pardalos, V. Boginski, O. Prokopyev, W. Suharitdamrong, P.R. Carney, W. Chaowallitwongse, and A. Vazacopoulos. Optimization in Medicine. In *Essays and Surveys on Global Optimization*, C. Audet and P. Hansen (eds.), pp. 211–232, 2005.
28. V. Boginski, S. Butenko, and P.M. Pardalos. Network-based Techniques in the Analysis of the Stock Market. In *Supply Chain and Finance*, P. M. Pardalos, et al. (eds.), World Scientific, pp. 1–14, 2004.
29. V. Boginski, S. Butenko, and P. M. Pardalos. Matrix-based Methods for College Football Rankings. In *Economics, Management and Optimization in Sports*, S. Butenko et al. (eds.), Springer, pp. 1-14, 2004.
30. V. Boginski, S. Butenko, P. M. Pardalos, and O. Prokopyev. Collaboration Networks in Sports. In *Economics, Management and Optimization in Sports*, S. Butenko et al. (eds.), Springer, pp. 265-277, 2004.
31. V. Boginski, S. Butenko, and P. M. Pardalos. On Structural Properties of the Market Graph. In *Innovations in Financial and Economic Networks*, A. Nagurney (ed.), Edward Elgar Publishers, pp. 28-45, 2003.
32. V. Boginski, S. Butenko, and P. M. Pardalos. Modeling and Optimization in Massive Graphs. In *Novel Approaches to Hard Discrete Optimization*, P.M. Pardalos and H. Wolkowitz (eds.), AMS, pp. 17-39, 2003.

- **Refereed Conference Proceedings**

33. A. Arulselvan, P. Mendoza, V. Boginski, and P.M. Pardalos. Predicting the Nexus between Post-Secondary Education Affordability and Student Success: An Application of Network-based Approaches. *Proceedings of International Conference on Advances in Social Network Analysis and Mining, IEEE Computer Society*, pp. 149-154, July 2009.
34. P. Xanthopoulos, A. Arulselvan, V. Boginski, and P.M. Pardalos. A Retrospective Review of Social Networks. *Proceedings of International Conference on Advances in Social Network Analysis and Mining, IEEE Computer Society*, pp. 300-305, July 2009.
35. V. Boginski, I. Mun, Y. Wu, K. Mason, and C. Zhang. Simulation and Analysis of Hospital Operations and Resource Utilization Using RFID Data. *Proceedings of IEEE International Conference on RFID*, pp. 199-204, Grapevine, TX, March 2007.

- **Edited Books**

- ◇ *Sensors: Theory, Algorithms, and Applications*, V. Boginski, C.W. Commander, P.M. Pardalos, and Y. Ye (eds.) Springer, ISBN: 0-387-88618-4, November 2011.
- ◇ *Data Mining in Biomedicine*, P.M. Pardalos, V. Boginski and A. Vazacopoulos (eds.) Springer, ISBN-10: 0-387-69318-1, February 2007.

Current and Past Externally Funded Projects

Total: \$3.1M; Boginski portion: \$1.4M

1. **V. Boginski** (PI). *AFRL/RW and UF-DOOR Partnership in Network Science*, \$194,497, Air Force Research Laboratory/Eglin AFB, 08/2012 - 12/2015.
2. S. Butenko (PI), B. Balasundaram (co-PI), and **V. Boginski** (co-PI). *Clique Relaxations in Biological and Social Network Analysis: Foundations and Algorithms*, \$452,942, Air Force Office of Scientific Research, 07/2012 - 06/2015.
3. **V. Boginski** (PI). *New Robustness Characteristics and Phase Transition Problems for Complex Networks in Dynamic and Uncertain Environments*, **Young Investigator Award**, \$399,881, U.S. Department of Defense/DTRA, 07/2009 - 12/2013.
4. B. Balasundaram (PI), **V. Boginski** (co-PI), S. Butenko (co-PI), and S. Uryasev (co-PI). *Robust Optimization for Connectivity and Flow Patterns in Dynamic Networks*, \$589,092, U.S. Department of Energy, 09/2009-09/2013.
5. **V. Boginski** (PI). *Reliability of Complex Networks under Uncertainty*, \$161,489 (total for three one-year tasks), Air Force Research Laboratory/Eglin AFB, 01/2009 - 09/2012.
6. DURIP: *Equipment for DoD-funded Large-scale Data Analysis and Network Optimization Projects at the University of Florida*, \$215,937 (with P.M. Pardalos and S. Uryasev), U.S. Department of Defense/AFOSR, 06/2010 - 06/2012.
7. J.R. Eyler (PI), B. Bendiak (co-PI), and **V. Boginski** (co-PI). *Differentiating Oligosaccharide Isomers via Infrared Spectra of Gaseous Ions*, \$440,000, National Science Foundation, 09/2007 - 08/2011.
8. S. Butenko (PI), **V. Boginski** (co-PI/ UF PI), and O. Prokopyev (co-PI/ UPitt PI). *Optimization Techniques for Clustering, Connectivity, and Flow Problems in Complex Networks*, \$349,952, Air Force Office of Scientific Research, 08/2008 - 08/2011.
9. **V. Boginski** (PI) and S. Uryasev (co-PI). *Dynamic Sensor Networks under Risk and Robustness Considerations*, \$65,743, Air Force Research Laboratory/Eglin AFB, 05/2009 - 05/2010.
10. P.M. Pardalos (PI), **V. Boginski** (co-PI), and S. Uryasev (co-PI). *Modeling and Optimization of Network Response to WMD Attacks Under Uncertainty*, \$219,016, U.S. Department of Defense/DTRA, 01/2009-05/2010.
11. **V. Boginski** (PI). *Asymptotic Behavior of Random Graph Models*, \$15,975, Air Force Research Laboratory/Eglin AFB, 04/2009 - 01/2010.
12. J.R. Rogacki (PI), **V. Boginski** (co-PI), and S.A. Heise (co-PI). *Development of New Capabilities in Training Skilled Workforce in the Area of Systems Engineering in Northwest Florida*, \$75,532, Florida's Great Northwest (federally funded by U.S. Department of Labor), 02/2009-12/2009.
13. **V. Boginski** (PI), J.R. Rogacki (co-PI), and S. Uryasev (co-PI). *Design of Sensor Networks*, \$51,317, Air Force Research Laboratory/Eglin AFB, 05/2008 - 07/2009.
14. **V. Boginski** (PI). *Studying the Impact of Social Factors on Stock Market Behavior Using Data Mining Techniques*, \$15,000, FSU Council on Research and Creativity, 05/2006-08/2006.

Invited Presentations

- ◇ *The Maximum Quasi-clique Problem*, 4th International Conference on the Dynamics of Information Systems, February 2012, Gainesville, FL.
- ◇ *Network Models for Clustering and Portfolio Selection in Financial Markets*, 61st Annual IIE Conference and Expo, May 2011, Reno, NV.
- ◇ *Robustness and Vulnerability of Connected Clusters in Complex Networks*, INFORMS Northeast Regional Conference, May 2011, Amherst, MA.

- ◇ *Finding Quasi-Cliques in Networks*, INFORMS Northeast Regional Conference, May 2011, Amherst, MA.
- ◇ *Analysis and Design of Low-Diameter Attack-Tolerant Clusters in Complex Networks*, 3rd International Conference on the Dynamics of Information Systems, February 2011, Gainesville, FL.
- ◇ *Computational Risk Management Techniques for Fixed Charge Network Flow Problems with Uncertain Arc Disruptions*, INFORMS meeting, November 2010, Austin, TX.
- ◇ *Robust Performance of Networked Systems in Adverse and Uncertain Environments*, Invited speaker for the research seminar at School of Computing, Informatics, and Decision Systems Engineering, Arizona State University, March 2010, Tempe, AZ.
- ◇ *Asymptotic Behavior and Phase Transitions for Clique Relaxations in Random Graphs*, 2nd International Conference on the Dynamics of Information Systems, February 2010, Destin, FL.
- ◇ *Diagnosis of Wegener's Granulomatosis Using Predictive Modeling Techniques*, INFORMS meeting, October 2009, San Diego, CA.
- ◇ *Connectivity and Flow Problems on Networks under Uncertainty and Robustness Considerations*, 20th International Symposium on Mathematical Programming, August 2009, Chicago, IL.
- ◇ *Identifying Critical Nodes in Protein-Protein Interaction Networks*, INFORMS meeting, October 2008, Washington, DC.
- ◇ *Optimization and Data Mining Issues in Robust Performance of Networked Systems in Uncertain Environments*, Invited speaker for the lecture series at Florida Institute for Human and Machine Cognition (IHMC), October 2008, Pensacola, FL.
- ◇ *Solving Network Flow Problems Under Uncertainty*, Conference "Sensors 2008: Theory, Algorithms and Applications", April 2008, Shalimar, FL.
- ◇ *Distinguishing Disaccharides Using Dissociation Spectra via Predictive Modeling Techniques*, Conference on Data Mining, Systems Analysis, and Optimization in Biomedicine, March 2007, Gainesville, FL.
- ◇ *Simulation and Analysis of Hospital Operations and Resource Utilization Using RFID Data*, IEEE International Conference on RFID, March 2007, Grapevine, TX.
- ◇ *Network-Based Approaches for Mining Financial Data*, International Conference on Financial Engineering, March 2006, Gainesville, FL.
- ◇ *Clustering Stocks Using Network Models*, INFORMS meeting, November 2005, San Francisco, CA.
- ◇ *Analysis of Stock Market Data Using Network-Based Approaches*, INFORMS meeting, October 2004, Denver, CO.
- ◇ *Network-based Techniques in EEG Data Analysis and Epileptic Brain Modeling*, INFORMS meeting, October 2004, Denver, CO.
- ◇ *Network-based Approaches to the Analysis of Financial Data*, SIAM Student Workshop (sponsored by NSF), March 2004, Gainesville, FL.
- ◇ *On Structural Properties of the Market Graph*, INFORMS meeting, October 2003, Atlanta, GA.
- ◇ *Optimization in Data Mining*, Dash Optimization, Inc. Users Meeting, October 2003, San Francisco, CA.
- ◇ *Collaboration Networks in Sports*, Congreso Mundial de Optimizacion Social y Gestion Economica del Deporte, May 2003, Barcelona, Spain.

Externally Funded Conferences Co-Organized

- ◇ *2nd International Conference on the Dynamics of Information Systems*, funded by AFRL/AFOSR, 02/03/2010–02/05/2010, Destin, FL.
- ◇ *Conference on Engineering Risk Control and Optimization*, funded by AFRL/AFOSR, 02/22/2009–02/23/2009, Gainesville, FL.
- ◇ *Conference “Sensors 2008: Theory, Algorithms and Applications”*, funded by AFRL/AFOSR, 04/24/2008–04/26/2008, Shalimar, FL.

Other Professional Service Activities

- ◇ Associate Editor, *Optimization Letters*.
- ◇ Reviewer for *Annals of Operations Research*, *Computational Management Science*, *Computational Optimization and Applications*, *Computers & Industrial Engineering*, *Energy Systems*, *European Journal of Operational Research*, *INFORMS Journal on Computing*, *Journal of Combinatorial Optimization*, *Journal of Global Optimization*, *Journal of Heuristics*, *Hydrological Processes*, *Networks*, *Optimization Letters*, *Quantitative Finance*, *Transactions on Information Technology in BioMedicine*.
- ◇ Panelist, NSF (2008, 2009, 2010, 2012), DOE (2009, 2011), ASEE (Jan 2011, Feb 2011).
- ◇ Organizer/Chair of invited session “Modeling and Optimization Techniques for Network Robustness”, INFORMS meeting, October 2012, Phoenix, AZ.
- ◇ Organizer/Chair of invited session “Optimization Models for Network Robustness”, INFORMS meeting, November 2011, Charlotte, NC.
- ◇ Program Committee member, 10th International Symposium on Experimental Algorithms (SEA 2011), May 5-7, 2011, Chania, Greece.
- ◇ Program Committee member, 4th Annual International Conference on Combinatorial Optimization and Applications (COCOAA’10), December 18-20, 2010, The Big Island, Hawaii.
- ◇ International Program Committee member, 6th International Conference on Computational Management Science, May 1-3, 2009, Geneva, Switzerland.
- ◇ Session Chair, “Data Mining Applications”, INFORMS meeting, November 4–7, 2007, Seattle, WA.
- ◇ Advisory Committee member, Conference on Systems Analysis, Data Mining and Optimization in Biomedicine, March 28–30, 2007, Gainesville, FL.
- ◇ Organizing Committee member, International Conference on Applied Optimization and Metaheuristic Innovations, July 19-21, 2006, Yalta, Ukraine.
- ◇ Advisory Board member, International Conference on Computational Management Science, May 17-19, 2006, Amsterdam, the Netherlands.
- ◇ Advisory Board member, International Conference on Computational Management Science, March 31–April 3, 2005, Gainesville, FL.
- ◇ Organizing Committee member, Conference on Systems Analysis, Data Mining and Optimization in Biomedicine, February 2–4, 2005, Gainesville, FL.
- ◇ Organizer/Chair of invited session “Data Mining in Biomedicine”, INFORMS meeting, October 2004, Denver, CO.
- ◇ Organizing Committee member, Conference on Data Mining in Biomedicine, February 16–18, 2004, Gainesville, FL.

Graduate Student Committees

– PhD Committee Chair/Co-Chair

- ◇ Grigory Pastukhov, PhD, ISE (Chair, in progress)
- ◇ Oleg Shirokikh, PhD, ISE (Chair, in progress)
- ◇ Vladimir Stozhkov, PhD, ISE (Chair, in progress)
- ◇ Alexey Sorokin, PhD, ISE (Co-Chair, graduated in 2012)
- ◇ Alexander Veremyev, PhD, ISE (Co-Chair, graduated in 2011)

– MS Thesis Option Committee Chair

- ◇ Emmanuel Cao, MS, ISE (graduated in 2011)
- ◇ John R. Stripling, MS, ISE (graduated in 2010)

– PhD Committee Member

- ◇ Vijay Pappu, PhD, ISE (in progress)
- ◇ Dmytro Korenkevych, PhD, ISE (in progress)
- ◇ Hongsheng Xu, PhD, ISE (graduated in 2012)
- ◇ Konstantin Kalinchenko, PhD, ISE (graduated in 2012)
- ◇ Nikita Boyko, PhD, ISE (graduated in 2010)
- ◇ Qipeng “Phil” Zheng, PhD, ISE (graduated in 2010)
- ◇ Alla Kammerdiner, PhD, ISE (graduated in 2008)

– PhD Committee External Member

- ◇ Nitin Chandola, PhD, MAE (in progress)
- ◇ Ryan Carter, PhD, MAE (graduated in 2012)
- ◇ Bradley Martin, PhD, MAE (graduated in 2011)
- ◇ Joel Stewart, PhD, MAE (graduated in 2009)
- ◇ Michael Nixon, PhD, MAE (graduated in 2008)

– MS Non-Thesis Option Committee Chair

- ◇ Committee chair for over 30 graduated MS students – non-thesis option (REEF/ISE)

Postdocs and Research Faculty Supervised

- ◇ Dr. Foad Mahdavi Pajouh (Research faculty, Fall 2012 - present)
- ◇ Dr. Alexander Veremyev (Research faculty, Summer 2011 - Summer 2012)
- ◇ Dr. Alla Kammerdiner (Postdoctoral researcher, Fall 2009)

Courses Taught

- ◇ ESI 6314 Deterministic Methods in Operations Research (UF, Fall 2007, Fall 2008, Fall 2009, Fall 2010, Fall 2011, Fall 2012)
- ◇ ESI 6553 Systems Design (UF, Spring 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012)
- ◇ ESI 6912 Data Mining for Engineers (UF, Spring 2009, Spring 2010)
- ◇ ESI 6552 Systems Architecture (UF, Summer 2008)
- ◇ ESI 4567C Matrix and Numerical Methods in Systems Engineering (UF, Summer 2004, Fall 2004, Spring 2005)
- ◇ ESI 3312 Operations Research I (FAMU/FSU, Fall 2005, Fall 2006)
- ◇ EIN 5930 Data Mining and Operations Research Techniques (FAMU/FSU, Fall 2005, Fall 2006)
- ◇ EIN 5930 Heuristic Optimization in Engineering (FAMU/FSU, Spring 2006, Spring 2007)