

Curriculum Vitae

Dr. Vladimir L. Boginski

University of Florida

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Professional Preparation

- ◇ **Ph.D. in Industrial and Systems Engineering (concentration in Operations Research)**, 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
Moscow Institute of Physics and Technology, Moscow, Russia
Honor of Excellence Diploma

Appointments

- ◇ Visiting 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, Shalimar, FL, August 2007 – present
- ◇ Assistant Professor, Department of Industrial Engineering, FAMU-FSU College of Engineering, Tallahassee, FL, 2005 – 2007
- ◇ Instructor, Department of Industrial & Systems Engineering, University of Florida, Gainesville, FL, 2004 – 2005
- ◇ Research/Teaching Assistant, Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL, 2001 – 2005
- ◇ Intern, Dash Optimization, Inc., Englewood Cliffs, NJ, June–August 2003

Externally Funded Projects

Summary of awarded/confirmed funding (**10 projects** since the start of UF-REEF appointment in 08/2007):
Total value: **\$2,103,322**; Boginski portion: **\$811,849**

1. **V. Boginski** (PI). *New Robustness Characteristics and Phase Transition Problems for Complex Networks in Dynamic and Uncertain Environments*, **Young Investigator Award, \$200,000**, U.S. Department of Defense/DTRA, 07/2009 - 07/2011
2. **V. Boginski** (PI) and S. Uryasev (co-PI). *Dynamic Sensor Networks under Risk and Robustness Considerations*, **\$57,530**, U.S. Department of the Air Force, 05/2009 - 05/2010.
3. **V. Boginski** (PI). *Reliability Characteristics of Complex Networks*, **\$105,000**, U.S. Department of the Air Force, 01/2009 - 01/2012 (\$35,000/year, first year funded, to be renewed each year).
4. B. Balasundaram (PI), **V. Boginski** (UF PI), S. Butenko, S. Uryasev, C. Commander. *Robust Optimization for Connectivity and Flow Patterns in Dynamic Networks*, **\$589,092** (UF Portion **\$222,489**), U.S. Department of Energy, 09/2009-09/2012.
5. S. Butenko (PI), **V. Boginski** (UF PI), and O. Prokopyev (UPitt PI). *Optimization Techniques for Clustering, Connectivity, and Flow Problems in Complex Networks*, **\$349,952**, Air Force Office of Scientific Research, 09/2008 - 08/2011.

6. 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 - 08/2010.
7. 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, 01/2009-03/2010.
8. **V. Boginski** (PI). *Asymptotic Behavior of Random Graph Models*, **\$15,975**, U.S. Department of the Air Force, 04/2009 - 01/2010.
9. 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.
10. **V. Boginski** (PI), J.R. Rogacki (co-PI), and S. Uryasev (co-PI). *Design of Sensor Networks*, **\$51,317**, U.S. Department of the Air Force, 05/2008 - 07/2009.
11. **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.

Funding Details by Project Role and Fiscal Year (Boginski Portion, Direct + Indirect Costs)

Role	FY 08	FY 09	FY 10	FY 11	Total
Overall PI	45,886	91,132	135,000	135,000	407,018
UF PI (for multi-institution grants)	0	87,292	91,859	96,079	275,230
Co-PI	15,503	44,941	69,157	0	129,601
	61,389	224,320	296,016	231,079	811,849

Current Research Interests

- ◇ Network-based modeling of complex systems and massive datasets
- ◇ Robust optimization/risk management techniques for complex networks in uncertain environments
- ◇ Operations research/optimization-based techniques in data mining
- ◇ Random graph models and related theoretical phase transition problems
- ◇ Interdisciplinary applications in military systems, health care, chemistry, and finance

Publications

• **Refereed Journal Articles and Book Chapters**

1. 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.
2. V. Boginski and C.W. Commander. Identifying Critical Nodes in Protein-Protein Interaction Networks. In: S. Butenko, W.A. Chaovalitwongse, and P.M. Pardalos (eds.), *Clustering Challenges in Biological Networks*, pp. 153–167, World Scientific, 2009.
3. N. Boyko, T. Turko, V. Boginski, D.E. Jeffcoat, S. Uryasev, P.M. Pardalos. Robust Multi-Sensor Scheduling for Multi-Site Surveillance. *Journal of Combinatorial Optimization*, to appear, 2009.
4. A. Sorokin, N. Boyko, V. Boginski, S. Uryasev, P.M. Pardalos. Mathematical Programming Techniques for Sensor Networks, *Algorithms*, 2: 565-581, 2009.
5. A. Arulselvan, G. Baourakis, V. Boginski, E. Korchina, P.M. Pardalos. Analysis of Food Industry Market using Network Approaches. *British Food Journal*, 110(9): 916–928, 2008.

6. O. A. Prokopyev, V. Boginski, W. Chaovalitwongse, P.M. Pardalos, J.C. Sackellares, P.R. Carney. Network-based Techniques in EEG Data Analysis and Epileptic Brain Modeling, In: *Data Mining in Biomedicine*, P.M. Pardalos, V. Boginski and A. Vazacopoulos (eds.), 559–573, Springer, 2007.
 7. W. Chaovalitwongse, 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, V. Boginski and A. Vazacopoulos (eds.), pp. 459–481, Springer, 2007.
 8. 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 C&OR by ScienceDirect during 01-09/06**).
 9. 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.
 10. 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 CSDA by ScienceDirect during 10/04-03/05**).
 11. V. Boginski, S. Butenko, and P. M. Pardalos. Analytic approaches to college football rankings. *Research Quarterly for Exercise and Sport*, Suppl. S, 76(1): A13-A13, 2005.
 12. 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.
 13. P.M. Pardalos, V. Boginski, O. Prokopyev, W. Suharitdamrong, P.R. Carney, W. Chaowalitwongse, A. Vazacopoulos. Optimization in Medicine. In: *Essays and Surveys on Global Optimization*, C. Audet and P. Hansen (eds.), pp. 211–232, 2005.
 14. V. Boginski, S. Butenko, and P. M. Pardalos. Network Models of Massive Datasets. *Computer Science and Information Systems*, 1: 75–89, 2004.
 15. 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, A. Migdalas, G. Baourakis (eds.), World Scientific, pp. 1–14, 2004.
 16. V. Boginski, S. Butenko and P. M. Pardalos. Matrix-based Methods for College Football Rankings. In: *Economics, Management and Optimization in Sports*, S. Butenko, J. Gil-Lafuente, P. Pardalos (eds.), Springer, pp. 1-14, 2004.
 17. V. Boginski, S. Butenko, P. M. Pardalos and O. Prokopyev. Collaboration Networks in Sports. In: *Economics, Management and Optimization in Sports*, S. Butenko, J. Gil-Lafuente, P. Pardalos (eds.), Springer, pp. 265-277, 2004.
 18. 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.
 19. 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**
20. 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.
 21. A. Arulsevan, P. Mendoza, V. Boginski, and P.M. Pardalos. Predicting the Nexus between Post-Secondary Education Affordability and Student Success: An Application of Network-based Ap-

proaches. *Proceedings of International Conference on Advances in Social Network Analysis and Mining, IEEE Computer Society*, pp. 149-154, July 2009.

22. 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.

- **Articles Submitted/To Be Submitted to Refereed Journals**

23. V. Boginski, S. Butenko, S. Trukhanov. Clustering and Portfolio Selection via Identifying Weighted k -plexes in Financial Networks. Submitted, 2009.
24. M. Banghart, V. Boginski, C.W. Commander, E.L. Pasiliao. Predictive Modeling Techniques for Ladar Image Data. Submitted, 2009.
25. S. Stefan, V. Boginski, A. Aksenov, B. Bendiak, J.R. Eyler. Application of Data Mining Techniques to Differentiate Glucose-containing Disaccharides Fragmented via Infrared Multiple Photon Dissociation by Tunable Lasers and Fourier Transform Ion Cyclotron Resonance Mass Spectrometry. Submitted, 2009.
26. A. Veremyev, V. Boginski, P. Krokhmal, D. Jeffcoat. On Asymptotic Behavior of Cliques Relaxations in Random Graphs, to be submitted, 2009.
27. V. Boginski and C.W. Commander. Identification of Critical Nodes in Networks Under Uncertainty, to be submitted, 2009.
28. V. Boginski, S. Butenko, O. Ursulenko. 2-club Clustering Approaches and Routing in Wireless Networks, to be submitted, 2009.
29. B. Balasundaram, V. Boginski, S. Butenko. Robust Network Design via Solving k -core Problems Under Uncertainty, to be submitted, 2009.
30. A. Shah, C.W. Commander, V. Boginski, D. Albert. Diagnosis of Wegener's Granulomatosis via Smooth Support Vector Machines, to be submitted, 2009.

- **Edited Books**

1. *Sensors: Theory, Algorithms, and Applications*, V. Boginski, C.W. Commander, P.M. Pardalos, and Y. Ye (eds.) Springer, to appear in 2009.
2. *Data Mining in Biomedicine*, P.M. Pardalos, V. Boginski and A. Vazacopoulos (eds.) Springer, ISBN-10: 0-387-69318-1, February 2007.

Invited Presentations

- ◇ *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*, 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

- ◇ *Conference on Engineering Risk Control and Optimization*, funded by AFOSR, 02/22/2009–02/23/2009, Gainesville, FL.
- ◇ *Conference “Sensors 2008: Theory, Algorithms and Applications”*, funded by AFOSR, 04/24/2008–04/26/2008, Shalimar, FL.

Other Professional Service Activities

- ◇ Associate Editor, *Optimization Letters*.
- ◇ Reviewer for *Journal of Heuristics*, *Journal of Combinatorial Optimization*, *Journal of Global Optimization*, *Computational Management Science*, *Optimization Letters*, *Quantitative Finance*, *Computers & Industrial Engineering*, *Hydrological Processes*.
- ◇ Panelist, NSF (2008, 2009), DOE (2009).
- ◇ Co-Organizer, 2nd International Conference on the Dynamics of Information Systems, February 3-5, 2010, Destin, FL.
- ◇ 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 of the 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.

Miscellaneous Awards and Honors

- ◇ Marquis Who’s Who, 2007
- ◇ Nomination for the Future Academician Colloquium at INFORMS meeting, 10/2004, Denver, CO.
- ◇ Supplemental Scholarship Award for Excellent Record of Academic Performance, Industrial and Systems Engineering Dept., University of Florida, Spring 2004.
- ◇ Outstanding Teaching Assistant Award, Industrial and Systems Engineering Dept., University of Florida, Fall 2003.
- ◇ Certificate of Achievement for Outstanding Academic Accomplishments, University of Florida, Spring 2004, Spring 2003, Spring 2002.

Graduate Student Supervision

- ◇ Alexey Sorokin, ISE (Co-advisor, PhD, in progress)
- ◇ Nikita Boyko, ISE (Committee member, PhD, in progress)
- ◇ Qipeng “Phil” Zheng, ISE (Committee member, PhD, in progress)
- ◇ Michael Sytsma, MAE (External committee member, PhD, in progress)
- ◇ Joel Stuart, MAE (External committee member, PhD, graduated in 2009)
- ◇ Alla Kammerdiner, ISE (Committee member, PhD, graduated in 2008)
- ◇ Michael Nixon, MAE (External committee member, PhD, graduated in 2008)
- ◇ Committee chair for over 20 graduated MS students (REEF/ISE)

Courses Taught

- ◇ ESI 6314 Deterministic Methods in Operations Research (UF, Fall 2007, Fall 2008, Fall 2009)
- ◇ ESI 6912 Data Mining for Engineers (UF, Spring 2009)
- ◇ ESI 6553 Systems Design (UF, Spring 2008, Spring 2009)
- ◇ ESI 6552 Systems Architecture (UF, Summer 2008)
- ◇ STA 6326 Introduction to Theoretical Statistics I (UF, Fall 2007)
- ◇ 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)