

# ONUR ŞEREF

## Contact Information

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## Personal Data

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**Date of Birth** : 12/08/1975  
**Place of Birth** : Adana / TURKEY  
**Citizenship** : U.S.A and TURKEY  
**Marital Status** : Married, two children

## Education

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### **Ph.D. Degree in Operations Research (August 2001 - December 2006)**

*University of Florida, Gainesville, FL*

Dissertation Title: New Optimization Methods and Applications in Kernel Based Machine Learning

Dissertation Advisor: Dr. Panos M. Pardalos

### **M.S. Degree in Industrial Engineering (September 1998 - July 2001)**

*Middle East Technical University, Ankara, Turkey*

Thesis Title: A Monte-Carlo Simulation Model for Land Combat

Thesis Advisor: Dr. Levent Kandiller

### **B.S. Degree in Industrial Engineering (September 1994 - June 1998)**

*Middle East Technical University, Ankara, Turkey*

## Appointments

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### **Associate Professor**

Department of Business Information Technology, Virginia Tech, Blacksburg, VA  
(August 2015 - present)

### **Assistant Professor**

Department of Business Information Technology, Virginia Tech, Blacksburg, VA  
(August 2008 – July 2015)

### **Adjunct Assistant Professor**

Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL  
(January 2007 - June 2008)

### **Graduate Assistant**

Department of Industrial and Systems Engineering, University of Florida, Gainesville, FL  
(August 2001 - December 2006)

Informatics Institute, Middle East Technical University, Ankara, Turkey  
(July 1998 - July 2001)

## Teaching

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### Applied Business Intelligence and Analytics (BIT 5534)

Spring 2017, Fall 2017, Fall 2018, Fall 2019, Fall 2020, Fall 2021, Fall 2022.

### Advanced Business Computing and Applications (BIT 3444)

Spring 2015, Spring 2016, Fall 2016, Spring 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Fall 2020, Spring 2021, Fall 2021, Spring 2022, Fall 2022.

### Advanced Modeling for Business Analytics (BIT 3434)

Fall 2014, Fall 2015

### Introduction to Business Analytics Modeling (BIT 3424)

Fall 2011, Fall 2013, Fall 2014

### Quantitative Methods I (BIT 2405)

Fall 2009, Fall 2010, Fall 2011, Fall 2012, Fall 2013, Summer 2016

### Quantitative Methods II (BIT 2406)

Fall 2008, Spring 2009, Spring 2010, Spring 2011, Spring 2012, Fall 2012, Spring 2013, Spring 2014, Summer 2016, Fall 2017, Summer 2018, Summer 2019, Summer 2020, Summer 2021, Summer 2022.

## Publications

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### Refereed Journal Articles

- Şeref, M. M. H., **O. Şeref**, A. Abrahams, S. Hill, Q. Warnick. 2023. "Rhetoric Mining: A New Text Analytics Approach for Quantifying Persuasion," *INFORMS Journal of Data Science*, 2 (1). 24 – 44.
- Li Y., C. Zobel, **O. Şeref**, D. Chatfield. 2020. "Network characteristics and supply chain resilience under conditions of risk propagation," *International Journal of Production Economics*, 223, 107529.
- Panagopoulos, O. P. Xanthopoulos, T. Razzaghi, **O. Şeref**. 2019. "Relaxed support vector regression," *Annals of Operations Research*, 276 (1-2). 191 – 210.
- Chaovalitwongse, W. A., D. Won, **O. Şeref**, P. Borghesani, M. K. Askren, S. L. Willis, T. J. Graboswki. 2017. "Network optimization of functional connectivity within default mode network regions to detect cognitive decline," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, 25 (7). 1079 – 1089.
- Şeref, O.**, T. Razzaghi, P. Xanthopoulos. 2017. "Weighted relaxed support vectors machines," *Annals of Operations Research*, 249 (1-2). 235 – 271.
- Razzaghi, T., P. Xanthopoulos, **O. Şeref**. 2017. "Constraint relaxation, cost-sensitive learning and bagging for imbalanced classification problems with outliers," *Optimization Letters*, 11 (5), 915 – 928.
- Şeref, O.**, J. P. Brooks, B. Huang, S. S. Fong. 2016. "Enumeration and Cartesian product decomposition of alternate optimal fluxes in cellular metabolism," *INFORMS Journal on Computing*, 29 (2), 197 – 210.
- Şeref, M. M. H. **O. Şeref**, A. Alptekinoglu, S. S. Erenguc. 2016. "Advance selling to strategic consumers," *Computational Management Science*, 13 (4), 597 – 626.
- Şeref, O.**, Y.-J. Fan, E. Borenstein, W. A. Chaovalitwongse. 2014. "Information-theoretic feature selection with discrete k-median clustering," *Annals of Operations Research*, (published online April 9).
- Şeref, O.**, Y.-J. Fan, W. A. Chaovalitwongse. 2014. "Mathematical programming formulations and algorithms for discrete k-median clustering with time series data," *INFORMS Journal on Computing*, 26 (1), 160 – 172.
- Şeref, O.**, W. A. Chaovalitwongse, J. P. Brooks. 2014. "Relaxing support vectors for classification," *Annals of Operations Research*, 216 (1), 229 – 255.
- Şeref, O.**, J. P. Brooks, S. S. Fong. 2013. "Decomposition of flux distributions into metabolic pathways," *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 10 (4), 984 – 993.

13. **Şeref, O.**, C. Zobel. 2013. "Recursive voids for identifying a nonconvex boundary of a set of points in the plane," *Pattern Recognition*, 46 (12), 3288 – 3299.
14. Kundakçioğlu, O. E., **O. Şeref**, P. M. Pardalos. 2010. "Multiple-instance learning via margin maximization," *Applied Numerical Mathematics*, 60 (4): 358-369.
15. **Şeref, O.**, R. K. Ahuja, J. B. Orlin. 2009. "Incremental network optimization: theory and algorithms," *Operations Research*, 57 (3): 586-594.
16. **Şeref, O.**, O. E. Kundakçioğlu, O. A. Prokopyev, P. M. Pardalos. 2009. "Selective support vector machines," *Journal of Combinatorial Optimization* 17 (1), 3-20.
17. Cifarelli, C., M. R. Guarracino, **O. Şeref**, S. Cuciniello, P. M. Pardalos. 2007. "Incremental classification with generalized eigenvalues," *Journal of Classification*, 24 (2), 205-219.
18. Guarracino, M. R., C. Cifarelli, **O. Şeref**, P. M. Pardalos. 2007. "A classification method based on generalized eigenvalue problems," *Optimization Methods and Software*, 22 (1), 73-81.
19. Cifarelli, C., N. Nieddu, **O. Şeref**, P. M. Pardalos. 2007. "K-T.R.A.C.E: A kernel k-means procedure for classification," *Computers and Operations Research*, 34 (10), 3154-3161.

### Under Review and Working Papers

1. "Exact solution approaches for the k-cardinality tree problem," with D. Won and W. A. Chaovalitwongse (submitted to *Journal of Combinatorial Optimization*).
2. "Studies of SARS-Cov2 virus and its impact in health," with C. Finkielstein, A. Ceci, C. Alasdair, and M. Helmick.
3. "Social media platforms from a decision science lens: A data-driven taxonomy" with D. I. Eroglu and M. M. H. Şeref.
4. "When the views change: A mixed-methods approach to analyze persuasive communication on Reddit" with D. I. Eroglu and M. M. H. Şeref.
5. "Towards civilized digital spaces: Analyzing effect of news media platforms on conversation toxicity" with D. I. Eroglu.
6. "Context maps: a graph-based framework for visualizing the landscape of consumer reviews" with S. Hong and M. M. H. Şeref.
7. "Measuring resilience from pre- and post-COVID emergency declarations" with C. Zobel and M. M. H. Şeref.
8. "A Sentence-based Text Analytic Framework for Understanding Customer Feedback" with S. Hong and M. M. H. Şeref.

### Refereed Conference Proceedings

1. Eroglu, D. I., **O. Şeref**, M.M.H. Şeref. 2021 . "Changing Views: Pre-suasion in a Reddit Discussion Community," *Proceedings of the Americas Conference on Information Systems 2021 (AMCIS)*.
2. **Şeref, O.**, M.M.H. Şeref, S. Hong. 2020. "Context map analysis of fake news in social media: a contextualized visualization approach," *Proceedings of the 54rd Hawaii International Conference on System Sciences (HICSS)*, 2440-2448.
3. M.M.H. Şeref, **O. Şeref**. 2019. "Rhetoric mining for fake news: identifying moves of persuasion and disinformation," *Proceedings of the Americas Conference on Information Systems 2019 (AMCIS)*.
4. **Şeref, O.**, and O. E. Kundakçioğlu. 2008. "Multiple instance classification with relaxed support vector machines," *Proceedings of the 3rd INFORMS Workshop on Data Mining and Health Informatics*, J. Li, D. Aleman, and R. Sikora, (Eds).

5. **Şeref, O.**, and O. E. Kundakçioğlu. 2008. "Multiple instance classification with relaxed support vector machines," *Proceedings of the 3rd INFORMS Workshop on Data Mining and Health Informatics*, J. Li, D. Aleman, and R. Sikora, (Eds).
6. **Şeref, O.**, C. Cifarelli, O. E. Kundakçioğlu, P. M. Pardalos, and M. Ding. 2007. "Detecting categorical discrimination in a visuomotor task using selective support vector machines," *Proceedings of the 2007 International Conference on Bioinformatics & Computational Biology (BIOCOMP)*, H. R. Arabnia, M. Q. Yang, and J. Y. Yang, (Eds), 580-587.
7. **Şeref, O.** and M. R. Guarracino. 2007. "Selective generalized eigenvalue classification," *Proceedings of the 2nd INFORMS Workshop on Artificial Intelligence and Data Mining*, A. Agrawal and W. Jiang, (Eds).
8. Guarracino, M. R., C. Cifarelli, **O. Şeref**, P. M. Pardalos. 2006. "A parallel classification method for genomic and proteomic problems," *Proceedings of the 20th International Conference on Advanced Information Networking and Applications (AINA)*, Vol. 2, 588-592.
9. **Şeref, O.**, L. Kandiller, N. E. Özdemirel. 2002. "A Monte Carlo simulation tool for land combat," *Proceedings of the 30th International Conference of Computers and Industrial Engineering (CIE)*, C. Papadopoulos and E. Triantaphyllou (Eds), Ziti, 785-790.

### Edited Books and Journal Special Issues

1. **Şeref, O.**, P. Xanthopoulos. 2009. "Special issue on data mining in biomedicine," *Journal of Combinatorial Optimization*, 17 (1), 1-2.
2. Chaovalitwongse, W. A., **O. Şeref**. 2008. "Special issue on combinatorial optimization in data mining", *Journal of Combinatorial Optimization*, 15 (3), 223-224.
3. **Şeref, O.**, O. E. Kundakçioğlu, P. M. Pardalos, Editors. 2007. *Data Mining Systems Analysis and Optimization in Biomedicine*, co-Editors, American Institute of Physics.

### Refereed Book Chapters

1. **Şeref, O.**, W. A. Chaovalitwongse. 2012. "Clustering time series data with distance matrices," *Workshop on Optimization and Data Analysis in Biomedical Informatics*, Pardalos, P.M., Coleman T. F., Xanthopoulos (Eds.), Fields Institute Communications, Springer, 41-66.
2. **Şeref, O.**, 2012. "Selective support vector machines," *Wiley Encyclopedia of Operations Research and Management Science*, J. J. Cochran, L. A. Cox, P. Keskinocak, J. P. Kharoufeh, and J. C. Smith (Eds.), John Wiley & Sons, Inc.
3. Chaovalitwongse, W. A., S. Wang and **O. Şeref**. 2010. "Operations research in data mining," *Wiley Encyclopedia of Operations Research and Management Science*, J. J. Cochran, L. A. Cox, P. Keskinocak, J. P. Kharoufeh, and J. C. Smith (Eds.), John Wiley & Sons, Inc.
4. Mucherino A. and **O. Şeref**. 2009. "Modeling and solving real-life global optimization problems with meta-heuristic methods," *Advances in Modeling Agricultural Systems*, ser. Springer Optimization and its Applications, Vol. 25, P. J. Papajorgji and P. M. Pardalos (Eds.), Springer, 406-419.
5. **Şeref, O.**, O. E. Kundakçioğlu, and P. M. Pardalos. 2008. "Selective linear and nonlinear classification," *Data Mining and Mathematical Programming*, ser. CRM Proceedings and Lecture Notes, P. M. Pardalos and P. Hansen, (Eds.), vol. 45, American Mathematical Society, 211-234.
6. **Şeref, O.**, O. E. Kundakçioğlu, and M. Bewernitz. 2008. "Support vector machines in neuroscience," *Encyclopedia of Healthcare Information Systems*, N. Wickramasinghe and E. Geisler, (Eds), IDEA Group Inc., 1283-1293.
7. Mucherino, A., **O. Şeref**. 2007. "Monkey search: A novel meta-heuristic search for global optimization," *Data Mining, Systems Analysis and Optimization in Biomedicine*, O. Şeref, O. E. Kundakçioğlu, P. M. Pardalos, (Eds), American Institute of Physics, 162-173.
8. Bewernitz, M., G. Ghacibeh, **O. Şeref**, P. M. Pardalos, C. Liu, B. Uthman. 2007. "Quantification of the impact of vagus nerve stimulation parameters on electroencephalographic measures," *Data Mining, Systems Analysis and*

*Optimization in Biomedicine*, O. Şeref, O. E. Kundakçioğlu, P. M. Pardalos, (Eds.), American Institute of Physics, 206-219.

## **Professional Service**

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- Editor, Engineering Applications of Artificial Intelligence, May 2021 – present.
- Committee member, 2022 INFORMS Data Mining Student Track and General Track Best Paper Competition Judging Committee, Oct. 2022.
- Committee member, CIST 2022 Program Committee, May 2022 – Oct. 2022.
- Organizer of the “Data Analytics in Social Media Platforms and Information Systems” session, *INFORMS Annual Meeting*, Indianapolis, IN, Oct. 16 - 19, 2012.
- Committee member, 2022 Franz Edelman Award, Oct. 2021 – Apr. 2022.
- Committee member, 2021 INFORMS Data Mining General Track Best Paper Competition Judging Committee, Oct. 2021.
- Committee member, 2021 Franz Edelman Award, Oct. 2020 – Apr. 2021.
- Organizer of the “Text Analytics and Visualization” session, *Virtual INFORMS Annual Meeting*, Nov. 7 - 13, 2020
- Organizer of the “Text Analytics in Data Science” session, *INFORMS Annual Meeting*, Seattle, WA, Oct. 20 - 23, 2019
- Coordinator for the Data Mining Section, *INFORMS Journal of Decision Science Proposal*, Jan. 2018 – Jul. 2019.
- Organizer of the “Deep Learning in Text Mining and Analytics” session, *INFORMS Annual Meeting*, Phoenix, AZ, Nov. 4 - 7, 2018
- Chair, *INFORMS Data Mining Section*, Nov. 2016 – Oct. 2017
- Vice-Chair, *INFORMS Data Mining Section*, Nov. 2015 – Nov. 2016
- Chair, Data Mining Cluster, *2016 INFORMS Annual Meeting*, Nashville, TN, Nov. 13-16, 2016.
- Organizer of the “Data Mining in Text Analytics” session, *INFORMS Annual Meeting*, Nashville, PA, Nov. 13-16, 2016.
- Organizer of the “Text Mining in Big Data” session, *INFORMS Annual Meeting*, Philadelphia, PA, Nov. 1 - 4, 2015.
- Chair, Data Mining Track, *2015 INFORMS Computing Society Conference*, Richmond, VA, Jan. 11-13, 2015.
- Council Member, *INFORMS Data Mining Section*, 2012 – 2014.
- Chair of the *INFORMS 2014 Data Mining Best Student Paper Award*, San Francisco, CA, Nov 9-12, 2014.
- Organizer of the “Predictive Models in Data Mining” and “Social Media and Network Analysis in Data Mining” sessions, *INFORMS Annual Meeting*, San Francisco, CA, Nov 9-12, 2014.
- Organizer of the “Data Mining via Pattern Analysis and Recognition” session, *20th Conference of the International Federation of Operational Research Societies (IFORS)*, Barcelona, Spain, Jul 13-18, 2014.
- Program Committee Member of the *16th International Conference on Electronic Commerce*, Philadelphia, PA, Aug. 5-6, 2014.
- Chair of the *8th INFORMS Workshop on Data Mining and Health Informatics*, Minneapolis, MN, Oct. 5, 2013.
- Program Committee Member of the *5th Workshop on Optimization for Machine Learning*, Lake Tahoe, Nevada, Dec. 8, 2012.
- Organizer of the “Optimization in Data Mining” and “Mining Time Series Data” sessions, *INFORMS Annual Meeting*, Phoenix, AZ, Oct. 14-17, 2012.
- Program Committee Member of the *4th Workshop on Optimization for Machine Learning*, Sierra, Nevada, Dec. 16, 2011.
- Organizer of the “Optimization in Data Mining” session, *INFORMS Annual Meeting*, Charlotte, NC, Nov. 13-16, 2011.

- Program Committee Member of the *3rd Workshop on Optimization for Machine Learning*, Whistler, B.C. Canada, Dec. 10, 2010.
- Committee Member of the *Data Mining Student Paper Award* organized by the INFORMS Section on Data Mining, to be granted at the INFORMS Annual Meeting, Austin, TX, Nov. 7-10, 2010.
- Program Committee Member of the *2nd Workshop on Optimization for Machine Learning*, Whistler, B.C. Canada, Dec. 12, 2009.
- Program Committee Member of the *3rd International Conference on Combinatorial Optimization and Application*, Yellow Mountain, China, Jun. 10-12, 2009.
- Program Committee Member of the *Optimization for Machine Learning Workshop*, Whistler, B.C. Canada, Dec 12, 2008.
- Co-Organizer of the *Conference on Computational Neuroscience*, Gainesville, FL, Feb 20-21, 2008.
- Co-Organizer of the *Conference on Data Mining, Systems Analysis and Optimization in Biomedicine*, Gainesville, FL, Mar. 28-30, 2007.
- Organizer of the sessions *Optimization in Data Mining and Applications in Neuroscience* and *Optimization Challenges in Brain Research* at the INFORMS Annual Meeting, Seattle, WA, Nov. 4-7, 2007.
- Organizer of the *Seminar on Data Mining and Optimization in Biomedicine*, Center for Applied Optimization, University of Florida, Spring 2007.
- Chair of the local organizing committee of the *Conference on Data Mining, Systems Analysis and Optimization in Neuroscience*, Gainesville, FL, Feb. 15-17, 2006.
- Reviewer: *Management Science, Operations Research, Information Systems Research, OMEGA, European Journal of Operational Research, Decision Sciences, INFORMS Journal on Computing, Information Technology Management, Information Systems and e-Business Management, Annals of Operations Research, Expert Systems with Applications, Journal of Information Security and Applications, Brain Informatics, Neurocomputing, IEEE Transactions on Systems Man and Cybernetics, IEEE Transactions on Biomedical Engineering, Journal of Global Optimization, Journal of Combinatorial Optimization, Optimization Letters, Computational Management Science, Engineering Applications of Artificial Intelligence, International Journal of Pattern Recognition and Artificial Intelligence, Annals of Mathematics and Artificial Intelligence, Computers and Industrial Engineering, Optimization and Engineering, Operational Research: An International Journal, Applied Mathematical Modeling, Discrete Applied Mathematics, Computational Optimization and Applications, Journal of Optimization Theory and Applications, Mathematical Programming Computation, Wiley Encyclopedia of Operations Research and Management Science, Environmental Modeling and Assessment, Connections Science, Hawaii International Conference on System Sciences, Conference on Information Systems and Technology, SN Operations Research Forum, Engineering.*

## **Awards and Honors**

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- Mentor of the Month, Graduate School, Virginia Tech, January 2023
- Pamplin College of Business Certificate of Teaching Excellence, Virginia Tech, 2013
- Excellence in Access and Inclusion Award, Virginia Tech, 2013
- INFORMS Doctoral Colloquium participant, University of Florida, 2006
- ISE Graduate Teaching Award, University of Florida, Spring 2005
- Full scholarship for graduate education abroad granted by Higher Education Council of Turkey, April 2001
- First Place in Student Paper Contest, 19th National IE & OR conference, Ankara Turkey, June 1998

## **Professional Membership**

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- INFORMS (Data Mining Society, Computing Society)