

# Petros Xanthopoulos

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## Education

**Ph.D.** Industrial and Systems Engineering, University of Florida, 2011 (expected).

*Thesis Title: Robust Data Mining with Applications to Engineering and Biomedicine*

*Advisor: Dis. Prof. Panos M. Pardalos*

**M.Sc.** Industrial and Systems Engineering, University of Florida, 2008.

**Dipl. Eng.** Electronics and Computer Engineering, Technical University of Crete, Greece, 2005.

## Awards

Student Travel Award for IEEE-BIBE 2010.

*Awarded by IEEE- BIBE 2010 organizing committee.*

Graduate Award for Excellence in Research, 2010.

*Awarded by the Industrial and Systems Engineering Department, University of Florida.*

International Student Outstanding Achievement Award, 2009.

*Awarded by the College of Engineering, University of Florida.*

INFORMS Future Academician Colloquium participant, 2009.

*Nominated by the Industrial and Systems Engineering Department, University of Florida.*

Full Support Through Teaching and Research Assistantship During PhD Studies, 2006-now.

*Industrial and System Engineering Department, University of Florida.*

## Research Assistanships

Center for Applied Optimization University of Florida, Gainesville FL, USA. 8/2006-now.

Internship with Malcom Randal Veteran Affairs Hospital, Gainesville FL, USA. 4/2008-8/2008.

Technical University of Crete, Chania, Greece. 10/2004-7/2006.

## Teaching

*Course Instructor (University of Florida)*

ESI 4523: Industrial Systems Simulation,

*Undergraduate Senior Level course*

*Summer 2009/Fall 2009/ Spring 2010*

Evaluations (out of 5): 4.55/4.25/4.50

ESI 4567C: Matrix and Numerical Methods in Systems Engineering,  
*Undergraduate Senior Level course*  
 Fall 2008/ Summer A 2010  
 Evaluations (out of 5): 4.17/ –

CGS 2421: Computer Programming for Engineers , VB. NET, and  
 CGS 2421L: Computer Programming for Engineers , VB. NET, Lab Section  
*Introductory Sophomore Level Programming Course*  
 Summer C 2007 / Spring 2008  
 Evaluations (out of 5): 4.33/4.25

### *Teaching Assistant (University of Florida)*

ESI 6448: Discrete Optimization Theory  
*Advanced PhD Level course*  
 Fall 2010

ESI 4567C: Matrix and Numerical Methods in Systems Engineering,  
*Undergraduate Senior Level Course*  
 Fall 2007/Spring 2009

## Publications

### *Working Papers/Submitted*

**P. Xanthopoulos**, R. De Asmundis, M. R. Guarracino, G. Pyrgiotakis and P. M. Pardalos. Supervised classification methods for mining cell differences as depicted by Raman spectroscopy. *Submitted*.

M. R. Guarracino, **P. Xanthopoulos**, Georgios Pyrgiotakis, V. Tomaino, B. M. Moudgil, P. M. Pardalos. Classification of cancer cell death with spectral dimensionality reduction and generalized eigenvalues. *Submitted*.

### *Journal Articles*

J. Zhang, **P. Xanthopoulos**, C.-C. Liu, S. Bearden, B. M. Uthman, and P. M. Pardalos. Real-time differentiation of nonconvulsive status epilepticus from other encephalopathies using quantitative EEG analysis: A pilot study. *Epilepsia* 21(2) pp. 243-250, 2010

A. Chinchuluun, **P. Xanthopoulos**, V. Tomaino, and P. M. Pardalos. Data mining techniques in agricultural and environmental sciences. *International Journal of Agricultural and Environmental Information Systems* 1(1) pp. 26-40, 2010.

P. M. Pardalos, V. Tomaino, and **P. Xanthopoulos**. Optimization and data mining in biomedicine. *TOP An Official Journal of the Spanish Society of Statistics and Operations Research* 17(2) pp. 215-236 2009.

P. M. Pardalos, V. Tomaino, and **P. Xanthopoulos**. Rejoinder on: Optimization and data mining in biomedicine. *TOP An Official Journal of the Spanish Society of Statistics and Operations Research* 17(2) pp. 253-255 2009.

P. Y. Ktonas, S. Golemati, **P. Xanthopoulos**, V. Sakkalis, M. D. Ortigueira, H. Tsekou, M. Zervakis, T. Pappargopoulos, A. Bonakis, N. T. Economou, P. Theodoropoulos, S. G. Papageorgiou, D. Vassilopoulos, and C. R. Soldatos. Time-frequency analysis methods to quantify the time-varying microstructure of sleep EEG spindles: Possibility for dementia biomarkers? *Journal of Neuroscience Methods*, 85(1) pp. 133-142, 2009.

V. Sakkalis, C. D. Giurcneanu, **P. Xanthopoulos**, M. E Zervakis, V. Tsiaras, Y. Yang, E. Karakonstantaki, and S. Micheloyannis. Assessment of linear and nonlinear synchronization measures for analyzing EEG in a mild epileptic paradigm. *IEEE Trans Inf Technol Biomed*, 13(4):433–441, Jul 2009.

**P. Xanthopoulos**, K. M. Heilman, V. Drago, P. Pardalos, P. S. Foster, and F. M. Skidmore. An ambulatory persistence power curve: motor planning affects ambulatory persistence in parkinson's disease. *Neuroscience Letters*, 448(1):105–109, Dec 2008.

R. Grech, T. Cassar, J. Muscat, K. P. Camilleri, S. G. Fabri, M. Zervakis, **P. Xanthopoulos**, V. Sakkalis, and B. Vanrumste. Review on solving the inverse problem in EEG source analysis. *Journal of Neuro-engineering and Rehabilitation*, 5:25, 2008. **Characterized Highly Accessed Article.**

### Book Chapters

J. Zhang, **P. Xanthopoulos**, V. Tomaino and P. M. Pardalos Minimum Prediction Error models In *Encyclopedia of Operations Research and Management Science*. Wiley, 2010.

I. Radziukyniene, **P. Xanthopoulos** and P. M. Pardalos Combining forecasts In *Encyclopedia of Operations Research and Management Science*. Wiley, 2010.

J.-H. Chen, **P. Xanthopoulos**, V. Tomaino, and P. M. Pardalos. Forecasting non stationary processes. In *Encyclopedia of Operations Research and Management Science*. Wiley, 2010.

**P. Xanthopoulos**, N. Boyko, N. Fan, and P. M. Pardalos. biclustering: algorithms and applications in data mining and forecasting. In *Encyclopedia of Operations Research and Management Science*. Wiley, 2010.

**P. Xanthopoulos**. Archimedes and the foundations of industrial engineering. In *Encyclopedia of Optimization*, pages 96–98. Springer, 2009.

### Conference Proceedings

**P. Xanthopoulos**, S. Rebennack, C.-C Liu, J. Zhang, G. L. Holmes, B. M. Uthman and P. M. Pardalos A novel wavelet based algorithm for spike and wave detection in absence epilepsy In *10th IEEE international Conference on Bioinformatics & Bioengineering*. *IEEE BIBE10*, pp. –, – 2010.

**P. Xanthopoulos**, A. Arulselvan, V. Boginski, and P.M. Pardalos. A retrospective review of social networks. In *Social Network Analysis and Mining, 2009. IEEE ASONAM '09. International Conference on Advances in*, pp. 300–305, July 2009.

**P. Xanthopoulos**, C.-C. Liu, P. M. Pardalos, J. Zhang, S. Nair, K. Kelly, and B. M. Uthman. A robust spike and wave algorithm for detecting seizures in a genetic absence seizure model. In *Engineering in Medicine and Biology Society, 2009. EMBS 31st annual International Conference of the IEEE.*, pp. 2184 - 2187, 2009.

C.-C. Liu, **P. Xanthopoulos**, W. Chaovalitwongse, P. M Pardalos, and B. M. Uthman. Antiepileptic drug intervention decouples electroencephalogram (EEG) signals: a case study in Unverricht-Lundborg disease. *Conf Proc IEEE Eng Med Biol Soc*, pp. 2108–2111, 2008.

P. Y. Ktonas, S. Golemati, **P. Xanthopoulos**, V. Sakkalis, M. D. Ortigueira, H. Tsekou, M. Zervakis, T. Paparrigopoulos, and C. R. Soldatos. Potential dementia biomarkers based on the time-varying microstructure of sleep EEG spindles. *Conf Proc IEEE Eng Med Biol Soc*, pp. 2464–2467, 2007.

A. Kammerdiner, **P. Xanthopoulos**, and P. M. Pardalos. Numerical limitations in application of vector autoregressive modeling and granger causality to analysis of EEG time series. In *Data Mining, Systems Analysis and Optimization in Biomedicine. AIP Conference Proceedings*, volume 953, pages 232–245, 2007.

**P. Xanthopoulos**, V. Yatsenko, A. Kammerdiner, and P.M. Pardalos. Inverse source localization for EEG using system identification approach. In *Data Mining, Systems Analysis and Optimization in Biomedicine. AIP Conference Proceedings*, volume 953, pages 254–261, 2007.

C.-C. Liu, W. Chaovaitwongse, P.M. Pardalos, O. Seref, **P. Xanthopoulos**, JC Sackellares, and F.M. Skidmore. Quantitative analysis on electrooculography (EOG) for neurodegenerative disease. In *Data Mining, Systems Analysis and Optimization in Biomedicine. AIP Conference Proceedings*, volume 953, pages 246–253, 2007.

**P. Xanthopoulos**, S. Golemati, V. Sakkalis, P. Y. Ktonas, M. Zervakis, and C. R. Soldatos. Modeling the time-varying microstructure of simulated sleep EEG spindles using time-frequency analysis methods. *Conf Proc IEEE Eng Med Biol Soc*, 1:2438–2441, 2006.

### Books/Special Issues

W. A. Chaovaitwongse, P.M. Pardalos, and **P. Xanthopoulos**, editors. *Computational Neuroscience*. Springer, 2010, ISBN: 987-0-38788629-9.

P. M. Pardalos, **P. Xanthopoulos** and M. Zervakis editors. *Data Mining for Biomarker Discovery*. Springer (to appear in 2010).

O. Seref, **P. Xanthopoulos**, editors *Data Mining on biomedicine* special issue of journal of Combinatorial Optimization, 17(1), Jan 2009 .

### Talks/ Posters/ Published Abstracts

**P. Xanthopoulos**, P. M. Pardalos. Spectral Methods in Mining Data Biomedical and Social Networks. *INFORMS Annual meeting San Diego, 2009*.

J. Zhang, **P. Xanthopoulos**, C.-C. Liu, S. Bearden, B. M Uthman, and P. M. Pardalos. Nonlinear Time Series Analysis for Differentiating between Status Epileptics and Non-Epileptic Encephalopathy. *4th International Seizure Prediction (IWSP4), 2009*

C-C Liu, **P. Xanthopoulos**, P. M. Pardalos, J. Zhang and B. M. Uthman. Antiepileptic Drug Effect of on Brain Cortical Networks in Patients with Unverricht-Lundborg Disease. *American Epilepsy Society Annual Meeting, 2008*.

**P. Xanthopoulos** , C-C Liu, , S. Rebennack, P. M. Pardalos, G. L. Holmes, B. M. Uthman. Automated spike and wave detection for absence epilepsy. *American Epilepsy Society Annual Meeting, 2008*.

**P. Xanthopoulos**, G. Holmes, C-C Liu, P. M. Pardalos, S. Rebennack, B. M. Uthman. Petit mal seizure detection algorithm for evaluating antiepileptic drug effect. *Informes Annual Meeting Washington D.C., 2008*.

**P. Xanthopoulos**, S. Rebennack, C-C Liu, P. M. Pardalos, G. Holmes, B. M. Uthman. A Wavelet-variance based algorithm for automatic epileptic spike and wave activity detection. *AREADNE 2008 Research in Encoding And Decoding of Neural Ensembles 26-29 June 2008 Santorini, Greece*.

C-C Liu, **P. Xanthopoulos**, M. Bewernitz, P. M. Pardalos, B. M. Uthman. Structure of brain connectivity and treatment effects. *AREADNE 2008 Research in Encoding And Decoding of Neural Ensembles 26-29 June 2008 Santorini, Greece*.

**P. Xanthopoulos** , C-C Liu, O. Seref, A. Kammerdiner, P. M. Pardalos, J. C. Sackellares, and F. Skidmore. Quantitative analysis of Eye movement datasets for controlling neurodegenerative diseases. *INFORMS Annual Meeting Seattle, 2007*.

## Review

### *Journals*

Wiley Encyclopedia of Operations Research and Management Science (*Wiley & Sons*)

Optimization Letters (*Springer*)

Operational Research: An International journal (*Springer*)

Journal of Combinatorial Optimization (*Springer*)

Journal of Global Optimization (*Springer*)

Computers in Biology and Medicine (*Elsevier*)

International Journal of Agricultural and Environmental Information Systems (*IGI Global*)

### *Conferences*

IEEE BIBE 2010, IEEE EMBC 2009, BIOMAT

## Professional Memberships

Society of Industrial and Applied Mathematics (SIAM)

*Student Member*

Institute for Operations Research and Management Science (INFORMS)

*Student Member*

$\Delta$ EI (Delta Epsilon Iota) Academic Honor Society

*Invited Member, Minimum GPA of 3.30/4.00 is Required for Membership.*

## Conference Organization

### *Organized INFORMS sessions*

Informatics 2010 Annual Meeting. November 7-10, Austin, Texas, USA.

*Session Chair: Optimization Models in Data Mining with Applications in Biomedicine*

Informatics 2009 Annual Meeting. October 11-14, 2009, San Diego, USA.

*Session Chair: Data Mining Approaches in Biomedicine*

Informatics 2008 Annual Meeting. October 12-15, 2008, Washington D.C, U.S.A.

*Session Chair: Data mining in Computational Neuroscience*

*Session Co-Chair: Optimization Techniques in Computational Biology and Systems Biology*

Informatics 2007 Annual meeting Seattle. November 4-7, 2008 Seattle WA, USA.

*Session Co-Chair: Data Mining Applications in Neuroscience*

### *Other events*

International Conference on Optimization, Simulation and Control  
July 25-28, 2010 Ulaanbaatar, Mongolia.  
*Advisory committee member*

International Conference on Biomedical Data & Knowledge Mining: Towards Biomarker Discovery,  
July 7-9, 2010 Chania, Greece.  
*Conference Organizer*

Workshop on Optimization and Data Analysis in Biomedical Informatics  
June 11-12, 2010, University of Toronto, Toronto, Canada.  
*Conference organizer*

International Conference on Systems Analysis Tools for Better Health Care Delivery: A New Engineer-  
ing Health Care Partnership.  
March 24-26, 2010, Gainesville FL, USA.  
*Local organizing committee member*

Conference on Computational Neuroscience  
February 20-21, 2008 Gainesville FL, USA.  
*Conference Organizer*

Data Mining, Systems Analysis and Optimization in Biomedicine  
March 28-30, 2007 Gainesville FL, USA.  
*Local Organizing Committee and Session Chair*

## References

**Panos M. Pardalos**  
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Director, Center for Applied Optimization  
Department of Industrial and Systems Engineering  
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