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Studies:

BSc in Physics - University of Patras 1976.
MSc in 'Microwaves and Modern Optics' - University College London 1978.
PhD in 'Fiber Optic Sensor Systems' - University of Patras 1989.

Work experience:

1979-80	Researcher - Research Center of the Greek Air Force (KETA).
1980-90	Research assistant - Electronics Lab., Physics Dept., University of Patras.
1983-85	Visitor research assistant - University College London, Dept. of Electronic and Electrical Engineering.
1990-2001	Lecturer - Electronics Lab, Physics Dept., University of Patras.
2001- 2006	Assistant Professor >>
2006 -present	Associate Professor >>

Current research interests include:

Digital Signal and Image Processing, Computer Vision, Biometric recognition, Signal and Image retrieval, Linear–nonlinear signal dimensionality reduction techniques, Low-level image processing, Linear-non Linear Filtering, Order statistics filters, Statistical and Multidimensional Signal Processing, Application of fuzzy techniques in signal and image processing, Optical Signal Processing and Fibre Sensors.

Has participated in many research or educational programs funded by the European Union and/or the Greek government.

Current teaching activities:

He is teaching courses at graduate or postgraduate level in the following subjects:

- Image Processing
- Analog - Digital Communications
- Optical Communications
- Electronics Laboratories

Has supervised or actively participated in several Ph.D. and MSc theses.

Publications:

1. Text books (in Greek):

'Signal Analysis' A. Ifanis – G. Economou.

'Laboratory exercises in Electronics', C.Psychalinos, G. Economou.

'Introduction to Communications' Lecture notes, G.Economou.

2. Book chapters

1. Ch. Theoharatos, N.A. Laskaris, G. Economou and S. Fotopoulos, Image similarity based on a distributional "metric" for multivariate data, in G. Obinata and A. Dutta, eds., Vision Systems - Segmentation and Pattern Recognition, ISBN 978-3-902613-05-9, ch. 17, pp. 333-352, ARS Int. Publications, 2007.

2. V.K. Pothos, Ch. Theoharatos, G. Economou and S. Fotopoulos, Robust classification of texture images using distributional-based multivariate analysis, Tools in Artificial Intelligence, I-Tech Education and Publishing, ISBN 978-3-902613-36-3, ch. 19, pp. 331-348, 2008.

3. Journal publications

1. D.E.N. Davies, G. Economou, K. Arora, "Generation of r.f. and microwave signals from low frequency square-wave modulation of a laser diode", Optical and Quantum Electronics, 18, pp. 93-96, 1986.

2. G. Economou, R.C. Youngquist, D.E.N. Davies, "Limitations and noise in interferometric systems using frequency ramped single mode diode lasers", Journal of Lightwave Technology, Vol.4, pp. 1601-1608, 1986.

3. G. Economou, D.E.N. Davies, "Studies of an optical fibre displacement sensor", The Journal of the Institution of Electronic and Radio Engineers, Vol 57, pp. 63-66, 1987.

4. S.Fotopoulos, G. Economou, "Median approximating algorithm", Electronic Letters", Vol.27, pp. 1441-1443, 1991.

5. G.Economou, S.Fotopoulos and M.Vemis, "A family of Nonlinear Filters with data Dependent Coefficients", IEEE Trans. on Signal Processing, January 95, pp. 318-322.

6. S.Fotopoulos, G.Economou, A.Bezerianos and N.Laskaris, "Latency measurement improvement of P100 complex in visual evoked potentials by FMH filters" IEEE Trans. on Biomedical Signal Processing ,VOL.42 No.4, April 1995, pp. 424-428.

7. M.Vemis, G.Economou, S.Fotopoulos and A.Khodyrev, 'The use of Boolean functions and local operations for edge detection' Signal Processing ,Vol. 45,1995 pp. 161-172.

8. A. Fotinos, G. Economou, S. Fotopoulos, "Using the Relative Entropy as Color Edge Detector", Electronic Letters, Vol.35, No.8, pp. 1532-1534, 1999.

9. A. Fotinos, N. Laskaris, G. Economou and S. Fotopoulos, "Multidimensional Fuzzy Filtering using Statistical Parameters", Multidimensional Signal Processing, Vol.10, No.4, 1999, pp.415-424.

10. A. Ifantis, A. Fotinos, G. Economou and S. Fotopoulos, "Fuzzy identification of seismic electric signals", Applied Signal Processing, No 6, 1999, pp.33-41.

11. S. Makrogiannis, G. Economou and S. Fotopoulos, "A fuzzy Dissimilarity function for region based segmentation of color images", International Journal of Pattern Recognition Artificial Inteligent , Vol 15, No 2 , 2001, pp. 255-267.

12. S. Makrogiannis, G. Economou and S. Fotopoulos , "Region oriented compression of color images using fuzzy inference and fast merging", Pattern Recognition, 35 (9) (2002) pp. 1807-1820.

13. A. Ifantis, G.Economou and G.A.Tselentis, "Experimental Investigation of Electrotelluric field anomalies in western Greece and their possible relation to seismicity during a five-year perio", Acta Geophysica Polonica, Vol.51, No.3, 2003, pp.291-305.

14. S. Louvros, A.Iossifidies, G.Economou, G.Karagiannidis, S.Kotsopoulos and D. Zevgolis, "Time Domain Modeling and Characterization of Polymer Optical Fibers", IEEE Photonics Technology Letters, Vol.16, No.2, 2004, pp.455-457.

15. G. Economou, "Detecting edges using density value", *Electronic Letters*, Volume 40 Issue 24, 25th November 2004, p. 1528-1530.
16. S. Makrogiannis, G. Economou and S. Fotopoulos "A Region Dissimilarity Relation That Combines Feature-Space And Spatial Information For Color Image Segmentation" Accepted for publication to, *IEEE Transactions on System, Man, and Cybernetics, Part B: Cybernetics*, Vol.35, No.1, February 2005, pp.44-53.
17. S. Makrogiannis G. Economou, S. Fotopoulos, and N. G. Bourbakis "Segmentation of Color Images Using Multiscale Clustering and Graph Theoretic Region Synthesis" *IEEE Transactions on System, Man, and Cybernetics, Part A: Systems and Humans*, Vol.35, No.2, pp.224-238, March 2005.
18. Ch. Theoharatos, G. Economou and S. Fotopoulos, "Color Edge Detection using the Minimal Spanning Tree", *Pattern Recognition*, vol. 38, no. 4, pp. 603-606, 2005.
19. Ch. Theoharatos, N. Laskaris, G. Economou and S. Fotopoulos, "A Generic Scheme for Color Image Retrieval based on the Multivariate Wald-Wolfowitz Test", *IEEE Trans. Knowledge and Data Engineering*, vol. 17, no. 6, pp. 808-819, 2005.
20. Ch. Theoharatos, N.A. Laskaris, G. Economou and S. Fotopoulos, "Combining self-organizing neural nets with multivariate statistics for efficient color image retrieval", *Computer Vision and Image Understanding*, vol. 102, no. 3, pp. 250-258, 2006.
21. Ch. Theoharatos, V.K. Pothos, N.A. Laskaris, G. Economou and S. Fotopoulos, "Multivariate Image Similarity in the Compressed Domain using Statistical Graph Matching", *Pattern Recognition, Special Issue on Similarity-based Pattern Recognition*, vol. 39, no. 10, pp. 1892-1904, 2006.
22. Ch. Theoharatos, N.A. Laskaris, G. Economou and S. Fotopoulos, "On the perceptual organization of image databases using cognitive discriminative biplots", *EURASIP Journal on Applied Signal Processing, Special Issue on Image Perception*, Volume 2007 , Issue 1 January 2007, pp.118 – 118.
23. V. Pothos, C. Theoharatos, E. Zygouris and G. Economou, "Distributional-based texture classification using non-parametric statistics", *Pattern Analysis & Applications*, Vol 11 (2), June 2008, pp. 117-129.
24. Ch. Theoharatos, A. Ifantis, N.A. Laskaris and G. Economou, "Charting seismicity precursor trends via geometrical representation of the geoelectric field potential signal dynamics", *Computers & Geosciences*, Vol 34/6 , June 2008 , pp. 625-634.
25. A. Macedonas, D. Besiris, G. Economou and S. Fotopoulos, "Dictionary based color image retrieval", *Journal of Visual Communication and Image Representation*, Vol. 19, No 7, Oct. 2008, pp. 464-470.
26. I. Tziakos, C. Theoharatos, N. Laskaris and G. Economou, "Color Image Segmentation using Laplacian Eigenmaps", *Journal of Electronic Imaging*, Vol. 18, No. 2, April-June 2009 issue.
27. D. Besiris, A. Makedonas, G. Economou and S. Fotopoulos "Combining Graph Connectivity & Dominant Set Clustering for Video Summarization" *Multimedia Tools and Applications*, Volume 44 , Issue 2 , September 2009, Pages: 161 – 186.

4. Conference publications

1. D.E.N. Davies, J. Chaimowicz, G. Economou, J. Fohley, "Proc. 2nd International Conference on Optical Fibre Sensors", Stuttgart, Sept. 1984, pp.387-390.
2. S.Fotopoulos, G. Economou, "Linear median edge enhancement filters", *IASTED international conference on Signal Processing and Digital Filtering*, Lugano, June 1990.
3. G.Economou, S. Fotopoulos, "A family of adaptive nonlinear low complexity filters", *Proceedings of the 11th European Conference on Circuit Theory and Design*, Davos, Switzerland, Aug.1993, pp.521-524.
4. S.Fotopoulos, G. Economou, N. Laskaris and D. Sindukas, "Vector Nonlinear Data Depended Filters", *IEEE International Conference on Circuits and Systems*, London, 30 May- 2 June 1994, pp 241-244.
5. G. Economou, S. Fotopoulos, M. Vemis, "Novel Edge Detector Based on Nonlinear Local Operations", *IEEE International Conference on Circuits and Systems*, London, 30 May- 2 June 1994, pp 293-96.
6. S.Fotopoulos, G. Economou, 'Multichannel Filters using Composite Distance Metrics' 1995 IEEE Workshop on Nonlinear Signal and Image Processing , June 20-22, 1995, Neos Marmaras, Halkidiki, Greece, Volll., pp.503-506.

7. D. Sindoukas, S. Fotopoulos, G. Economou, 'Distance 'Weighted Multichannel Filters' ECCTD 95 European Conference on Circuit Theory & Design, August 1995, Turkey, pp.829-832.
8. G. Economou, A. Ifantis, D. Sindoukas, 'Multichannel Distance filtering of Seismic Electric Signals', Proc., EUSICO 96 Trieste, Sep. 10-13 1996.
9. D. Sindoukas, S. Fotopoulos, G. Economou, 'Color Image Filtering using Generalised Cost Functions' Proc., EUSICO 96 Trieste, Sep. 10-13 1996.
10. S. Fotopoulos, D. Sindoukas, N. Laskaris and G. Economou, 'Image enhancement Using Color and Spatial Information', ICASSP 97, Munich, April 21-24, pp.2581-2584.
11. D. Sindoukas, G. Economou, A. Ifantis and S. Fotopoulos, 'Color image enhancement using local density function estimators', DSP 97 13TH International Conference on Digital Signal Processing, Santorini, Greece, July 2-4, 1997
12. A. Ifantis, G. Economou, S. Despotopoulos, A. Tselentis and T. Deliyannis, 'Exploratory Analysis of Electrotelluric Field Data for Earthquake Prediction', DSP97 13TH International Conference on Digital Signal Processing, Santorini, Greece, July 2-4, 1997
13. "Use of LIDAR technique in the air quality management of an urban area," A. D. Adamopoulos, H. D. Kambezidis, National Observatory of Athens, Athens, Greece; G. Economou, S. Kotsopoulos, D. Zevgolis, University of Patras, Patras, Greece; T. Efthimiopoulos, University of Crete, Heraklion, Greece, Conference on Lidar Atmospheric Measurements, June 99, Munich, [3821-12]
14. S. Makrogiannis, G. Economou and S. Fotopoulos, "A Color Preserving Image Segmentation Method", The 14th European Conference on Circuit Theory and Design, ECCTD'99, 29 August-2 September, Stresa, Italy, pp.928-931.
15. A. Fotinos, G. Economou, E. Zigouris and S. Fotopoulos, "The use of Entropy for Colour Edge Detection" The 6th IEEE International Conference on Electronics, Circuits and Systems, ICECS'99, Pafos, Cyprus September 5-8, pp.437-440, 1999.
16. S. Makrogiannis, G. Economou, E. Zigouris and S. Fotopoulos, "Segmentation of Color Images using an Hierarchical fuzzy region merging technique", Eusipco-2000, 5-8 September, Tampere, Finland
17. A. Fotinos, G. Economou, E. Zigouris and S. Fotopoulos, "A Histogram based Multichannel Filter", Eusipco-2000, 5 - 8 September, Tampere, Finland.
18. S. Makrogiannis G. Economou and S. Fotopoulos, " A Graph Theoretic Approach For Automatic Segmentation Of Color Images", VLBV01, International Workshop on Very Low Bitrate Video Coding 11-12 October 2001, Athens, Greece
19. L. Letsas, G. Economou and D. Zevgolis, "Analysis of a Differential Fiber Bragg Grating Self-Demodulation Technique", OFS-2000, 11-13 October, Venice, Italy, pp. 194-197.
20. G. Economou, A. Fotinos, S. Makrogiannis and S. Fotopoulos, "Color image edge detection based on nonparametric density estimation", ICIP-2001, 7-10 October, Thessaloniki, Greece, pp.922-925.
21. S. Makrogiannis, G. Economou and S. Fotopoulos, "A Fuzzy Region Dissimilarity Measure using Feature Space Information", 14th International Conference on Digital Signal Processing (DSP2002), 1-3 July 2002, Santorini, Greece.
22. Ch. Theoharatos, V. Tsgaris, G. Economou, S. Fotopoulos and V. Anastassopoulos, "Edge Detection of Multispectral Images Using Nonparametric Local Density Estimation", approved to Signal Processing, Pattern Recognition, and Applications, SPPRA 2003, Rhodes, Greece, June 30 - July 2, 2003.
23. S. Makrogiannis, Ch. Theoharatos, G. Economou and S. Fotopoulos, "Color Image Segmentation using Multiscale Fuzzy C-Means and Graph Theoretic Merging", approved for IEEE International Conference on Image Processing, ICIP 2003, Barcelona, Spain, 14-17 September 2003.
24. G. Economou, V. Pothos and A. Ifantis, "Geodesic Distance And MST Based Image Segmentation", EUSIPCO-2004, 12th European Signal Processing Conference, Vienna, Austria, September 6-10, 2004.
25. Ch. Theoharatos, N. Laskaris, G. Economou and S. Fotopoulos, "A Similarity Measure for Color Image Retrieval and Indexing based on the Multivariate Two Sample Problem", EUSIPCO-2004, 12th European Signal Processing Conference, Vienna, Austria, September 6-10, 2004.
26. Ch. Theoharatos, N. Laskaris, G. Economou and S. Fotopoulos, "Compressed Domain Image Indexing And Retrieval Based On The Minimal Spanning Tree", accepted for publication at, ICME 2005, IEEE International Conference on Multimedia & Expo, July 6-8, 2005, Amsterdam, The Netherlands.
27. Ch. Theoharatos, N. Laskaris, G. Economou and S. Fotopoulos, "Color-based Image Retrieval using Vector Quantization and Multivariate Graph Matching", Int. Conf. on Image Processing (ICIP-2005), Genova, Italy, Sept. 11-14, 2005.

28. A. Ifantis, G. Economou, Ch. Theoharatos, D. Petropoulos and G.-A. Tselentis, "Goelectric Field Signal Investigation using Multidimensional Techniques and its Possible Relation to Earthquakes in Western Greece", in Proc. of Int. Symposium on Communications, Control and Signal Processing (ISCCSP 2006), Marrakech, Morocco, March 13-15, 2006.
29. Ch. Theoharatos, N.A. Laskaris, G. Economou and S. Fotopoulos, "Efficient Visual Information Retrieval using Orthogonal MSTs", Int. Symposium ELMAR-2006 focused on Multimedia Signal Processing and Communications, Zadar, Croatia, June 7-10, 2006.
30. Ch. Theoharatos, N.A. Laskaris, G. Economou and S. Fotopoulos, "Visual database organization in the reduced biplot domain via the appending technique", Int. Conf. of VIIP 2006, Palma de Mallorca, Spain, August 28-30, 2006.
31. Ch. Theoharatos, A. Ifantis and G. Economou, "Exploratory data analysis of goelectric field earthquake potential signal based on MDS-mapping and minimal spanning tree", Int. Conf. of VIIP 2006, Palma de Mallorca, Spain, August 28-30, 2006.
32. Besiris D., Laskaris N., Zigouris E., Economou G and Fotopoulos S., Points of Interest extraction using pairwise clustering and spatial features. Proceedings of EUSIPCO 2006, Florence, Italy, 4-8 September 2006
33. A. Ifantis, V. Nikolaidis, G. Economou , "An algorithmic investigation of power spectrum features applied to goelectric field signals and seismicity information", SPPR'07: Proceedings of the Fourth conference on IASTED International Conference: Signal Processing, Pattern Recognition, and Applications, February 2007.
34. V. Pothos, Ch. Theoharatos, G. Economou, A. Ifantis, "Texture retrieval based on a non-parametric measure for multivariate distributions", CIVR '07: Proceedings of the 6th ACM international conference on Image and video retrieval, July 2007.
35. Ch. Theoharatos, G. Economou, S. Fotopoulos , "Semantic Mapping of Image Databases using Perceptual Similarity", WIAMIS '07: Proceedings of the Eight International Workshop on Image Analysis for Multimedia Interactive Services, June 2007.
36. A. Makedonas, S. Fotopoulos, G. Economou, "Improvement of Image Retrieval by Fusing Different Descriptors", WIAMIS '07: Proceedings of the Eight International Workshop on Image Analysis for Multimedia Interactive Services, June 2007.
37. V. Pothos, Ch. Theoharatos, G. Economou, "Robust Face Recognition and Retrieval Using Neural-Network-Based Quantization of Gabor Jets and Statistical Graph Matching", ICTAI '07: Proceedings of the 19th IEEE International Conference on Tools with Artificial Intelligence - Vol.1, October 2007.
38. T. Zagouras, A. Makedonas, G. Economou, and S. Fotopoulos "An application study of manifold learning-ranking techniques in face recognition ", MMSP 2007, Chania, Greece, Oct. 2007.
39. D. Besiris, F. Fotopoulou, G. Economou and S. Fotopoulos, "Video Summarization by a Graph-Theoretic FCM based algorithm", proc., IWSSIP Bratislava, June,2008
40. A. Makedonas, D. Besiris, G. Economou and S. Fotopoulos "Image database organization based on membership values and connectivity graph", proc., IWSSIP Bratislava, June, 2008.
41. V. Pothos, C. Theoharatos and G. Economou, "A spectral distribution approach to fingerprint verification", DSP2009, Santorini, Greece, July 2009.