

# Curriculum Vitae

**Ioannis Andreadis M.Sc. (Manchester), Ph.D. (Manchester),  
FInstMC, FIET**

## I. Personal Information

Date of Birth: 01/06/1960.  
Place of Birth: Chryssoupoli, Kavala.  
Current Occupation: Professor, Department of Electrical & Computer Engineering (ECE), Democritus University of Thrace (DUTH), Xanthi, Greece.  
Foreign Languages: English.  
Marital status: Married, father of two children.  
Military Service: Fulfilled (1989-1991).  
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## II. Studies

1983 – Diploma in Electrical Engineering, DUTH with grade 8,46 out of 10 (State Scholarship 1978-1983).  
1985 – M.Sc. Department of Electrical Engineering & Electronics, University of Manchester Institute of Science & Technology (UMIST).  
1989 – Ph.D., Department of Instrumentation & Analytical Science, UMIST.

## III. Academic Appointments

1991–1992: Professor, Technological & Educational Institute of Kavala (Now Hellenic International University).  
1993–1996: Lecturer, Department of ECE, DUTH.  
1996–1997: Honorary Visiting Research Fellow, Manchester Metropolitan University, U.K.  
1996–2001: Assistant Professor, Department of ECE, DUTH.  
2001–2006: Associate Professor, Department of ECE, DUTH.  
2007- Present: Professor, Department of ECE, DUTH.

## IV. Administrative Appointments

- 01/01/2002–31/08/2005: Member of the Steering Committee, Department of ECE, DUTH.
- 01/03/2003–31/12/2007: Member of the Steering Committee, Interdepartmental Master Course on “Engineering Systems Management”.
- 01/09/2003–31/08/2005: Director of the Electronics & Information Technology Systems Sector, Department of ECE, DUTH.
- 2004–2016: Director of the Laboratory of Electronics, Department of ECE, DUTH.
- 2008–2010: Member of the Board of Governors of the European Joint Research Center.
- 01/09/2009–31/08/2012: Member of the DUTH Research Committee.

## V. Teaching Experience – Publications

### 1. Undergraduate Courses

(i) Electronic Circuits Design, (ii) Electronic Measurement Systems and (iii) Microprocessors & Microsystems.

### 2. Postgraduate Courses

(i) Instrumentation & Measurements and (ii) Robot Vision.

### 3. Student Supervision

- Ph.D.: 14 completed.
- MSc.: 21 completed.
- Diploma Dissertations: 88 completed.

### 4. Selected Publications

**Over 230 publications in refereed journals (>100), conferences and book chapters. Representative list:**

1. I. Andreadis, M.A. Browne and J.A. Swift, "Image Pixel Classification by Chromaticity Analysis", Pattern Recognition Letters, Vol. 11, No. 1, 1990, pp. 51-58.
2. I. Andreadis, P. Iliades and Ph. Tsalides, "A New ASIC for Real-Time Linear Color Space Transforms", Real Time Imaging, Vol. 1, 1995, pp. 373-379.
3. I. Andreadis, P. Iliades, I. Karafyllidis, Ph. Tsalides and A. Thanailakis, "Design and VLSI Implementation of a New ASIC for Colour Measurement", IEE Proc. Circuits, Devices & Systems, Vol. 142, No. 3, 1995, pp. 153-157.
4. I. Karafyllidis, I. Andreadis, P. Tzionas, Ph. Tsalides and A. Thanailakis, "A Cellular Automaton for the Determination of the Mean Velocity of Moving Objects and its VLSI Implementation", Pattern Recognition, Vol. 29, No. 4, 1996, pp. 689-699.
5. A. Gasteratos, I. Andreadis and Ph. Tsalides, "Improvement of the Majority Gate Algorithm for Grey Scale Dilation / Erosion", IEE Electronics Letters, Vol. 32, No. 9, 1996, pp. 806-807.
6. A. Gasteratos, I. Andreadis and Ph. Tsalides, "Realization of Rank Order Filters Based on Majority Gate", Pattern Recognition, Vol. 30, No. 9, 1997, pp. 1571-1576.
7. A. Gasteratos, I. Andreadis and Ph. Tsalides, "Fuzzy-Soft Mathematical Morphology", IEE Proc. Vision, Image & Signal Processing, Vol. 145, 1998, pp. 41-49.
8. A. Gasteratos, I. Andreadis and Ph. Tsalides, "Realisation of Soft Morphological Filters", IEE Proc. Circuits, Devices & Systems, Vol. 145, No. 3, 1998, pp. 201-206.
9. A. Gasteratos, I. Andreadis and Ph. Tsalides, "A Parallel Architecture for Implementation of Filters Based on Order Statistics", Pattern Recognition Letters, Vol. 19, No. 9, 1998, pp. 815-820.
10. A. Gasteratos and I. Andreadis, "A New Algorithm for Weighted Order Statistics Operations", IEEE Signal Processing Letters, Vol. 6, No. 4, 1999, pp. 84-86.
11. N. Papamarkos, C. Strouthopoulos and I. Andreadis, "Multithresholding of Color and Gray-Level Images through a Neural Network Technique", Image & Vision Computing, Vol. 18, No. 3, 2000, pp. 213-222.
12. I. Andreadis, "A Real-Time Color Space Converter for the Measurement of Appearance", Pattern Recognition, Vol. 34, No. 6, 2001, pp. 1181-1187.
13. M. Vardavoulia, I. Andreadis and Ph. Tsalides, "A New Vector Median Filter for Color Image Processing", Pattern Recognition Letters, Vol. 22, Nos. 6-7, 2001, pp. 675-689.
14. M. Vardavoulia, I. Andreadis and Ph. Tsalides, "Hardware Implementation of Soft Color Image Morphological Operations", Optical Engineering, Vol. 41, No. 7, 2002, pp. 1536-1545.
15. Y. Boutalis, K. Tsirikolias, B. Mertzios and I. Andreadis, "Implementation of Morphological Filters Using Coordinate Logic Operations", Pattern Recognition, Vol. 35, No. 1, 2002, pp. 187-198.
16. G. Louverdis, M. Vardavoulia, I. Andreadis and Ph. Tsalides, "A New Approach to Morphological Color Image Processing", Pattern Recognition, Vol. 35, No. 8, 2002, pp. 1733-1741.

17. G. Louverdis, I. Andreadis and Ph. Tsalides, "New Fuzzy Model for Morphological Colour Image Processing", IEE Proc. Vision, Image & Signal Processing, Vol. 149, No. 3, 2002, pp. 129-139.
18. G. Louverdis and I. Andreadis, "Design and Implementation of a Fuzzy Hardware Structure for Morphological Color Image Processing", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 13, No. 3, 2003, pp. 277-288.
19. L. Kotoulas and I. Andreadis, "Colour Histogram Content Based Image Retrieval and Hardware Implementation", IEE Proc. Circuits, Devices & Systems, Vol. 150, No. 5, 2003, pp. 387-393.
20. I. Andreadis and G. Louverdis, "Real-Time Adaptive Image Impulse Noise Suppression", IEEE Trans. on Instrumentation & Measurement, Vol. 53, No. 3, 2004, pp. 798-806.
21. K. Konstantinidis, A. Gasteratos and I. Andreadis, "Image Retrieval Based on Fuzzy Color Histogram Processing", Optics Communications, Vol. 248, 2005, pp. 375-386.
22. V. Vonikakis, A. Gasteratos and I. Andreadis, "Enhancement of Perceptually Salient Contours using a Parallel Artificial Cortical Network", Biological Cybernetics: Advances in Computational Neuroscience, Vol. 94, No. 3, 2006, pp. 192-214.
23. L. Kotoulas and I. Andreadis, "Real-Time Computation of Zernike Moments", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 15, No. 6, 2005, pp. 801-809.
24. I. Tsiftzis, I. Andreadis and A. Elenas, "A Fuzzy System for Seismic Signal Processing", IEE Proc. Vision, Image & Signal Processing, Vol. 153, No. 2, 2006, pp. 109-114.
25. L. Kotoulas and I. Andreadis, "Fast Implementation of Tchebichef Moments", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 16, No. 7, 2006, pp. 884-888.
26. I. Andreadis, Y. Tsiftzis and A. Elenas, "Intelligent Seismic Acceleration Signal Processing for Structural Damage Classification", IEEE Trans. on Instrumentation & Measurement, Vol. 56, No. 5, 2007, pp. 1555-1564.
27. L. Kotoulas and I. Andreadis, "Accurate Calculation of Image Moments", IEEE Trans. on Image Processing, Vol. 16, No. 8, 2007, pp. 2028-2037.
28. C. Georgoulas, L. Kotoulas, G. Sirakoulis, I. Andreadis and A. Gasteratos, "Real-Time Disparity Map Computation Module", Microprocessors & Microsystems, Vol. 32, No. 3, 2008, pp. 159-170.
29. L. Kotoulas and I. Andreadis, "An Efficient Technique for the Computation of ART", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 18, No. 5, 2008, pp. 682-686.
30. L. Kotoulas and I. Andreadis, "Fast Moment Generating Architectures", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 17, No. 4, 2008, pp. 533-537.
31. V. Vonikakis, I. Andreadis and A. Gasteratos, "Fast Center Surround Contrast Modification", IET Image Processing, Vol. 2, No. 1, 2008, pp. 19-34.
32. A. Amanatiadis and I. Andreadis, "An Integrated Architecture for Adaptive Image Stabilization in Zooming Operation", IEEE Trans. on Consumer Electronics, Vol. 57, No. 2, 2008, pp. 600-608.
33. A. Amanatiadis, I. Andreadis and K. Konstantinidis, "Design and Implementation of a Fuzzy Area-Based Image Scaling Technique", IEEE Trans. on Instrumentation & Measurement, Vol. 57, No. 8, 2008, pp. 1504-1513.
34. K. Konstantinidis, G. Sirakoulis and I. Andreadis, "Design and Implementation of a Fuzzy Modified Ant Colony Hardware Structure for Image Retrieval", IEEE Transactions on Systems, Man & Cybernetics - Part C, Vol. 30, No. 5, 2009, pp. 520-533.
35. A. Amanatiadis and I. Andreadis, "Digital Image Stabilization by Independent Component Analysis", IEEE Trans. on Instrumentation & Measurement, Vol. 59, No. 7, 2010, pp. 1755-1763.
36. C. Georgoulas and I. Andreadis, "A Real-Time Fuzzy Hardware Structure for Disparity Map Computation", Real-time Image Processing, Vol. 6, No. 4, 2011, pp. 257-273.
37. C. Georgoulas and I. Andreadis, "FPGA Map Computation with Vergence Control", Microprocessors & Microsystems, Vol. 34, Nos. 7-8, 2010, pp. 259-273.
38. P. Alvanitopoulos, I. Andreadis and A. Elenas, "Interdependence Between Seismic Parameters and Damage Indices Based on Hilbert Huang Transform", IOP, Measurement Science & Technology, Vol. 21, No. 2, 2010, pp. 1-14.
39. I. Georgoudas, G. Sirakoulis and I. Andreadis, "An Anticipative Crowd Management System Preventing Clogging in Exits During Pedestrian Evacuation Process", IEEE Systems Journal, Vol. 5, No. 1, 2011, pp. 129-141.
40. V. Vonikakis, I. Andreadis and N. Papamarkos, "Robust Document Binarization with Off Center Surround Cells", Pattern Analysis & Applications, Vol. 14, No. 3, 2011, pp. 219-234.

41. P. Alvanitopoulos, M. Papavasiliou, I. Andreadis and A. Elenas, "Seismic Feature Construction Based on the Hilbert Huang Transform", IEEE Trans. on Instrumentation & Measurement, Vol. 61, No. 2, 2012, pp. 326-337.
42. K. Ioannidis and I. Andreadis, "Digital Image Stabilization Based on the Hilbert-Huang", IEEE Trans. on Instrumentation & Measurement, Vol. 61, No. 9, 2012, pp. 2446-2457.
43. G.T. Michailidis, R. Pajarola and I. Andreadis, "High Performance Stereo System for Dense 3D Reconstruction", IEEE Trans. on Circuits & Systems for Video Technology, Vol. 24, No. 6, 2014, pp. 929-941.
44. E. Vrochidou, P. Alvanitopoulos, I. Andreadis, A. Elenas and K. Mallousi, "Synthesis of Artificial Spectrum-Compatible Seismic Accelerograms", IOP, Journal of Measurement Science & Technology, Vol. 25, No. 8, 2014, pp. 1-14.
45. J. Konstantinides and I. Andreadis, "Performance Analysis for Canonical Huffman Coding with Fixed Window Size", IET Electronic Letters, Vol. 52, No. 7, 2016, pp. 525-527.
46. E. Vrochidou, P. Alvanitopoulos, I. Andreadis and A. Elenas, "Artificial Accelerograms Composition Based on the CEEMD", Trans. of the Institute of Measurement & Control, Vol. 40, No. 1, 2018, pp. 239-250.
47. J. Konstantinides and I. Andreadis, "Non-parametric Confidence Estimates for the Gini-Simpson Measure of Sparsity", IET Electronic Letters, Vol. 54, No. 1, 2018, pp. 27-29.
48. J. Konstantinides and I. Andreadis, "Empirical Lipschitz Constants for the Renyi Entropy Maximum Likelihood Estimator", IEEE Trans. on Information Theory, Vol. 65, No. 6, 2019, pp. 3540-3554.
49. O. Bouzos, I. Andreadis and N. Mitianoudis, "Conditional Random Field Model for Robust Multi-Focus Image Fusion", IEEE Trans. on Image Processing, Vol. 28, No. 11, 2019, pp. 5636-5648.
50. E. Vrochidou, V. Bizergianidou, I. Andreadis and A. Elenas, "Assessment and Localisation of Structural Damage in R/C Structures Through Intelligent Seismic Signal Processing", Applied Artificial Intelligence, Vol. 35, No. 9, 2021, pp. 670-695.
51. O. Bouzos, I. Andreadis and N. Mitianoudis, "A Convolutional Neural Network-based Conditional Random Field model for Structured Multi-Focus Image Fusion Robust to Noise", IEEE Trans. on Image Processing, Vol. 32, 2023, pp. 2915-2930.

## VI. Professional and Research Achievements

### 1. Professional Distinctions and Activities

- Fellow of the Institution of Measurement & Control (InstMC), 2021.
- Fellow of the Institution of Engineering & Technology (IET), 2006.
- Member of the Board of Governors of the European Commission Joint Research Center (JRC), 2008 – 2010.
- IET Image Processing Premium Award, 2009.
- Best Paper Award, PSVIT, 2007 (Computer Vision & Applications).
- Best Paper Award in EUREKA, 2009.
- Select Paper Author, Institute of Physics, 2010.
- Associate Editor of the Pattern Recognition Journal (1996-2008) & Subject Editor of IET Electronics Letters (2015 – today).
- Member of the Selection Committee for the Pattern Recognition Society Award, 1999 & 2002.
- Reviewer of a number of Scholar Journals.
- Chair of the IASTED Int. Conf. on Signal and Image Processing & Applications, Crete, June 2011.
- Research Interests: Electronic systems, intelligent systems, machine vision, instrumentation and measurements.

### 2. Member of International Conference Program Committees

Member of Technical Program Committees of International Conferences: ICIP, IASTED, ICARV, AIAI etc.

## VII. Participation in Research Projects [Representative List]

## **1. Principal Investigator**

- 01/09/2000 - 30/06/2003: EDUnet, "Panhellenic network for education – Region of Eastern Macedonia and Thrace", Source of funding: ΕΠΕΑΚ, Budget: 280.000,00 €.
- 01/01/2002 - 30/06/2006: EDUnet, "Implementation of a wireless network for high schools in the city of Xanthi", Source of funding: ΕΠΕΑΚ, Budget: 37.000,00 €.
- 2001 - 2020: "Infrastructure development of the Laboratory of Electronics, DUTH", Source of funding: ΤΣΜΕΔΕ, Budget: 120.000,00 €.
- 01/11/2002 - 30/09/2005: "Support operations of the information systems of schools (Helpdesk) in the prefectures of Drama, Kavala, Xanthi, Rodopi & Evrou", Source of funding: ΕΠΕΑΚ, Budget: 478.000,00 €.
- 01/01/2005 - 31/03/2009: "Improvement of the emergency risk management through secure mobile mechatronic support to bomb disposal (RESCUER)", Source of funding: European Union, Budget: 350.000,00 €. (Deputy P.I.).
- 01/09/2012 - 31/08/2016: "EDUSAFE- FP7-PEOPLE-2012-ITN": Marie Curie Actions: Education in advanced AR/VR safety systems for maintenance in extreme environments.

## **2. Participation as Researcher**

- 01/04/2001 - 30/09/2003: ΠΕΝΕΔ, "Controlled transportation systems: Traffic flow characteristics assessment using image processing techniques", P.I.: Prof. B. Stefanis.
- 01/01/2002 - 31/05/2002: "Business plan of the information society for the region of Eastern Macedonia & Thrace for the period 2002 –2006": Contractor: 01 Informatics.
- 01/09/2003 - 31/08/205: "Reform of undergraduate and postgraduate curricula of the ECE Department, DUTH", P.I.: Prof. D. Papadopoulos.
- 01/04/2005 - 31/12/2006: "Novel methods of stereo image processing and area surveillance systems applications", P.I.: Prof. D. Manolakis, TEI Thessalonikis.
- 01/01/2005 - 31/12/2007: "Development and implementation of new algorithms for pattern recognition based on biologically inspired models and intelligent systems", ΠΕΝΕΔ 2003, P.I.: Lecturer A. Gasteratos.
- 2005: "Computational algorithms for uniform and non-uniform flow in gravity pipes and open ditches: Identification – exploitation of digital images. Application to sewage settlement - drainage networks", ΠΑΒΕΤ 2005, P.I.: Papassavas AEBE.
- 1/12/2010 - 30/11/2013: "Optimal energy management of autonomous hybrid systems", P.I.: Assist. Prof. G. Sirakoulis.
- 01/01/2012 - 31/03/2015: "CYBERSENSORS", P.I.: Prof. N. Nikolaidis, Technical University of Crete.
- 01/6/2021 - 31/08/2023: "ASPiDA: Design and implementation of system for improving the life quality of elderly people", P.I.: Prof. G. Sirakoulis.

## **VIII. Industrial Experience**

1979 - 1982: Apprenticeship in a ceramic manufacturing company mostly dealing with microprocessor based automation systems.

1983 - 1992: Design and construction of electrical installations of mid-rise buildings and small industrial plants.