CURRICULUM VITAE of PANOS TRAHANIAS

JANUARY 2013

Name: PANOS TRAHANIAS

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Date of Birth: November 13, 1962

Place of Birth: Mytilini, Greece

Marital Status: Married, Father of two kids

Research Interests

- Computational Vision
- Autonomous Robot Navigation
- Human-Robot Interaction
- Biologically-inspired Robot-control Architectures
- Computational Modeling
- Augmented Reality Applications

Education and Honors Awards

- Ph.D in Computer Science National Technical University of Athens, Athens, Greece November 1988.
  - Recipient of the Greek Atomic Energy Commission Ph.D fellowship (February 1985 -January 1989).
- B.Sc. in Physics University of Athens, Athens, Greece April 1985.
  - Recipient of the Greek State Scholarships Foundation honorary mention and scholarship (October 1980 -June 1982).

Academic Appointments / Employment

- University of Crete, Heraklion, Greece
  Department of Computer Science
    -November 2003 -present: Professor

-September 1998 -November 2003: <u>Associate Professor</u>
-September 1993 -September 1998: <u>Assistant Professor</u>
  Research work in computer vision, mobile robotics, human-robot interaction, computational modeling, bio-inspired control of artificial agents and augmented reality applications.
  Teaching of graduate and undergraduate courses
  Writing of research proposals
  Supervising graduate and undergraduate research theses

- Foundation for Research and Technology – Hellas, Heraklion, Greece
  Institute of Computer Science
  -April 2005 -Present: <u>Head</u> of the Computational Vision and Robotics Lab
  -February 1994 -Present: <u>Researcher</u>
    Research work in computer vision, mobile robotics, human-robot interaction, computational modeling, bio-inspired control of artificial agents and augmented reality applications.
    Writing of research proposals
    Supervising graduate and undergraduate research theses

- University of Toronto, Toronto, Ontario, Canada
  Department of Electrical & Computer Engineering
  -October 1991 -August 1993: <u>Postdoctoral Research Associate -Lecturer</u>
    Research work in multichannel (color) image processing, nonlinear digital filters, color edge detection and shape recognition.
    Teaching of graduate and undergraduate courses.
    Writing of research proposals.
    Supervising graduate and undergraduate research theses

- National Center for Scientific Research "Demokritos", Athens, Greece
  Institute of Informatics & Telecommunications
  -September 1990 -September 1991: <u>Postdoctoral Research Associate</u>
    Research work in image segmentation/edge detection, shape representation and recognition, morphological image/signal processing
  -February 1985 -January 1989: <u>Research Assistant</u>
    Research work in structural pattern recognition/classification, learning algorithms in pattern recognition, biomedical signal processing

- National Technical University of Athens, Athens, Greece
  Department of Electrical & Computer Engineering
  -March 1985 -November 1988: <u>Research / Teaching Assistant</u>
    Research work in structural pattern recognition/classification, learning algorithms in pattern recognition, biomedical signal processing Teaching assistant in courses of the "Division of Computer Science"

Consulting

- Spar Aerospace Limited, Toronto, Ontario, Canada . . . . $ 52,500
  Subcontract No: SC 19297 TF "Computer Techniques for the Detection of Dim Targets in Digital IR Imagery" April 1993 -November 1993

Grants

Coordinator of EU projects

- European Commission, Information and Communication Technologies (ICT)…..600,000 Euro Project Coordinator, "INDIGO – Interaction with Personality and Dialogue Enabled Robots" Feb. 2007 - Jan. 2010
- European Commission, Information Society Technologies (IST)………………..459,000 Euro Project Coordinator, "LIFEPLUS -Innovative Revival of Life in Ancient Frescos and Creation of Immersive Narrative Spaces, Featuring Real Scenes with Behavioured Fauna and Flora" Mar. 2002 -Aug. 2004
- European Commission, Information Society Technologies (IST), ...735,000 Euro Project Coordinator, "TOURBOT -Interactive Museum Tele-presence Through Robotic Avatars" Jan. 2000 -Feb. 2002

Scientific Coordinator of EU projects

- European Commission, Information Society Technologies (IST), ………...…......442,000 Euro Project Scientific Coordinator, "WEBFAIR -Web Access to Commercial Fairs Through Mobile Agents" Dec. 2001 - May. 2004

Principal Investigator of EU projects

- European Commission, Information and Communication Technologies (ICT)…..650,000 Euro Principal Investigator, "JAMES – Joint Action for Multimodal Embodied Systems" Feb. 2011 – Jan. 2014.
- European Commission, Information and Communication Technologies (ICT)…..550,000 Euro Principal Investigator, "FIRST-MM – Flexible Skill Acquisition and Intuitive Robot Tasking for Mobile Manipulation in the Real World" Feb. 2010 –July 2013
- European Commission, Information and Communication Technologies (ICT)…..600,000 Euro Principal Investigator, "MATHESIS – Observational Learning in Cognitive Agents" Oct. 2004 -Sep. 2007
- European Commission, Information Society Technologies (IST), ……………...850,000 Euro Principal Investigator, "GNOSYS -An Abstraction Architecture for Cognitive Agents" Oct. 2004 -Sep. 2007

Principal Co-Investigator and Participation in EU projects

- European Commission, Information and Communication Technologies (ICT)   1,100,000 Euro "GRASP – Emergence of Cognitive Grasping through Emulation, Introspection and Surprise" Mar. 2008 - Feb. 2012.
- European Commission, Information Society Technologies (IST), ……………...477,000 Euro Co-Investigator with S. Orphanoudakis and A. Argyros, "ACTIPRET -Interpreting and

Understanding Activities of Expert Operators for Teaching and Education" Nov. 2001 - Oct. 2004.

- European Commission, Information Society Technologies (IST), …………....500,000 Euro Co-Investigator with S. Orphanoudakis and A. Argyros, "PRIME -Prediction of congestion and incidents in Real time, for intelligent Incident Management and Emergency traffic management" Jan. 2000 -Dec. 2001

Coordinator of National projects

- General Secretariat for Research and Technology, Greece, ...140,000 Euro Project Coordinator, "XENIOS – Human-Robot Interaction" June 2007 - Mar. 2009.
- General Secretariat for Research and Technology, ………………………… 100,000 Euro Programme for People with Special Needs (EPET-AMEA), Project Coordinator, "DRIVER -Integrated System for Assistive Navigation of Robotic Wheelchair Platforms" June 1999 -Nov. 2000
- Applied Research Programme -Region of Crete …………………………… 215,000 Euro Project Coordinator, "ARHON -Multimedia System for Archival, Annotation and Retrieval of Historical Documents" Jan. 1997 -June 1999.
- General Secretariat for Research and Technology, Greece, ...30,000 Euro Project Coordinator, "NAVIGATOR -Robot Navigation in Unknown Environments Using Visual Information" Jan. 1996 -Dec. 1997.

Other projects

- General Secretariat for Research and Technology, ……………………… 44,000 Euro Competitiveness (Γ' ΚΠΣ ΕΠΑΝ), Principal Investigator, "Development of Industrial Prototype of Robotic System for Web-Access to Museums and Exhibition Sites" Apr. 2003 -Sep. 2004
- Programme for the Development of Industr. Res. (PABE'97) . . . 16,000 Euro Principal Investigator, "Tools for the Desing and Storage of 3D Representations of Archeological Objects" Dec. 1997 -Nov. 1999.
- Information Technology Research Center, Ontario, Canada …………………... $ 120,000 Co-investigator with A.N. Venetsanopoulos and D. Hatzinakos, "Colour Image Processing, Techniques, Architectures and Applications" Mar. 1993 -Feb. 1995.

Research Networks

- European Commission, Information Society Technologies (IST), 470,000 Euro, Co-Investigator with S. Orphanoudakis, "MUSCLE -Multimedia Understanding through Semantics, Computation and Learning" Mar. 2004 -Feb. 2009
- General Secretariat for Research and Technology, Greece, 5,000 Euro, Principal investigator, "KTISIBIOS - Information Technologies in Robotic and Automation Systems" Dec. 1999 – July 2001
- TMR "TACIT - Theory and Applications of Continuous Interaction Techniques", 147,000 Euro Principal investigator Jan. 1998 – Dec. 2000
- TMR "VIRGO -Vision-based Robot Navigation", 254,000 Euro, Co-investigator with S. Orphanoudakis, Aug. 1996 – July 2001

- HCM -"ERCIM Computer Graphics Network", 33,000 Euro, Principal investigator, Sep. 1993 – Aug. 1997

Equipment Grants
- Texas Instruments Grant "The European University Programme – DSP Educators", $ 50,000, Co-investigator with S. Orphanoudakis, A. Traganitis and G. Tziritas, Equipment Grant for the development of the curriculum of the Dept. of Computer Science, Univ. of Crete, in Digital Signal Proc., Nov. 1997
- Hewlett-Packard ID Grant No 70855, $ 110,000, Principal Investigator, Equipment Grant for the development of University of Crete curriculum in Imaging Systems Engineering, June 1997

Educational Grants
- General Secretariat for Research and Technology, Greece, 100,000 Euro, Principal Investigator, Career Opportunities in Greece to Greek Speaking Researchers from Abroad Jan. 1999 – Dec. 2001
- Ministry of Education, Operational Programme in Education and Initial Professional Training, 290,000 Euro, Co-investigator with A. Traganitis, D. Serpanos and V. Komis, "Upgrade of the Undergraduate Curriculum in the Subjects: Teaching of Computer Science and Telecommunications"

Teaching Experience

- University of Crete
    - HY 215 – Applied Mathematics for Engineers, Fall semester, 1993 – 2001
    - MAΘ 106 – Introduction to Programming with Pascal, Fall 1993
    - HY 358 – Computer Graphics (formerly HY 355), Spring semester, 1994 – 2008
    - HY 473/573 – Pattern Recognition, Spring semester, 1995 – 1999
    - HY 475 – Autonomous Robot Navigation, Fall semester, 2002 – present
    - HY 575 – Laboratory Exercises in Autonomous Robot Navigation, Spring semester, 2003 - present

- University of Toronto
    - Lecturer: ECE 311 – System and Signal Analysis, Spring 1992, Spring 1993
    - ECE 151X – Image Processing Spring 1993

- National Technical University of Athens
    - Teaching assistant: Introduction to Programming with Pascal (Spring 1986, 1987)
    - Compilers (Spring 1986, 1987, 1988) Software Engineering (Fall 1987)

Continuing Education

- NATO Advanced Study Institute, Pattern Recognition, Theory and Applications, Spa, Belgium, 2 weeks, June 1986.

- NATO Advanced Study Institute, Mathematics and Computers in Medical Imaging, Il Ciocco, Italy, 2 weeks, September 1987.
- CERN School of Computing, Troia, Portugal, 2 weeks, September 1987.

Professional Service

- Technical reviewer in major Journals, Conferences and Workshops in the areas of Computer Vision, Robotics and Pattern Recognition
- Project Reviewer, European Commission, IST
- Conference Chair: Computer Graphics International 2004 (CGI'04), Eurographics 2008 (EG'08), European Conference on Computer Vision 2010 (ECCV'10)
- Programme Committee Member in major Conferences and Workshops in the areas of Computer Vision, Robotics and Pattern Recognition.

Ph.D. Theses Supervisor

1. Probabilistic motion-tracking and synthesis, Markos Sigalas, under preparation.
2. Modeling associative stimulus-stimulus and stimulus-motor brain processes and an application to reaching grasping behaviors, Emmanouil Hourdakis, 2012.
3. Design and Integration of Agent-based Partial Brain Models for Robotic Systems by Means of Hierarchical Cooperative Coevolution, Michail Maniadakis, June 2006.
4. Predictive Autonomous Robot Navigation, Amalia Foka, May 2005.
5. A Hybrid Framework for Mobile Robot Navigation: Modelling with Switching State-Space Networks, Haris Baltzakis, Jan. 2004.

Supervisor of Post-Docs

1. George Chliveros, area of research: "Vision-based Tracking," Mar. 2012 – present.
2. Emmanouil Hourdakis, area of research: "Computational Brain Modeling & Robot Arm Control," Jan. 2012 – present.
3. Maria Pateraki, area of research: "Vision-based Articulated Tracking," Mar. 2008 – present.
4. Michail Maniadakis, area of research: "Computational Brain Modeling & Artificial Time Perception," Nov. 2007 – present.
5. Akis Kondaxakis, area of research: "Sensor-based Tracking," Mar. 2006 – June 2009.
6. Stathis Kasderidis, area of research: "Cognitive Robotics," Jan. 2004 – Sep. 2009.
7. Haris Baltzakis, area of research: "Autonomous Robot Navigation & Human-Robot Interaction," Mar. 2006 – Dec. 2012.
8. John Immerkaer, area of research: "Landmark-Based Robotic Navigation," May 1997 – April 1998, co-supervised with Prof. Stelios Orphanoudakis.

9. Jon Sporring, area of research: "Scale-space approaches to landmark recognition," Feb. 1999 – Jan. 2000.

M.Sc. Theses Supervisor

1. Simultaneous Tracking of Multiple Moving Humans from a Robotic System, M.Sc. Thesis, Yiannis Avguleas, Oct. 2009.
2. Probabilistic Gesture Recognition, M.Sc. Thesis, Markos Sigalas, Dec. 2008.
3. Development of a Robotic Platform: Hardware and Software for Control, Perception and Movement, M.Sc. Thesis, Christos Papachristou, Feb. 2005.
4. Advanced Techniques for Extracting Dense Point Correspondences in Stereo Image Pairs, M.Sc. Thesis, Costas Hatzopoulos, Jan. 2004.
5. Extraction of 3D scene features from 2D image data, M.Sc. Thesis, Haris Baltzakis, Oct. 1999.
6. Document Image Management in Multimedia Archival Systems, M.Sc. Thesis, Theodoros Garavelos, Feb. 1999.
7. Navigation of a Robotic System on a Predefined Path, M.Sc. Thesis, Andreas Artavanis, Oct. 1998.
8. Projective/Permutation Invariants as Workspace Landmarks for Topological Navigation, M.Sc. Thesis, Basilios Tsonis, Oct. 1998.
9. Robot Navigation in Indoor Environments Using Visual Information, M.Sc. Thesis, Savvas Velissaris, December 1996.

B.Sc. Theses Supervisor

Twenty eight (28) B.Sc. theses supervised

Demonstrations

- Robotic systems TALOS and DRIVER, Public Event organized by the General Secretariat for Research and Technology, Zappeion, Athens, Greece, May 7-10, 2000.
- Robotic system TOURBOT, Public Event and Validation Week, Foundation for the Hellenic Wolrd, Athens, Greece, May 28 -June 2, 2001.
- Robotic system DRIVER, One-day Workshop, General Secretariat for Research and Technology, Programme for People with Special Needs, Athens, Greece, June 12, 2001.
- Robotic system DRIVER, Thessaloniki International Trade-Show, Thessaloniki, Greece, Sep.8-16, 2001.
- Robotic system TOURBOT, Public Event and Validation Week, Byzantine and Christian Museum, Athens, Greece, Dec.3-7, 2001.
- Robotic system TOURBOT, Public Event, Natural History Museum of Crete, Heraklion, Greece, June 17-21, 2002.
- Robotic system WEBFAIR, BELGIOIOSO Exhibition Center, Fashion Vintage Exhibition, Apr. 22-23, 2004.

- Robotic system WEBFAIR, Thessaloniki International Exhibitionr, Thessaloniki, Greece, Sep. 11-19, 2004.

Other

- Chair, Department of Computer Science, University of Crete, Sep. 2010 – present.
- Head, Computational Vision and Robotics Lab, Institute of Computer Science, Foundation for Research and Technology – Hellas, April 2005 – present.
- Chairman of Graduate Studies, Department of Computer Science, University of Crete, Sep. 2006 – Sep. 2010.
- Head of the "Computational Neuroscience" track of the graduate programme "Brain and Mind", Sep. 2007 – present.
- Vice-Chair, Department of Computer Science, University of Crete, Sep. 2002 - Aug. 2004.
- Member of the "Undergraduate Studies Committee", Department of Computer Science, University of Crete, Sep. 1997-Aug. 2001.
- Vice-Member of the "Research Committee -University of Crete", Delegate of the Department of Computer Science.
- Elected Member of the "Scientific Council", Institute of Computer Science, FORTH, Mar. 1999 -Jan. 2004.
- Supervised the preparation and release of the "Curriculum Guide", Department of Computer Science, University of Crete, (Sep. 1999).
- Member of the "Programme Committee", Joint Graduate Programme in Cultural Information Systems, Depts. History-Archaeology & Computer Science, University of Crete.
- Author of course notes, HY-215 "Applied Mathematics for Engineers" (150 p), Department of Computer Science, University of Crete.
- Co-author of course notes, ECE 151X "Image Processing," Department of Electrical and Computer Engineering, University of Toronto.
- Contributions in the preparation of course notes, "Introduction to Programming with Pascal," "Compilers" and "Software Engineering," Department of Electrical and Computer Engineering, NTUA.
- Chaired the committee that composed the 1995-96 advertisement brochure of the "Department of Computer Science, University of Crete".
- Chairman of the Library Committee, ICS-FORTH Library.
- Representative of ICS in the Technical Council of FORTH.
- Representative of ICS-FORTH in the ERCIM VRML Committee.
- The B.Sc. thesis "Color edge detection using second derivative methods," by D. Androutsos, April 1992, Department of Electrical and Computer Engineering, University of Toronto, co-supervised with Prof. A.N. Venetsanopoulos, has been awarded the Departmental Thesis award for 1991-92.
- An extensive example referring to the paper "Syntactic Pattern Recognition of the ECG", authors P.E. Trahanias and E. Skordalakis, is worked out in the book by R. Schalkoff "Pattern Recognition: Statistical, Structural and Neural Approaches," John Wiley, 1992.

- A figure from the paper "Morphological hand-printed character recognition by a skeleton matching algorithm", authors P.E. Trahanias, et. al, appears in the cover page of the Journal of Electronic Imaging, April 1993 issue.

Citations

- 2528 (Publish or Perish)
- 1124 (Scopus)
- h-index = 21

PUBLICATIONS

A. In Scientific Journals

A1. H. Baltzakis, M. Pateraki, P. Trahanias, "Visual tracking of hands, faces and facial features of multiple persons", Machine Vision and Applications, pp. 1-17, 2012.

A2. E. Hourdakis, P. Trahanias, "Improving the performance of Liquid State Machines based on the separation property", Invited Submission, Journal of Neurocomputing, in press.

A3. E. Hourdakis, P. Trahanias, "Computational modeling of observational learning inspired by the cortical underpinnings of human primates", Journal of Adaptive Behavior, May 2012.

A4. M. Maniadakis, P. Trahanias, J. Tani, "Self-organizing high-order cognitive functions in artiffical agents: implications for possible prefrontal cortex mechanisms", Neural Networks, Vol 33, 76–87, 2012

A5. M. Maniadakis, P. Trahanias, "Temporal cognition: a key ingredient of intelligent systems", Frontiers in Neurorobotics, vol 5, 2011. Perspective Article.

A6. E. Hourdakis, E. Savaki and P. Trahanias, "Computational modeling of cortical pathways involved in action execution and action observation", Neurocomputing vol. 74 , Issue 7, pp. 1135-1155, 2011.

A7. A.F. Foka and P.E. Trahanias, "Probabilistic Autonomous Robot Navigation in Dynamic Environments with Human Motion Prediction", I.J Social Robotics 2(1): 79-94, 2010.

A8. M. Maniadakis, P. E. Trahanias and J. Tani, "Explorations on Artificial Time Perception", Neural Networks, vol 22(5-6), pp 509-517, 2009.

A9. M. Maniadakis, P. E. Trahanias, "Agent-based Brain Modelling for Artificial Organisms by means of Hierarchical Collaborative CoEvolution", Artificial Life, vol 15(3), pp 293-336, 2009.

A10. M. Maniadakis, P. E. Trahanias, "Hierarchical Cooperative CoEvolution: Presentation and Assessment Study", International Journal of AI Tools, vol 18(1), pp 99-120, 2009.

A11. M. Maniadakis, P. E. Trahanias, "Hierarchical CoEvolution of Cooperating Agents Acting in the Brain Arena", Adaptive Behavior Journal, Vol. 16, No. 4, 221-245, 2008.

A12. A. Foka and P. Trahanias, "Real-time hierarchical POMDPs for autonomous robot navigation", Robotics and Autonomous Systems (RAS) Journal, Vol.55(7), pp.561-571, July 2007.

A13. M. Maniadakis and P.E. Trahanias, "Modelling Robotic Cognitive Mechanisms by Hierarchical Cooperative CoEvolution", International Journal of AI Tools, vol. 16(6), pp. 935-966, 2007.

A14. M. Maniadakis, P. E. Trahanias, "Modelling brain emergent behaviours through coevolution of neural agents", Neural Networks Journal, vol. 19(5), pp. 705-720, 2006.

A15. P.E. Trahanias, W. Burgard, A. Argyros, D. Haehnel, H. Baltzakis, P. Pfaff and C. Stachniss, "TOURBOT and WebFAIR: Web-operated Mobile Robots for Tele-Presence in Populated Exhibitions," **special issue on Robotics & Automation in Europe: Projects funded by the Commission of the European Union**, IEEE Robotics and Automation Magazine, vol. 12, no. 2, pp. 77-89, June 2005.

A16. W. Burgard, P.E. Trahanias, D. Haehnel, M. Moors, D. Schulz, H. Baltzakis and A. Argyros, "Tele-presence in Populated Exhibitions through Weboperated Mobile Robots," **special issue on On-line Robots**, *Autonomous Robots* Journal, Vol.15(3), pp.299-316, Nov. 2003.

A17. H. Baltzakis, A. Argyros and P.E. Trahanias, "Fusion of Laser and Visual Data for Robot Motion Planning and Collision Avoidance," *Machine Vision and Applications* Journal, Vol.15, pp.92-100, Oct. 2003.

A18. H. Baltzakis and P.E. Trahanias, "A Hybrid Framework for Mobile Robot Localization: Formulation Using Switching State-Space Models," *Autonomous Robots* Journal, Vol.15(2), pp.169-191, Sep. 2003.

A19. K. Bekris, K. Hatzopoulos, G. Kazakakis, G. Kontolemakis, M. Masvoula, N. Tsivourakis, A. Argyros, and P.E. Trahanias, "PYTHEAS: An Integrated Robotic System with Autonomous Navigation Capabilities," **special issue on Intelligent sensing, image processing and applications**, *Image processing & Communications* Journal, vol.8, No.2, pp.81-92, 2002.

A20. A.A. Argyros, P. Georgiadis, P.E. Trahanias and D.P. Tsakiris, "Semi-Autonomous Navigation of a RoboticWheelchair," **special issue on Medical and Rehabilitation Robotics**, *Journal of Intelligent and Robotic Systems*, Vol. 34(3), pp.315-329, July 2002.

A21. H. Baltzakis and P.E. Trahanias, "The VPLF Method for Vanishing Point Computation", *Image and Vision Computing* Journal, Vol.19(6), pp.393-400, April 2001.

A22. C.I. Colios and P.E. Trahanias, "A Framework for Visual Landmark Identification Based on Projective and Point-Permutation Invariant Vectors", *Robotics and Autonomous Systems* Journal, Vol.35(1), pp.37-51, April 2001.

A23. H. Baltzakis and P.E. Trahanias, "Iterative Computation of 3D Plane Parameters," *Image and Vision Computing* Journal, Vol.18(14), pp.1093-1100, Nov. 2000.

A24. P. Trahanias, S. Velissaris, S. Orphanoudakis, "Visual Recognition of Workspace Landmarks for Topological Navigation," Autonomous Robots, Vol.7(2), pp.143-158, Sep. 1999.

A25. A.A. Argyros, P.E. Trahanias and S.C. Orphanoudakis, "Robust Regression for the Detection of Independent 3D Motion by a Binocular Observer," Journal of Real Time Imaging, 4, pp.125-141, April 1998.

A26. M. Bordegoni, G. Faconti, S. Feiner, M.T. Maybury, T.Rist, S. Ruggieri, P. Trahanias, and M. Wilson, "A Standard Reference Model for Intelligent Multimedia Presentation Systems," *Computer Standards and Interfaces*, **special issue on Towards a Standard Reference Model for IMMP Systems**, Vol.18, No.6-7, pp.477–496, Dec. 1997.

A27. D.G. Karakos and P.E. Trahanias, "Generalized Multichannel Image-Filtering Structures," *IEEE Trans. on Image Processing*, **special issue on Color Imaging**, Vol.6, No.7, pp.1038–1045, July 1997.

A28. D. Androutsos, P.E. Trahanias and A.N. Venetsanopoulos, "Application of Active Contours for Photochromic Tracer Flow Extraction," *IEEE Trans. On Medical Imaging*, Vol.16, No.3, pp.284–293, June 1997.

A29. G. Faconti, M. Bordegoni, K. Kansy, P. Trahanias, T.Rist and M. Wilson, "Formal Framework and Necessary Properties of the Fusion of Input Modes in User Interfaces," *Interacting with Computers*, Vol 8(2), pp.134-161, Elsevier, 1996.

A30. P.E. Trahanias, D. Karakos and A.N. Venetsanopoulos, "Directional Processing of Color Images: Theory and Experimental Results," *IEEE Trans. On Image Proc.*, **special issue on Nonlinear Image Processing**, Vol.5, No.6, pp.868-880, June 1996.

A31. P.E. Trahanias and A.N. Venetsanopoulos, "Vector Order Statistics Operators as Color Edge Detectors," *IEEE Trans. Syst. Man & Cybern. – Part B: Cybernetics*, Vol.26, No.1, pp.135-143, Feb. 1996.

A32. P.E. Trahanias and A.N. Venetsanopoulos, "Vector Directional Filters – A New Class of Multichannel Image Processing Filters," *IEEE Trans. Image Processing*, Vol.2, No.4, pp.528-534, Oct. 1993.

A33. P.E. Trahanias, K. Stathatos, F. Stamatelopoulos and E. Skordalakis, "Morphological hand-printed character recognition by a skeleton matching algorithm", *Journal of Electronic Imaging* 2(2), pp.114-125, April 1993.

A34. P.E. Trahanias and A.N. Venetsanopoulos, "Color edge detection using vector order statistics," *IEEE Trans. Image Processing*, Vol.2, No.2, pp.259-264, April 1993.

A35. P.E. Trahanias, "An approach to QRS complex detection using mathematical morphology," *IEEE Trans. Biomed. Eng.*, Vol.40, No.2, pp.201-205, Feb. 1993.

A36. P.E. Trahanias, "Binary shape recognition using the morphological skeleton transform," *Pattern Recognition*, Vol.25, No.11, pp.1277-1288, Nov. 1992.

A37. P.E. Trahanias and E. Skordalakis, "Syntactic Pattern Recognition of the ECG," *IEEE Trans. Pattern Anal. Mach. Intell.*, Vol.PAMI-12, No.7, pp.648-657, July 1990.

A38. P.E. Trahanias and E. Skordalakis, "An efficient sequential clustering method," *Pattern Recognition*, Vol.22, No.4, pp.449-453, 1989.

A39. P.E. Trahanias and E. Skordalakis, "A bottom-up approach to ECG pattern recognition problem," *Med. & Biol. Eng. & Comput.* 27, pp.221-229, 1989.

A40. P.E. Trahanias, E. Skordalakis and G. Papakonstantinou, "A syntactic method for the classification of the QRS patterns," *Pattern Recognition Letters* 9, pp.13-18, 1989.

B. Books and Chapters

B1. P.E. Trahanias, I. Pitas and A.N. Venetsanopoulos, "Color Image Processing," in *2-D and 3-D Signal Processing - Techniques and Applications*, Control and Dynamic Systems, Vol.67, C.T. Leondes Ed., **invited contribution**, Academic Press, pp.45-90, 1994.

B2. P.E. Trahanias and A.N. Venetsanopoulos (editors), Proceedings of the *Canadian Conference on Electrical & Computer Engineering*, ISSN 0840-7789, ISBN 0-9694170-3-9, Toronto, Ontario, Canada, Sept. 1992.

B3. C3. E. Skordalakis and P.E. Trahanias, "Computers in cardiac research," in *"Microcomputers in Physiology: A Practical Approach"*, P.J. Fraser (ed.), **invited contribution**, IRL Press, pp.157-178, 1988.

C. In Conference Proceedings

C1. M. Maniadakis and P. Trahanias, "Experiencing and Processing Time with Neural Networks", In Proc. of the International Conference on Advanced Cognitive Technologies and Applications (COGNITIVE), July 22-27, Nice, France, 2012.

C2. M. Pateraki, H. Baltzakis, P. Trahanias, "Using Dempster's rule of combination to robustly estimate pointed targets", In Proc. of the IEEE International Conference on Robotics and Automation (ICRA), pp.1218-1225, May 14-18, St. Paul, Minnesota, USA, 2012.

C3. E. Hourdakis and P. Trahanias, "Improving the performance of liquid state machines based on the separation property", In proc. Engineering Applications of Neural Networks (EANN/AIAI11), pp. 52-62, 2011. Awarded with the best student paper award.

C4. M. Maniadakis, M. Wittmann, P. Trahanias, "Time Experiencing by Robotic Agents", in Proc. European Symposium on Artificial Neural Networks (ESANN), pp.429-434, 2011.

C5.   E. Hourdakis and P. Trahanias, "Observational learning based on models of overlapping pathways", In Proc. 21st International Conference on Artificial Neural Networks, ICANN 2011, Volume Part II, LNCS 6792, pp.48-55, Finland, 2011.

C6.   M. Pateraki, H. Baltzakis, P. Trahanias, "Visual estimation of pointed targets for robot guidance via fusion of face pose and hand orientation.", In Proc. of the 1st IEEE Workshop on Challenges and Opportunities in Robot Perception, held within the 13th International Conference on Computer Vision (ICCV), 6-13 November, Barcelona, Spain, 2011.

C7.   M. Pateraki, H. Baltzakis, P. Trahanias, "Visual tracking of hands, faces and facial features as a basis for human-robot communication", In Proc. of the Workshop on Visual Tracking and Omnidirectional Vision, held within the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), September, San Francisco, USA, 2011.

C8.   M. Pateraki, H. Baltzakis, P. Trahanias, "An integrated approach for visual tracking of hands, faces and facial features", In Proc. of the Workshop on Measuring and Understanding Human Movements and Emotions, held within the IEEE International Conference on Robotics and Automation (ICRA), May, Shanghai, China, 2011.

C9.   E. Hourdakis and P. Trahanias, "Observational learning based on overlapping pathways", In Proc. 2nd International Conference on Morphological Computation (MORPHCOMP11), pp. 109-111, Venice, Italy, 2011.

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