

MARIA PAPADOGIORGAKI

ELECTRICAL AND COMPUTER ENGINEER

MSC IN MEDICAL INFORMATICS

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◆ EDUCATION

- 2006 **MSc. IN Medical Informatics**, Medical School, Aristotle Uni-versity of Thessaloniki
Diploma thesis: "Automated detection of boundaries in sequential intra-vascular ultrasound images"
- 2003 **Electrical and Computer Engineer**, Department of Electrical and Computer Engineering, Aristotle Uni-versity of Thessaloniki
Diploma thesis: "Synthesis of Sign Language from text (3D movements of hand models based on MPEG-4 standard)"

◆ **RESEARCH INTERESTS:** Medical signal and image processing, medical (mathematical/computational) modeling, pattern recognition, multimedia knowledge extraction, machine and deep learning, microelectronic systems, sustainable energy design for buildings, renewable energy systems technologies.

◆ RESEARCH EXPERIENCE

2003 – 2007 **Research Associate in Informatics and Telematics Institute, Centre for Research and Technology Hellas (ITI/CERTH).**

Participation to the following Research Projects:

- VRTheater: "Virtual Reality Toolbox for Theater Professionals", 2003-2005, GSRT-EPAN – Culture.
- Similar: "The European Research Taskforce Creating Human-Machine Interfaces SIMILAR to humans", 2004-2008, IST: Network of Excellence".
- Imutus: "Interactive Music Tuition System", 2002-2005, FP5-IST-2001-32270.
- ACEMEDIA: "Integrating knowledge, semantics and content for user centred intelligent media services", 2004–2007, EU-IST-P.
- Video Streaming, 2002–2005, Germany – Greece Bilateral Scientific Cooperation.
- CIRCE: "Content-Based and Semantic Mul-timedia Indexing and Retrieval in Collaborative Environments", 2005-2006, Hungary – Greece Bilateral Scientific Cooperation.
- "Knowledge-assisted analysis of medical image and video for doctor decision support applications", 2005-2007, Slovenia – Greece Bilateral Scientific Cooperation.
- ELU: "Enhanced Learning Unlimited", 2006-2008, EU-IST-STREP.
- Motorola-ITI Personalization Project: "Distributed Knowledge Management for Personalized Content Delivery", 2004-2006, MOTOROLA UK LTD Funding
- Motorola-ITI Contextual Project: "Contextual Search based on Semantic Text Analysis", 2007, MOTOROLA UK LTD Funding
- Motorola-ITI Advertising Project: "Personalized Recommendation of Multimedia Content and Advertising by Means of Distributed Knowledge-based Reasoning", 2007-2008, MOTOROLA UK LTD Funding

2007 **Research Associate in Aristotle University Of Thessaloniki**

Participation to the Research Project: "Processing Techniques of Patent Texts", 2006-2008, FP6, RESEARCH & INNOVATION.

2008

Research Collaborator in Technical University of Crete, School of Production and Management Engineering, Decision Support Systems Laboratory

Participation to the Project: **EPEAEK II**, "Education program reformation for the post graduate

students of Production and Management Engineering Department of Technical University of Crete", 2003-2005.

2008 – 2018

Research Collaborator in Telecommunications Systems Institute of Technical University of Crete.

Participation to the following Research Projects:

- OSMOSIS: "Open Source Modelling & Hardware Software Codesign of Embedded Systems", 2008-2010, FP7.
- SMART: "Secure, Mobile Visual Sensor Networks Architecture", 2009-2013, FP7.
- SAFEMETAL: "Increasing EU citizen security by utilizing innovative intelligent signal processing systems for euro-coin validation and metal quality testing", 2010-2012, FP7.
- EΞEXΩN: "Smart Vehicle Communication System for Improved Safety and Efficiency in Urban Networks and Highways", 2011-2014, RANGE NATIONAL "ACTION COOPERATION".
- FASTCUDA: "Open Source FPGA Accelerator & Hardware-Software Codesign Toolset for CUDA Kernels", 2011-2014, FP7.
- AI-CARE: "Advanced Knowledge Management Systems with Internet Computational Efficiency and Applications in Health Care", 2013-2015, RANGE NATIONAL "ACTION COOPERATION 2011".
- Ecoscale: "Energy-efficient Heterogeneous Computing at exascale", 2015-2018, HORIZON 2020.
- EXTRA: "Exploiting eXascale Technology with Reconfigurable Architectures", 2015-2018, HORIZON 2020.
- COSSIM: "A Novel, Comprehensible, Ultra-Fast, Security-Aware CPS Simulator", 2015-2018, HORIZON 2020.

2014 – 2015,
2020 – 2021

Research Collaborator in Technical University of Crete, School of Mineral Resources Engineering, Geodesy and Geomatics Engineering Laboratory

Participation to the following Research Projects:

- ATLANTAS: "Development of novel 3D touch screen for interactive 3D Geographic Information System", 2012-2015, RANGE NATIONAL "ACTION COOPERATION 2011".
- Drones2GNSS: "UAV enabled precision measurements in obstructed environments", 2018-2021, RESEARCH-CREATE-INNOVATE, NSRF 2014-2020.

Research Collaborator in Technical University of Crete, School of Electronic & Computer Engineering, Digital Image and Signal Processing Laboratory.

2012 –

Participation to the following Research Projects:

- YP.ER.THE.N.: "Development of the research infrastructure of clinical computational tools and services for better diagnosis and prediction towards personalized treatment of oncological diseases", 2011-2013, Interreg framework of Greek Cypriot Co-operation.
- ANASA: "Autonomous Robotic System for Urban Waste Recycling", 2018-2022, RESEARCH-CREATE-INNOVATE, NSRF 2014-2020.
- XBLEPSIS: "Advanced Monitoring System for Infants", 2018-2022, RESEARCH-CREATE-INNOVATE, NSRF 2014-2020.
- "Creation of a National Research Network in The "Vine" value chain, Subproject 1: Genetic and Genomic Analysis", 2019–2022, Flagship Project 'GRAPEROUTES'.
- QuaLiSID: "Quality of Life Support System for People with Intellectual Disability", 2020-2023, RESEARCH-CREATE-INNOVATE, NSRF 2014-2020.

◆ **TEACHING EXPERIENCE**

2003

Instructor in "Interactive Learning" Center of Informatics Learning: Microsoft Windows, Microsoft Office, Internet

2007 – 2008 **Instructor in "Memo Education" Center of Informatics Learning:** Microsoft Windows, Microsoft Office, Internet

2007 – 2008 **Teacher according to D.L. 407/80 in Technical University of Crete:** Seminars on Microsoft Office

◆ PUBLICATIONS

INVENTIONS, PATENTS

- [1] S. Waddington, B. Bratu, I. Kompatsiaris, M. Papadogiorgaki, E. Nidelkou, V. Papastathis, "A content recommendation system". Patent application filed to the UK IPO on 9 Dec 2006 and published 22 Oct 2008 under number GB 2448480A.
- [2] S. Waddington, B. Bratu, I. Kompatsiaris, E. Nidelkou, M. Papadogiorgaki, V. Papastathis. "A Content Recommendation System and a Method of Operation Therefor". Publication number: WO2008073594 (B1), WIPO, Publication date: 19/6/2008.

JOURNAL PAPERS

- [1] K. Apostolidis, V. Mezaris, **M. Papadogiorgaki**, E. S. Bei, G. Livanos and M. E. Zervakis, "Content and Other Resources Recommendations for Individuals with Intellectual Disability: A Review", *Electronics*, Vol. 11, No 3472, 2022. DOI: 10.3390/electronics11213472.
- [2] K. Malavazos, **M. Papadogiorgaki**, P. Malakonakis and I. Papaefstathiou, "Novel Reconfigurable Hardware Systems for Tumor Growth Prediction", *ACM Transactions on Computing for Healthcare (HEALTH)*, Vol. 2, Issue 4, Article No 28, pp. 1 -27, July 2021. DOI: 10.1145/3454126
- [3] **M. Papadogiorgaki**, P. Koliou and M. E. Zervakis, "Glioma Growth Modeling based on the Effect of Vital Nutrients and Metabolic Products", *Medical & Biological Engineering & Computing*, Springer, Vol. 56, No 9, pp. 1683 - 1697, September 2018. DOI: 10.1007/s11517-018-1809-0
- [4] **M. Papadogiorgaki**, P. Partsinevelos, "Adaptive DTM generalization methods for tangible GIS applications", *Earth Science Informatics*, Springer, Vol. 10, No 4, pp. 483 - 494, July 2017. DOI: 10.1007/s12145-017-0311-9
- [5] **M. Papadogiorgaki**, M. G. Kounelakis, P. Koliou and M. E. Zervakis, "A Glycolysis Based in-silico Model for the Solid Tumor Growth", *IEEE Journal of Biomedical and Health Informatics*, Vol. 19, No 3, pp. 1106 - 1117, May 2015.
- [6] **M. Papadogiorgaki**, P. Koliou, X. Kotsiakos and M. Zervakis, "Mathematical modelling of spatio-temporal glioma evolution", *Theoretical Biology and Medical Modelling*, BioMed Central, 10:47, July 2013.
- [7] C. Doulaverakis, **M. Papadogiorgaki**, V. Mezaris, A. Billis, E. Parissi, I. Kompatsiaris, A. Gounaris, Y. S. Chatzizisis, G. D. Giannoglou, "IVUS image processing and semantic analysis for Cardiovascular Diseases risk prediction", *International Journal of Biomedical Engineering and Technology*, Vol. 3, No 3/4, pp. 349-374, 2010.
- [8] **M. Papadogiorgaki**, V. Papastathis, E. Nidelkou, S. Waddington, B. Bratu, M. Ribiere and I. Kompatsiaris, "Two-level Automatic Adaptation of a Distributed User Profile for Personalized News Content Delivery", *International Journal of Digital Multimedia Broadcasting*, Special Issue on Personalization of Mobile Multimedia Broadcasting, Hindawi, Vol. 2008, pp. 1-21, Article ID 863613, 2008.
- [9] **M. Papadogiorgaki**, V. Mezaris, Y. S. Chatzizisis, G. D. Giannoglou and I. Kompatsiaris, "Image analysis techniques for automated IVUS contour detection", *Ultrasound in Medicine and Biology*, Elsevier, vol. 34, No 9, pp. 1482-1498, September 2008.
- [10] **M. Papadogiorgaki**, V. Mezaris, Y. S. Chatzizisis, G. D. Giannoglou and I. Kompatsiaris, "Texture Analysis and Radial Basis Function Approximation for IVUS image Segmentation", *The Open Biomedical Engineering Journal*, Vol. 1, pp. 53-59, 2007.
- [11] G. D. Giannoglou, Y. S. Chatzizisis, V. Koutkias, I. Kompatsiaris, **M. Papadogiorgaki**, V. Mezaris, E. Parissi, P. Diamantopoulos, M. G. Strintzis, N. Maglaveras, G. E. Parcharidis, G. E. Louridas, "A Novel Active Contour Model for Fully Automated Segmentation of Intravascular Ultrasound Images: In-Vivo Validation in Human Coronary Arteries", *Computers in Biology and Medicine*, Elsevier, Vol. 37, No 9, pp. 1292-1302, September 2007.
- [12] **M. Papadogiorgaki**, N. Grammalidis and L. Makris, "Sign synthesis from SignWriting notation using MPEG-4 standard, H-Anim and inverse kinematics techniques", *International Journal on Disability and Human Development*, IJDHD, Special Issue on Disability, Virtual Reality and Associated Technologies, Vol. 4, No 3, pp. 191-

BOOK CHAPTERS:

- [1] **M. Papadogiorgaki**, V. Mezaris, Y. Chatzizisis, G. D. Giannoglou and I. Kompatsiaris, "Visual medical information analysis", Encyclopedia of Information Science and Technology, (2nd Edition), Mehdi Khosrow-Pour (Editor), IGI Global, vol. VIII, pp. 4034-4040, October 2008.
- [2] E. Nidelkou, V. Papastathis, **M. Papadogiorgaki**, I. Kompatsiaris, B. Bratu, M. Ribiere, S. Waddington, "User Profile Modeling and Learning", Encyclopedia of Information Science and Technology (2nd Edition), Mehdi Khosrow-Pour (Editor), IGI Global, vol. VIII, pp. 3934-3939, October 2008.

CONFERENCE PAPERS

- [1] K. Moirogiorgou, F. Raptopoulos, G. Livanos, M. Maniadakis, S. Orfanoudakis, **M. Papadogiorgaki**, M. Zervakis, "Intelligent robotic system for urban waste recycling", IEEE International Conference on Imaging Systems and Techniques (IST 2022), June 21-23, 2022, Virtual.
- [2] A. Grammatikopoulou, N. Grammalidis, **M. Papadogiorgaki**, M. E. Zervakis, "A platform for health emergency warning and wandering behaviour detection supporting people with Intellectual Disability", International Conference on Pervasive Technologies Related to Assistive Environments (PETRA 2022), Workshop on Quality of Life Support SysTEm for People sufferIng from COgNitive impairments or Intellectual Disabilities (QUESTION), June 29-July 1, 2022, Corfu, Greece.
- [3] C. Farmaki, M. Pediaditis, **M. Papadogiorgaki**, E. G. Spanakis, M. Zervakis, S. Schiza, N. Tzanakis, E. Galanakis and V. Sakkalis, "Contactless Sleep Monitoring in a Real-Life Clinical Environment", 44th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'22), July 11-15, 2022, Glasgow, UK.
- [4] **M. Papadogiorgaki**, M. Venianaki, P. Charonyktakis, M. Antonakakis, I. Tsamardinos, M. Zervakis, V. Sakkalis, "Heart Rate Classification Using ECG Signal Processing and Machine Learning Methods", 21th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2021), October 25-27, 2021, Kragujevac, Serbia.
- [5] M. Antonakakis, K. Politof, G. Klados, G. Sdoukopoulou, S. Schiza, **M. Papadogiorgaki**, C. Farmaki, M. Pediaditis, M. Zervakis, V. Sakkalis, "A New Multi-feature Classification Scheme for Normal and Abnormal Respiratory Sounds Classification", 21th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2021), October 25-27, 2021, Kragujevac, Serbia.
- [6] A. Vogiatzis, G. Chalkiadakis, K. Moirogiorgou, G. Livanos, **M. Papadogiorgaki**, M. E. Zervakis, "Dual-Branch CNN for the Identification of Recyclable Materials", 2021 IEEE International Conference on Imaging Systems and Techniques (IST 2021), June 2020, No 36, pp. 1-6, ACM Digital Library August 24-26, 2021, New York, USA, to appear.
- [7] **M. Papadogiorgaki**, V. Mezaris, N. Grammalidis, K. Grigoriadis, E. S. Bei, G. Livanos, M. E. Zervakis, "Quality of Life Support System for People with Intellectual Disability", Proceedings of the 13th ACM International Conference on Pervasive Technologies Related to Assistive Environments (PETRA 2020), June 2020, No 36, pp. 1-6, ACM Digital Library <https://doi.org/10.1145/3389189.3397971>.
- [8] K. Malavazos, **M. Papadogiorgaki**, P. Malakonakis and I. Papaefstathiou, "A novel FPGA-based system for Tumor Growth Prediction", IEEE Design, Automation and Test in Europe (DATE' 20), 2020.
- [9] P. Partsinevelos and **M. Papadogiorgaki**, "Digital terrain model generalization incorporating scale, semantic and cognitive constraints", European Geosciences Union General Assembly 2014 (EGU2014), 27 April – 02 May, 2014.
- [10] M. G. Kounelakis, **M. Papadogiorgaki**, M. E. Zervakis, "An in-silico Model for Solid Tumor Growth based on the Concept of Glycolysis", 13th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2013), November 10-13, 2013, Chania, Crete, Greece.
- [11] **M. Papadogiorgaki** and M. Zervakis, "Visualization and Modeling of Cancer Progression", IEEE International Conference on Imaging Systems and Techniques (IST 2013), October 22-23, 2013, Beijing, China.
- [12] N. Doulamis, **M. Papadogiorgaki**, M. Zervakis, "Texture Driven Mathematical Modeling for Brain Tumor Evolution", Pervasive Technologies Related to Assistive Environments (PETRA 2013), May 29-31, 2013, Rhodes Island, Greece.
- [13] **M. Papadogiorgaki**, V. Papastathis, E. Nidelkou, Y. Kompatsiaris, S. Waddington, B. Bratu, M. Ribiere, "Distributed User Modeling for Personalized News Delivery in Mobile Devices", 2nd International Workshop on Semantic Media Adaptation and Personalization (SMAP07), pp. 80-85, December 17-18, 2007, London, United

Kingdom.

- [14] **M. Papadogiorgaki**, V. Mezaris, Y. S. Chatzizisis, G. D. Giannoglou and I. Kompatsiaris, "Automated IVUS contour detection using intensity features and Radial Basis Function approximation", 20th IEEE International Symposium on Computer-Based Medical Systems (CBMS 2007), pp. 183-188, June 20-22, 2007, Maribor, Slovenia.
- [15] **M. Papadogiorgaki**, V. Mezaris, Y.S. Chatzizisis, I. Kompatsiaris and G.D. Giannoglou, "A Fully Automated Texture-based Approach for the Segmentation of Sequential IVUS Images", 13th International Conference on Systems, Signals & Image Processing (IWSSIP 2006), pp. 461-464, September 21-23, 2006, Budapest, Hungary.
- [16] **M. Papadogiorgaki**, N. Grammalidis, L. Makris, and M. G. Strintzis, "GESTURE SYNTHESIS FROM SIGN LANGUAGE NOTATION USING MPEG-4 HUMANOID ANIMATION PARAMETERS AND INVERSE KINEMATICS", 2nd International Conference on Intelligent Environments (IE06), pp. 151-160, July 5-6, 2006, Athens, Greece.
- [17] **M. Papadogiorgaki**, N. Grammalidis, D. Tzovaras and M. G. Strintzis, "TEXT-TO-SIGN LANGUAGE SYNTHESIS TOOL", Proc 13th European Signal Processing Conference (EUSIPCO 2005), September 4-8, 2005, Antalya, Turkey.
- [18] D. Koutsonanos, **M. Papadogiorgaki**, E. Kalapanidas, D. Tzovaras, C. Davarakis and M.G.Strintzis, "Enhancing Electronic Music Tuition Systems with Virtual Reality Tools", Proc. 5th Open Workshop of MUSICNETWORK: Integration of Music in Multimedia Applications, July 2005, Vienna, Austria.
- [19] **M. Papadogiorgaki**, N. Grammalidis, N. Sarris, and M. G. Strintzis, "Synthesis of Virtual Reality Animation from Sign Language Notation using MPEG-4 Body Animation Parameters", Proc. International Conference Series on Disability, Virtual Reality and Associated Technologies New College (ICDVRAT 2004), pp. 259-266, September 20-22, 2004 Oxford, UK.
- [20] **M. Papadogiorgaki**, N. Grammalidis, N. Sarris, and M. G. Strintzis, "Synthesis of Virtual Reality Animations from SWML using MPEG-4 Body Animation Parameters", Workshop on the Representation and Processing of Sign Languages, Proc. 4th International Conference on Language Resources and Evaluation (LREC 2004), pp. 43-50, May 2004, Lisbon, Portugal.
- [21] **M. Papadogiorgaki**, N. Grammalidis, L. Makris, N. Sarris, and M. G. Strintzis, "VSigns – A Virtual Sign Synthesis Web Tool", Proc. 6th COST 276 Workshop on Information and Knowledge Management for Integrated Media Communication, pp. 25-31, May 6-7, 2004, Thessaloniki, Greece.