

*Curriculum Vitae**Kostas Marias**Dipl.Eng, M. Sc, Ph. D**Professor*

**Dept. of Electrical & Computer
Engineering at the Hellenic
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SUMMARY PROFILE AND ACHIEVEMENTS

Kostas Marias (PhD) is a Professor in Medical Image Processing at the Dept. of Electrical & Computer Engineering, and Dean of the School of Engineering at the Hellenic Mediterranean University in Greece and is the head and founder of the Computational Biomedicine Laboratory at FORTH-ICS. He served as Principal Researcher at the Institute of Computer Science of the Foundation for Research & Technology Hellas (ICS-FORTH) since 2006. During 2000-2002, he worked as a medical image analysis Research Assistant at the University of Oxford and from 2003-2006 as Associated Researcher at FORTH-ICS. He received his PhD in Medical Image Analysis and Medical Physics from UCL Royal Free & University College Medical School working jointly with the University of Oxford, UK. He has coordinated two EC projects on cancer modelling (ContraCancrum and TUMOR projects), and has actively participated in several other EC funded projects developing ICT technology. Kostas Marias is a dedicated professional member of IEEE for 18 years and has served with diverse organisational roles in many important IEEE conferences in the field of biomedical informatics and imaging such as EMBC, BIBE and IST either as member of the scientific committee, organising committee, in special sessions, program co-chair, etc. He is co-author of more than 300 papers in international journals, books and conference proceedings focusing on medical image processing and analysis, biomedical informatics, image-based modelling and Radiomics/deep learning medical imaging applications.

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PERSONAL DETAILS

Name	Kostas Marias
Date of Birth	October 29th, 1972
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Marital Status	Married, two children
Nationality	Greek

EDUCATION

1997 - 2001	PhD in Medical Image Analysis and Medical Physics, UCL Royal Free & University College Medical School jointly with the University of Oxford, UK. Supervisor: Professor Sir Michael Brady FRS FREng, Professor of Information Engineering, Oxford University.
1996- 1997	M.Sc in Engineering and Physical Sciences in Medicine Imperial College of Science, Technology and Medicine, Department of Bioengineering, UK
1990-1995	Diploma in Electrical & Computer Engineering (5year program) National Technical University of Athens (NTUA) Athens, Greece.

PRINCIPAL PROFESSIONAL APPOINTMENTS

2022 -	Professor in Medical Image Processing at the Dept. of Electrical & Computer Engineering at the Hellenic Mediterranean University.
2017 - 2022	Associate Professor in Medical Image Processing at the Dept. of Electrical & Computer Engineering at the Hellenic Mediterranean University.
2010 -	Head of the Computational Biomedicine Laboratory, Institute of Computer Science (ICS), Foundation for Research and Technology – Hellas (FORTH).
2006 - 2017	Principal Researcher, Institute of Computer Science (ICS), Foundation for Research and Technology – Hellas (FORTH).
2003 - 2006	Associated Researcher, Institute of Computer Science (ICS), Foundation for Research and Technology – Hellas (FORTH).
2000 -2002	Postdoctoral Fellow, Oxford University, Information Engineering Department, Wolfson Medical Vision Laboratory, Oxford UK.
2015 -	Visiting Professor, Technological Institute of Crete.
2003 - 2010	Visiting Professor, University of Crete.
2005 -	Faculty member of the "Brain and Mind" interdisciplinary graduate program of the University of Crete.
2000 – 2002	Senior Consulting Scientist, Mirada Solutions Ltd. (UK), a spin-off from the University of Oxford for commercializing key intellectual property.
1997 - 1998	Medical Image Processing Engineer, Imperial College of Science Technology and Medicine, Bagrit Center, London, UK.

ADMINISTRATIVE APPOINTMENTS

2025-	Dean, School of Engineering, Hellenic Mediterranean University.
2022-2025	Chair, Bioethics Committee, Hellenic Mediterranean University.
2020-2022	Vice Head, Department of Electrical & Computer Engineering, Hellenic Mediterranean University.
2017-2019	Vice Head of Department, Technological Educational Institute of Crete, Informatics Engineering Department, School of Technological Applications.
2017-	Member of Committee for postgraduate studies, MSc in Informatics and Multimedia, Dpt. Of Informatics Engineering TEI of Crete.
2017 -	Secretary of the IEEE Engineering in Medicine and Biology Society (EMBS) Greece.
2010 - 2017	Member of the Scientific Council of the Institute of Computer Science (ICS), Foundation for Research and Technology – Hellas (FORTH) since 2010.
2015 – 2017	Member of the Interdepartmental Committee of the "Brain and Mind" interdisciplinary graduate program (University of Crete, FORTH, University Hospital of Heraklion).
2014 - 2018	Member of the Ethics Committee of the Foundation for Research and Technology.
2015 - 2017	Appointed member of the Medical Tourism Committee at the Region of Crete.

SERVICE

Represents FORTH in the Virtual Physiological Human Institute for Integrative Biomedical Research (VPH Institute) <http://www.vph-institute.org/>

Coordinated the EC Project *Clinically Oriented Translational Cancer Multilevel Modelling* (2008-2011 Contra Cancrum FP7 223979)

Coordinated the EC Project Transatlantic Tumour Model Repositories (2010-2013 TUMOR FP7 247754)

Served as a delegate for the European Commission (DG INFSO) at the EC- US Workshop on Virtual Tissues (22-24 April 2009), held at the EPA North Carolina (US: EPA, DoE, NSF, NIH EC: DG Research Dir. F, DG INFSO)

Participated in a number of FP7 EC consultation meetings after invitation from the sector ICT for Health.

Serves regularly as a reviewer in Journals including: Medical Image Analysis, IEEE Transactions on Medical Imaging, Cancer Informatics, IEEE Transactions on Image Processing, IEEE Transactions on Biomedical Engineering, IEEE Transactions on Information Technology in Biomedicine, Journal of Computer-Assisted Radiology and Surgery.

Has served in the Organizing Committee of the International Advanced Research Workshop on In Silico Oncology conference and in Special Sessions at IEEE EMBC, IEEE BIBE and MobiHealth conferences.

Has served in session chair/program committees in conferences such as IEEE ISBI, IEEE EMBC, BIBE, and ISBMDA. Recently has served as General Co-Chair and workshops chair at EAI International Conference on Personal, Pervasive and mobile Health, June 14-15, 2016 Budapest, Hungary (ppmhealth.org), and local organizing committee member for IST 2016 (2016 IEEE International Conference on Imaging Systems and Techniques <http://ist2016.ieee-ims.org>), Chania Crete, eHealth Forum 2015-2018.

Organizer of the first summer school on computation oncology and co-organizer of the second (<http://www.computationaloncology.org>)

PHD AND POST-DOC GRANTS AWARDED

1997-2001	UCL Fellow at Oxford (PhD grant, full scholarship jointly from Oxford University and UCL, London)
2001-2004	Cancer Research UK Postdoc Grant, CRC-SP2580/0101, total funds awarded £139,091.00, titled: "A quantitative assessment of dense breast tissue changes"

AFFILIATIONS

2003 -	Senior Member IEEE – Engineering in Medicine and Biology Society (USA)
2005 - 2010	Academy of Molecular Imaging – USA (Sponsored by UCLA)

EDITORIAL WORK

2018 -2023	Associate Editor IET Image Processing http://digital-library.theiet.org/journals/iet-ipr/editorial-board
2019 -	Associate Editor IEEE Journal of Biomedical and Health Informatics https://www.embs.org/jbhi/associate-editors/
2021 -	Associate Editor Journal of Imaging https://www.mdpi.com/journal/jimaging/editors

SELECTED INVITED TALKS/KEYNOTES

1. Keynote Speaker: "Artificial Intelligence in Medicine: Myths and Reality", 34th Multidisciplinary Medical Congress, 251 Hellenic Air Force General Hospital – Session: "Artificial Intelligence: Humanity and Medicine", Athens, Greece, February 20–21, 2024.
2. Keynote Speaker: "Medical Imaging in the Era of Artificial Intelligence", 23rd Panhellenic Radiology Congress, Hellenic Radiological Society, Athens, Greece, December 7–10, 2023.
3. Invited Speaker: "Using 'Artificial' Intelligence to Achieve 'Real' Improvements in Cancer Care", Clinical and Translational Oncology Conference, November 14–17, 2024.
4. Invited Speaker: "Assessing the Trustworthiness of Saliency Maps as a Tool to Increase Clinical Explainability of AI Radiology Models", European Congress of Radiology (ECR), February 28 – March 3, 2024.
5. Workshop Presentation: "PROC-AI: Integrating Imaging Data and AI Models for Supporting Precision Care through the Prostate Cancer Continuum", IEEE International Symposium on Biomedical Imaging (ISBI), 2024.
6. Faculty Member / Speaker: "The Next Frontier: Autonomous AI", ESR Master Class in Artificial Intelligence, 2023.
7. Invited Speaker: "Artificial Intelligence in Oncologic Imaging: Where Do We Stand?", Conference on Current Developments in Radiology, Hellenic Radiological Society, Athens, Greece, December 9–11, 2022.

8. Keynote Speaker: “Artificial Intelligence in Medicine”, IEEE International Conference on Imaging Systems and Techniques (IST 2019), <https://ist2019.ieee-ims.org/keynote-speakers.html>
9. Invited Speaker: “Model-Based Quantitative MRI Image Analysis and Machine Learning in Rectal Cancer”, 8th Colorectal Games Symposium, Heraklion, Greece, 2018.
10. Invited Speaker: “Predicting Effective Adaptation to Breast Cancer: Helping Women to Bounce Back”, eHealth Forum 2017 – Digital Health Conference, Athens, Greece, October 19–22, 2017.
https://www.youtube.com/watch?v=m_DCeAU6eDM
11. Invited Speaker: “The iManageCancer Personal Health Record”, eHealth Forum 2016 – Promoting Digital Health Integration for Equal Access and a Sustainable Future, Athens, Greece, 2016.
12. Invited Speaker: “Personal Health Systems for Patient Self-Management and Empowerment Technologies”, 10th National Conference for Health Management and Policy, Athens, Greece, December 18–20, 2014.
13. Keynote Speaker: “Computational Models and Medical Image Analysis Tools for Optimizing Personalized Predictions of Therapy Outcome in Cancer Patients”, 19th Hellenic Conference of Clinical Oncology, April 27, 2013.
14. Invited Speaker: “Multi-level Clinically Oriented Modelling in Cancer Research”, U.S. Environmental Protection Agency (EPA), Computational Toxicology Research Program, April 21, 2009.

RESEARCH INTERESTS

MEDICAL IMAGE PROCESSING AND ANALYSIS

Image Registration and Fusion
 Quantitative Image Analysis
 Image Classification and Segmentation
 Image Retrieval
 Image Reconstruction
 Image Visualisation and Analysis
 Image-based Biomarkers
 Microarray image processing
 Image Shape Analysis

COMPUTATIONAL MEDICINE

Image-Based Macroscopic Cancer Modelling
 Computational Model Interoperability
 Microscopic Cancer Modelling
 In Silico Clinical Trials
 Radiomics and Radiogenomics
 AI applications in medical image analysis

PERSONAL HEALTH SYSTEMS INFORMATICS

Personal Health Record Systems
 Patient Empowerment Services
 Stress Recognition Personal Systems
 Heart-Rate monitoring
 Telemedicine and smart networking systems

RESEARCH PROJECTS 2006-2025

The following table lists all the projects Kostas Marias participated for the period 2010-2025(as head of the Computational Medicine Lab) for which he was the Project Coordinator of the Consortium (PC), Technical Coordinator of the Project (TC), the Principal Investigator for FORTH (PI), or the CO-PI (active participation next to the PI).

Project Name	Acronym	Start	End	Funded budget	Role
Advancing Clinico-Genomic Clinical Trials on Cancer: Open Grid Services for Improving Medical Knowledge Discovery http://eu-acgt.org/	ACGT	01/02/2006-	31/01/2010	1.276.200 €	CO-PI
Clinically Oriented Translational Cancer Multilevel Modelling http://www.contracancrum.eu/	Contra Cancrum	1/08/2008	31/07/2011	651.920 €	PC
Transatlantic TUMour MOdel Repositories	TUMOUR	1/4/2010	31/3/2013	396.220 €	PC
Driving Excellence in Integrative Cancer Research through Innovative Biomedical Infrastructures	INTEGRATE	1/2/2011	31/1/2014	818.300 €	CO-PI
Development of a research infrastructure for computational oncology	ΥΠΕΡΘΕΝ¹	24/6/2011	23/6/2013	359.725 €	CO-PI
From data sharing and integration via VPH models to personalized medicine	p-Medicine	1/2/2011	31/1/2015	1.242.435 €	CO-PI
Enabling information re-Use by linking clinical REsearch and	EURECA	1/1/2012	31/12/2014	865.536 €	CO-PI

¹ Ανάπτυξη ερευνητικής υποδομής κλινικών υπολογιστικών εργαλείων και υπηρεσιών για την καλύτερη διάγνωση και εκτίμηση της βέλτιστης εξατομικευμένης θεραπείας ογκολογικών παθήσεων

CAre					
A Demonstration of 4D Digital Avatar Infrastructure for Access of Complete Patient Information	MyHealth Avatar	1/3/2013	29/2/2016	361.400 €	PI
Computational Horizons in Cancer: Developing Meta- and Hyper-Multiscale Models and Repositories for In Silico Oncology	CHIC	1/4/2013	31/3/2017	888.106 €	PI
Development of Interdisciplinary Research Activities for Systems Biology	ΚΡΗΠΙΣ-ΒΙΟΣΥΣ²	1/7/2013	30/7/2015	70.000 €	PI
Regional Anaesthesia Simulator and Assistant	RASimAS	1/11/2013	31/10/2016	227.757 €	PI
Multi-channel biometrics combining acoustic and machine vision analysis of speech, lip movement and face	SpeechXRays	1/05/2015	30/4/2018	303.750 €	CO-PI
iManageCancer - Empowering patients and strengthening self-management in cancer diseases	iManage Cancer (HORIZON2020)	1/2/2015	1/7/2018	747.500	PI, TC
Predicting Effective Adaptation to Breast Cancer to Help Women to BOUNCE Back	BOUNCE (HORIZON2020)	1/11/2017	31/10/2021	726.875	CO-PI
HARMONization and integrative analysis of regional, national and international Cohorts on primary Sjögren's Syndrome (pSS) towards improved stratification, treatment and health policy making	HarmonicSS (HORIZON2020) TEI CRETE	2018	2021	215.000	CO-PI

² Ανάπτυξη Διεπιστημονικών Ερευνητικών Δραστηριοτήτων στην Κατεύθυνση της Βιολογίας Συστημάτων

Fostering Palliative Care of Adults and Children with Cancer through Advanced Patient Reported Outcome Systems, GA 825872, H2020-SC1-BHC-2018-2020.	MyPal (HORIZON2020)	01/01/2019	30/06/2022	293.500	PI
Ανάπτυξη αυτοματοποιημένων τεχνικών ποσοτικοποίησης σιδήρου σε παρεγχυματικά όργανα για διαγνωστικούς σκοπούς.	ΑΠΟΣΙΔΙ (ΕΣΠΑ2014-2020 ΕΡΕΥΝΩ-ΚΑΙΝΟΤΟΜΩ-ΔΗΜΙΟΥΡΓΩ)	16/6/2020	15/12/2022	264.340	PI
Ευφυές ψηφιακό αποθετήριο τοποθεσιών για κινηματογράφηση εμπλουτισμένο με τεχνικές βαθιάς μάθησης για πολυτροπική αυτοματοποιημένη αποθήκευση, αναζήτηση και ανάκτηση.	LoockMe (ΕΣΠΑ2014-2020 ΕΡΕΥΝΩ-ΚΑΙΝΟΤΟΜΩ-ΔΗΜΙΟΥΡΓΩ)	16/6/2020	15/12/2022	329.000	CO-PI
Leveraging AI based technology to transform the future of health care delivery in Leading Hospitals in Europe, GA101017331	ODIN (H2020-DT-2018-2020)	01/03/2021	31/08/2024	495.000	CO-PI
A patient-centered early risk prediction, prevention, and intervention platform to support the continuum of care in coronary artery disease (CAD) using eHealth and artificial intelligence' — G101017424, H2020 - SC1-DTH-2020-1	TIMELY (H2020-DT-2018-2020)	01/01/2021	30/09/2024	226.562	PI
Genomics and Personalized Medicine for all through Artificial Intelligence in Haematological Diseases,	GENOMED 4ALL (H2020)	01/01/2021	31/12/2024	396.000	PI

GA101017549					
An AI Platform integrating imaging data and models, supporting precision care through prostate cancer's continuum, GA952159, H2020 - SC1-FA-DTS-2019-1 AI for Health Imaging.	ProCancer-I (H2020)	01/10/2020	30/09/2024	1.372.000	CO-PI
Cardiocare: An Interdisciplinary Approach for The Management of The Elderly Multimorbid Patient with Breast Cancer Therapy Induced Cardiac Toxicity Ga945175, H2020, H2020 - Sc1-Bhc-24-2020	Cardiocare (H2020)	01/07/2021	30/06/2025	314.875	PI
Radioval: International Clinical Validation of Radiomics Artificial Intelligence for Breast Cancer Treatment Planning, 101057699, H2020, HORIZON-HLTH-2021-DISEASE-04-04	Radioval (H2020)	09/01/2022	08/31/2026	250625	PI
European Federation for Cancer Images, DIGITAL-2022-CLOUD-AI-02-CANCER-IMAGE	EUCAIM (Digital Europe)	01/03/2023	31/12/2026	902.994	CO-PI
The Development of Preterm Infants from Low Socio-economic Status Families: The Combined Effects of Melatonin, Autonomic Nervous System Maturation and Psychosocial Factors, ΕΛΙΔΕΚ	PROMOTE (ΕΛΙΔΕΚ)	10/10/2023	09/10/2025	13.585	CO-PI
Fostering Artificial Intelligence Trust for Humans towards the optimization of trustworthiness through large-scale pilots in critical domains, HORIZON-CL4-	FAITH (H2023)	01/01/2024	31/03/2028	1.253.921,5	CO-PI

2023-HUMAN-01-02					
AI Engineering Suite to support Agile Efficient Software Engineering, HORIZON-CL4-2024-DIGITAL-EMERGING-01	AI4SWEng (H2024)	01/12/2024	31/05/2028	192.688,82	CO-PI
Propelling the shift toward the future of circular, safe and sustainable packaging and single use device ecoDesigned solutions through healthcare environments, HORIZON-JU-IHI-2023-04-two-stage	ENKORE (H2023)	01/01/2025	31/12/2028	206.875	CO-PI
Clinical Decision Support System for Abdominal Aortic Aneurysm Disease based on Artificial Intelligence models, Greece 2.0 – National Recovery and Resilience Plan	SAFE AORTA	02/08/2023	01/12/2025	267.594,50 HMU budget	CO-PI
A Smart Scenario to 3D Animation Generation System	SMARTANIMA	15/4/2025	30/6/2026	360.000 HMU budget	PI

SHORT OVERVIEW OF RESEARCH ACTIVITIES

Medical Image Processing: Kostas Marias' research on medical image analysis focuses on developing software solutions for Clinical Decision Support providing robust software tools for extracting imaging biomarkers mainly from MRI data as well as visualization and quantification tools for guiding therapy plans. His work includes Dynamic Contrast-Enhanced Perfusion MR Imaging measurements of permeability-related pharmacokinetic parameters (Ktrans, Kep, Ve) for monitoring the effectiveness of neoadjuvant treatments as well as tumor characterization techniques based on diffusion-weighted MRI and ADC-mapping reflecting tumor cellularity. This activity has recently led to two patent applications on advanced MRI diffusion and perfusion analysis techniques for which there is an interest for commercialization.

Computational Medicine: During the last decade Kostas Marias was heavily involved in developing patient-specific multiscale computer based (in silico) models aiming towards a better understanding of the physiology and the pathology of human organs, with a special focus on cancer. One of the major concerns in clinical practice and treatment of life-threatening diseases, e.g., Cancer, is the fastest possible transform of scientific discoveries arising from diverse scientific fields such as laboratory, clinical or population studies and in silico predictive models of various disease staging, into clinical applications in order to reduce their incidence, morbidity and mortality. The computational modeling approaches in his research mainly focus on developing sophisticated multiscale mathematical models of cancer for testing different therapeutic schemes, in search of the best possible treatment for each specific patient.

Biomedical informatics: Through his involvement on numerous EC projects, Kostas Marias has focused is on developing personalized ICT services for clinical data management and decision support as well as for translating novel technologies to the clinical setting. Recently he is also actively working on several e-health and m-health related projects and focuses on Personal Health Record research in the context of projects dealing with chronic disease management such as diabetes and cancer.

PUBLICATIONS

SCIENTIFIC JOURNALS

1. C.P. Behrenbruch, **K. Marias**, P.A. Armitage, M.Yam, N.R. Moore, R.E. English, J. Clarke, and M.J. Brady, "Fusion of contrast-enhanced breast MR and mammographic imaging data," **Medical image analysis**, vol. 7, no. 3, pp. 311–340, Sep. 2003, England (1361-8415; 1361-8415). [http://doi.org/10.1016/S1361-8415\(03\)00015-X](http://doi.org/10.1016/S1361-8415(03)00015-X)
2. C.P. Behrenbruch, **K. Marias**, P.A. Armitage, M. Yam, N. R. Moore, R.E. English, P.J. Clarke, F.J. Leong, and M.J. Brady, "Fusion of contrast-enhanced breast MR and mammographic imaging data," **The British journal of radiology**, 2004, 77 Spec No 2, (S201-8), England (0007-1285; 0007-1285). <http://doi.org/10.1259/bjr/66587930>
3. **K. Marias**, C. Behrenbruch, R. Highnam, S. Parbhoo, A. Seifalian, and M. Brady, "A mammographic image analysis method to detect and measure changes in breast density," **Eur. J. Radiol.**, vol. 52, no. 3, pp. 276–282, Dec. 2004. <http://doi.org/10.1016/j.ejrad.2004.02.014>

4. **K. Marias**, J. Ripoll, H. Meyer, V. Ntziachristos, and S. Orphanoudakis, "Image analysis for assessing molecular activity changes in time-dependent geometries," **IEEE Trans. Med. Imaging**, vol. 24, no. 7, pp. 894–900, Jul. 2005. <http://doi.org/10.1109/TMI.2005.848612>
5. **K. Marias**, C. Behrenbruch, S. Parbhoo, A. Seifalian, and M. Brady, "A registration framework for the comparison of mammogram sequences," **IEEE Trans. Med. Imaging**, vol. 24, no. 6, pp. 782–790, Jun. 2005, (02780062). <http://doi.org/10.1109/TMI.2005.848374>
6. M.G. Linguraru, **K. Marias**, R.E. English, and M.J. Brady, "A biologically inspired algorithm for microcalcification cluster detection," **Med. Image Anal.**, vol. 10, no. 6, pp. 850–862, Dec. 2006. <http://doi.org/10.1016/j.media.2006.07.004>
7. S. Dimitriadis, **K. Marias**, and S.C. Orphanoudakis, "A multi-agent platform for content-based image retrieval," **Multimed. Tools Appl.**, Hingham, MA, USA: Kluwer Academic Publishers (1380-7501), vol. 33, no. 1, pp. 57–72, Mar. 2007. <http://doi.org/10.1007/s11042-006-0095-2>
8. A. Darrell, H. Meyer, **K. Marias**, M. Brady, and J. Ripoll, "Weighted filtered backprojection for quantitative fluorescence optical projection tomography," **Phys. Med. Biol.**, vol. 53, no. 14, pp. 3863–3881, Jul. 2008. <http://doi.org/10.1088/0031-9155/53/14/010>
9. C. Farmaki, **K. Marias**, V. Sakkalis, and N. Graf, "Spatially adaptive active contours: a semi-automatic tumor segmentation framework," **Int. J. Comput. Assist. Radiol. Surg.**, vol. 5, no. 4, pp. 369–384, Jul. 2010. <http://doi.org/10.1007/s11548-010-0477-9>
10. E. Skounakis, C. Farmaki, V. Sakkalis, A. Roniotis, K. Banitsas, N. Graf, and **K. Marias**, "DoctorEye: A Clinically Driven Multifunctional Platform, for Accurate Processing of Tumors in Medical Images," **Open Med. Inform. J.**, Special Issue: Intelligent signal and image processing in eHealth. **The Open Medical Informatics Journal**, vol. 4, no. 1, pp. 105–115, Jul. 2010. <http://doi.org/10.2174/1874431101004010105>
11. A. Roniotis, **K. Marias**, V. Sakkalis, and M.E. Zervakis, "Diffusive Modelling of Glioma Evolution: A review," **Journal of Biomedical Science and Engineering**, J. Biomed. Sci. Eng., vol. 03, no. 05, pp. 501–508, 2010. <http://doi.org/10.4236/jbise.2010.35070>
12. **K. Marias**, D.D. Dionysiou, V. Sakkalis, N. Graf, R. Bohle, P.V. Coveney, S. Wan, A. Folarin, P. Büchler, M. Reyes, G. Clapworthy, E. Liu, J. Sabczynski, T. Bily, A. Roniotis, M.N. Tsiknakis, E. Kolokotroni, S. Gialiti, C. Veith, E. Messe, H. Stenzhorn, Y. Kim, S. Zasada, A.N. Haidar, C. May, S. Bauer, T. Wang, Y. Zhao, M. Karasek, R. Grever, A. Franz and G. Stamatakis, "Clinically-Driven Design of Multiscale Cancer Models: the Contra Cancrum Project Paradigm," **J.R. Soc Interface Focus.**, vol. 1, pp. 450–461, 2011. <http://doi.org/10.1098/rsfs.2010.0037>
13. A. Roniotis, G.C. Manikis, V. Sakkalis, M.E. Zervakis, I. Karatzanis, and **K. Marias**, "High-grade glioma diffusive modeling using statistical tissue information and diffusion tensors extracted from atlases," **IEEE Trans. Inf. Technol. Biomed.**, vol. 16, no. 2, pp. 255–263, Mar. 2012. <http://doi.org/10.1109/TITB.2011.2171190>
14. A. Roniotis, **K. Marias**, V. Sakkalis, G.C. Manikis, and M.E. Zervakis, "Simulating Radiotherapy Effect in High-Grade Glioma by Using Diffusive Modeling and Brain Atlases," **J. Biomed. Biotechnol.**, vol. 2012, pp. 1–9, 2012. <http://doi.org/10.1155/2012/715812>

15. A. Roniotis, V. Sakkalis, I. Karatzanis, M.E. Zervakis, and **K. Marias**, "In-depth analysis and evaluation of diffusive glioma models," **IEEE Trans. Inf. Technol. Biomed.**, vol. 16, no. 3, pp. 299–307, 2012. <http://doi.org/10.1109/TITB.2012.2185704>
16. G. Stamatakis, D. Dionysiou, A. Lunzer, R. Belleman, E. Kolokotroni, E. Georgiadi, M. Erdt, J. Pukacki, S. Rueping, S. Giatili, A. d'Onofrio, S. Sfakianakis, **K. Marias**, C. Desmedt, M. Tsiknakis, and N. Graf, "The Technologically Integrated Oncosimulator: Combining Multiscale Cancer Modeling with Information Technology in the In Silico Oncology Context," **IEEE journal of biomedical and health informatics**, vol. 18, no. 3, pp. 840–854, May 2014. <http://doi.org/10.1109/JBHI.2013.2284276>
17. D. Johnson, S. McKeever, G. Stamatakis, D. Dionysiou, N. Graf, V. Sakkalis, **K. Marias**, Z. Wang, and T.S. Deisboeck, "Dealing with Diversity in Computational Cancer Modeling," **Cancer informatics**, vol. 12, pp. 115–124, p. CIN.S11583, May 2013. <http://doi.org/10.4137/CIN.S11583>
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Full Paper: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6057659/pdf/can-12-852.pdf>

GRADUATE AND POSTGRADUATE SUPERVISION

PhD Advisory Committee (member of PhD tribunal)

- 2024 -** *Konstantina Giouroukou*, PhD Student, PhD Title: “Generation of Synthetic Prostate MRI Images: Applications to Diagnosis and Monitoring of Prostate Cancer”, joint supervision with Prof. Michalis Klontzas and Prof. Emmanouil Tsiknakis, University of Crete, Medical School.

- 2024 -** *Eystathios Kyriazis*, PhD Student, PhD Title: “Automatic segmentation of glioblastomas using multi-modal brain MR images.”, *Dept. of Electrical & Computer Engineering at the Hellenic Mediterranean University*.
- 2023 -** *Aikaterini Dovrou*, PhD Candidate in Machine/Deep Learning in Medicine, joint supervision with Prof. Sofia Aggelaki, University of Crete, Medical School.
- 2022 -** *Emmanouil Koutoulakis*, PhD Title: “Advanced deep learning techniques for detection, segmentation, and classification of lung nodules”, Technical University of Crete, Electronic and Computer Engineer Department.
- 2022 -** *Emmanouil Markodimitrakis*, PhD Title: “Adapting Federated Learning to medical applications by utilizing distributed resources across distant nodes”, Technical University of Crete, Electronic and Computer Engineer Department.
- 2021 -** *Avtantil Dimitriadis*, PhD Title: “Advanced Artificial intelligence techniques focused on medical imaging for improving prostate cancer management”, Technical University of Crete, Electronic and Computer Engineer Department.
- 2019 -** *Ioannis Stefanis*, PhD Student, Technical University of Crete, Electronic and Computer Engineer Department.
- 2019 -** *Eleftherios Trivizakis*, PhD Title: “Prediction of clinical outcome in patients with non-small cell lung cancer undergoing immunotherapy using artificial intelligence techniques”, joint supervision with Prof. Apostolos Karantanias, Chairman of Medical Imaging, University of Crete Medical School.
- 2016 -** *Anastasia Pentari*, PhD Title: “optimal reconstruction of Diffusion-Weighted MRI signal and Dynamic Contrast-Enhanced MRI study with Compressed Sensing Techniques”, joint supervision with Prof. P. Tsakalides, Computer Science Department, University of Crete.
- 2015 - 2020** *Georgios Ioannidis*, PhD Title: “Qualitative evaluation of perfusion studies with non-ionizing (MRI) and low dose radiation (CT) protocols”, joint supervision with Prof. Perisinakis Kostas, Faculty of Medicine, University of Crete.
- 2015 - 2020** *Constantinos Spanakis*, PhD Title: “Information theory and its application to image alignment”, Science Department, jointly with Ass. Prof. E. Mathioudakis, Technical University of Crete.
- 2016 - 2020** *Katerina Nikiforaki*, PhD Title: “Multi Parametric MR Imaging of Soft Tissue Sarcomas”, joint supervision with Prof. Apostolos Karantanias, Chairman of Medical Imaging, University of Crete Medical School.
- 2015 - 2020** *Irini Genitsaridi*, PhD Title: “Temporal Probabilistic Reasoning on Longitudinal Patient Trajectories to enhance Outcome Prediction and Decision Making: A Recommendation System applied in Rheumatoid Arthritis Treatment.”, with Prof. P. Sidiropoulos (University of Crete Medical School) and Prof. D. Plexousakis, Computer Science Department, University of Crete.

- 2014 - 2018** *Mari Venianaki*, PhD title: "Cancer tissue classification from DCE-MRI data using pattern recognition techniques", IMT School for advance studies, Lucca, Italy (joint supervision with Prof. Ovidio Salvetti).
- 2014 - 2020** *Georgios Kalaitzakis*, PhD Title: "Quantitative T2* MRI image analysis algorithms", University of Crete Medical School.
- 2014 - 2020** *George Manikis*, PhD Title: "Novel MRI imaging techniques and analysis of articular cartilage and bone marrow oedema in the knee joint and MRI markers-based modelling", joint supervision with Prof. Apostolos Karantanis, Chairman of Medical Imaging, University of Crete Medical School.
- 2014 - 2019** *Anastasia Pampouchidou*, Title: Clinically-driven Facial Image Analysis for Emotion Recognition, co- supervision with Prof. Mériaudeau Fabrice Université de Bourgogne
- 2014 - 2017** *Carlos Hernandez Matas*, Title: Retinal image registration through 3D eye modelling and pose estimation, University of Crete, Computer Science department, (member of PhD tribunal with Prof. A. Argyros).
- <https://www.didaktorika.gr/eadd/handle/10442/42160>
- 2009 - 2013** *Alexandros E. Roniotis*, Thesis title: Glioma growth Modelling, Technical University of Crete, Electronic and Computer Engineer Department (member of PhD tribunal with Prof. M. Zervakis)
- <https://www.didaktorika.gr/eadd/handle/10442/34885>
- 2005 -2009** *Alex Darrell*, PhD in Molecular Image Analysis (joint supervision with Mike Brady University of Oxford)

MSc Students Supervisor

- 2022 - 2023** *Konstantina Giouroukou*, "Development of a Computational Male Pelvis Phantom for the Generation of Multiseries MRI Synthetic Data in Support of Image Analytic Processes", School of Medicine, University of Crete, Postgraduate Program "Biomedical Engineering"
- 2020 - 2021** *Dimitrios Theodoropoulos*, "Semantic Segmentation of Diabetic Retinopathy Lesions, using a UNET with Pretrained Encoder", Department of Electrical and Computer Engineering, Postgraduate Program "Informatics Engineering"
- 2017 -** *Konstantinos Tsagkarakis*, Department of Informatics Engineering, Technological Educational Institute of Crete, MSC IN INFORMATICS & MULTIMEDIA.
- 2017 - 2018** *Eleftherios Trivizakis*, Department of Informatics Engineering, Technological Educational Institute of Crete, MSC IN INFORMATICS & MULTIMEDIA.
- 2015 – 2016** *Iosif Serafeimidis*, "Texture Analysis on DCE-MR and DW-MR Images", Department of Informatics Engineering, Technological Educational Institute of Crete, MSC IN INFORMATICS & MULTIMEDIA.

- 2013-2015** Georgios Ioannidis, *“Diffusion Magnetic Resonance Imaging Techniques: Applications in Brain and Human Body”* MSc in Applied Mathematics, University of Crete
- 2013 – 2015** Kanli Georgia, MSc in Computational Physics at SU & KTH, Sweden (working for her thesis full time at the CML Lab FORTH)
- 2013- 2015** Marilena Oraiopoulou, Brain and Mind MSc Program, University of Crete Thesis title *“Magnetic Resonance Imaging in Human Brain Cancers”*
- 2011-2013** Constantinos Spanakis, MSc Technical University of Crete. Thesis title *“Numerical modeling of tumor growth using level set method”*
- 2005 - 2007** Hara Stefanou, MSc in CSD, University of Crete jointly with Prof. P. Tsakalides
- 2004 - 2005** Eleftherios Garyfalidis, Brain and Mind MSc Program, University of Crete
- 2003 - 2005** Socrates Dimitriades, MSc in CSD, University of Crete with Prof. S. C. Orphanoudakis
- 2003 - 2004** John Moustakas, MSc in CSD, University of Crete with Prof. S. C. Orphanoudakis

Undergraduate Supervision

- 2019-2021** Nikolas Pediaditis, *“Medical image analysis using Wavelet Packet Transform and Machine Learning for histopathology image classification”*, Department of Electrical and Computer Engineering, Hellenic Mediterranean University.
- 2020-2021** Stylianos Papagiannakis, *“Signal quantification from fluorescent histopathological images and machine learning applications for their categorization”*, Department of Electrical and Computer Engineering, Hellenic Mediterranean University."
- 2018 -2019** Stefanos Gkikas, *“Identity verification by combining video, image and sound”*, Department of Informatics Engineering, Technological Educational Institute of Crete.
- 2018 - 2019** Avtadil Dimitriadis, *“Identity verification by combining video, image and sound”*, Department of Informatics Engineering, Technological Educational Institute of Crete.
- 2018 - 2019** Vasilios Melisianos, *“Bag of words techniques for differentiating tissue classes in medical images”*, Department of Informatics Engineering, Technological Educational Institute of Crete.
- 2017 - 2018** Iraklis Skepasianos, *“Gabor Filters and texture analysis for DCE-MRI data”*, Department of Informatics Engineering, Technological Educational Institute of Crete.

COURSES TAUGHT

2004-2008: University of Crete (HY-571)

2005-present: Brain and Mind (Interdisciplinary MSc course)

Course: Medical Image Analysis and Processing (Instructor)

<http://www.csd.uoc.gr/~hy571/>

Description: Medical imaging systems and physical principles of medical imaging modalities from the cellular to the tissue level. Medical image reconstruction methods, as well as 2D and 3D medical image processing. Image processing techniques: Registration, Data-Fusion,

Segmentation and Normalization. Algorithms for the description and retrieval of medical images by content. Picture archiving and communication systems (PACS). Introduction to the analysis of gene-expression data.

2004-2008: University of Crete CSD (HY-528)

2005-present: Brain and Mind (Interdisciplinary MSc course)

Course: Biomedical Engineering and Signal Analysis (Instructor)

<http://www.csd.uoc.gr/~hy528/>

Description: Basic introduction to physiology for engineers and computer scientists. Introduction to cellular dynamics and resting potential. Description of action potentials. Basic principles of the cardiovascular system: blood pressure, measurement of blood flow

and volume. Digital signal processing and algorithms for biomedical signal analysis. Computer analysis for ECG and EEG: algorithms and software development for diagnosis and research.

2015-2017: Technological Institute of Crete (TP60/A4)

Course: Bioinformatics and Physiological Systems Modelling

Description: Analysis of microarray images with image processing and statistical analysis tools. Introduction to Bioinformatics: databases, tools and open-source software. Bioinformatics

applications in systems biology, pharmacogenomics and personalized medicine. Basic principles of modelling and methods for modelling physiological systems (PS). Use of Simulink for analysis and simulation of PS. Principles of cardiovascular system and modelling examples with Simulink. Principles of nervous system and modelling examples of neural function with electrical circuits. Introduction to Pharmacokinetics and Pharmacogenomics with application in image analysis of MRI data.

2016-: Technological Institute of Crete (TP320)

Course: Digital Image Processing

Description: Introduction to Digital Image Processing. Spatial Filtering and Neighboring operators. Image enhancement with point processing operations,

brightness transformations and histogram equalization. Fourier analysis, Discrete Fourier Transform and Image enhancement in the frequency domain. Image enhancement and periodic noise removal in the frequency domain with the use of filters. Image restoration and Image sharpening in the spatial and frequency domain. Morphological Image Processing.

2016-: Technological Institute of Crete (ΤΠ60Λ4)

Course: Advances in Digital Imaging and Computer Vision

Description: Imaging and computer vision are two neighboring research areas gaining great attention from the research community during the last years. This course focuses on the analysis of the

patterns in visual images with the view to understanding the objects and processes in the world that generate them. This subject is cross-disciplinary, drawing on mathematics and statistics, physics, optics, physiology, and information theory, as well as computer science, and has many applications including remote sensing, multimedia, surveillance, manufacturing, robotics, medical imaging, human computer interaction. Major topics include optics, image representation, feature extraction, image processing and analysis, object recognition, motion estimation, 3D and multi-view imaging. The emphasis is both on learning mathematical concepts and techniques and on their implementation (Matlab) to solve real vision and imaging problems.

2016 -: Technological Institute of Crete (TP282)

Course: Computer Vision

Description: The course aims to provide students with theoretical and practical knowledge of basic machine vision concepts for computing connected components, for shape analysis, image topology and morphology, edge detection and detection of points of

interest (Harris method, Hough transform), for aligning images (image registration), for image segmentation and object recognition.

2020 -: University of Crete (BME15)

Course: Medical Image Analysis

Description: Basic principles of medical image analysis focusing on both classical approaches for image segmentation, registration, quantification, texture analysis and filtering, as well as on AI approaches, including radiomics and deep learning, for diagnostic/prognostic model development.

PATENTS

Georgios Manikis, Eleftherios Kontopodis, Konstantinos Marias: Apparatuses, methods and systems for estimating water diffusivity and microcirculation of blood using dw-mri data.

US 20160139226 A1

<https://www.google.com/patents/US20160139226>

BIBLIOMETRIC DATA

GOOGLE SCHOLAR DATA FOR KOSTAS MARIAS

Webpage: https://scholar.google.gr/citations?hl=en&user=2Lx7a7QAAAAJ&view_op=list_works&sortby=pubdate

<i>Citation indices</i>	<i>All</i>	<i>Since 2020</i>
Citations	7244	5001
h-index	42	34
i10-index	158	105

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