

## AIKATERINI NIKIFORAKI

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## PERSONAL INFORMATION

Date of Birth: 18/01/1980

Nationality: Greek

## LICENSED MEDICAL PHYSICIST (GREECE)

- Ionizing radiation
- Non-ionizing radiation

## WORKING EXPERIENCE

### ♦ 2014 – TODAY

Research team member at Computerized Bio-Medicine Laboratory, Institute of Research and Technology (**FORTH**), Heraklion, Crete. Director: Dr. K. Marias. Main Interest: Imaging Software development for multi-parametric MRI acquisitions.

### 2012 – 2015

On Site MRI training, Protocol Optimization and Image Post Processing for **N. Papanikolaou & Associates**

### ♦ 2007 – 2012

Medical Physicist at MRI Dpt of **Interbalkan Medical Center**. Director of the Department: Prof. A. Drevelegas. Main Responsibility: Image Quality for 3T, 1.5 T and 0.2 T systems.

### ♦ 2006 – 2007

Teaching physics, private sector **Symvoli**, Pireus Greece.

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## **EDUCATION AND TRAINING**

♦ 2020

**UNIVERSITY OF CRETE, GR , MEDICAL SCHOOL, PhD**

PhD THESIS: *“Multiparametric semi-quantitative and quantitative study of soft tissue tumors with advanced Magnetic Resonance methods*, under the supervision of A. Karantanas.

♦ 2004 – 2005

**UNIVERSITY OF ABERDEEN, UK , MASTER’S DEGREE, MEDICAL PHYSICS**

MSc THESIS: *“Monte Carlo Simulation of a PET imager using MultilayerDetector* , under the supervision of Steven Mc Callum.

♦ 2008 – 2009

Hands-on training on the duties of a Medical Physicist:

Nuclear Medicine Department, Radiology Department, Radiation Therapy Department (conventional radiation therapy, 3-d conformal radiation therapy, brachytherapy), Theageneion Anticancer Hospital, Thessaloniki, Greece

♦ 2008-2003

**UNIVERSITY OF CRETE, BACHELOR’S DEGREE, PHYSICS**

♦ 2003

**UNIVERSITY OF CRETE (Greece), 15th ADVANCED PHYSICS SUMMER SCHOOL**

## PERSONAL SKILLS AND COMPETENCES

### ♦ FOREIGN LANGUAGES

- ♦ **ENGLISH** PROFICIENCY, UNIVERSITY OF CAMBRIDGE 1996, TOEFL 2004
- ♦ **FRENCH** DELF 1995, ERASMUS AT ECOLE SUPERIEURE DE PHYSIQUE DE MARSEILLE 2003 - 2004
- ♦ **EUROPEAN COMPUTER DRIVING LICENCE**

## PUBLICATIONS

### ♦ INTERNATIONAL JOURNALS

K. Nikiforaki, G. S. Ioannidis, E. Lagoudaki, G. H. Manikis, E. de Bree, A. Karantanas, T. G. Maris, K. Marias “A multiexponential T2 relaxometry study on benign and malignant adipocytic tumours” Eur. Radiol. Exp. (under review)

G. S. Ioannidis, K. Nikiforaki, G. Kalaitzakis, A. Karantanas, K. Marias, T. G. Maris, “Inverse Laplace transform and multiexponential fitting analysis of T2 relaxometry data: a phantom study with aqueous and fat containing samples,” Eur. Radiol. Exp. May. 2020

Nikiforaki K, Manikis GC, Kontopodis E, et al (2019) T2, T2 \* and spin coupling ratio as biomarkers for the study of lipomatous tumors. Phys Medica 60:76–82. <https://doi.org/10.1016/j.ejmp.2019.03.023>

Kontopodis E, Veniadaki M, Manikis G, Nikiforaki K, Salvetti O, Papadaki E, Papadakis G, Karantanas A, Marias K. 2018. Investigating the role of model-based and model-free imaging biomarkers as early predictors of neoadjuvant breast cancer therapy outcome. IEEE Journal of Biomedical and Health Informatics, Special Issue on Biomedical Informatics across the Cancer Continuum, Jun 2018

Ioannidis GS, Maris TG, Nikiforaki K, et al (2019) Investigating the Correlation of Ktrans with Semi-Quantitative MRI Parameters Towards More Robust and Reproducible Perfusion Imaging Biomarkers in Three Cancer Types. IEEE J Biomed Heal Informatics 23:1855–1862. <https://doi.org/10.1109/JBHI.2018.2888979>

Manikis GC, Nikiforaki K, Lagoudaki E, de Bree E, Maris TG, Marias K, Karantanas AH. T2-based MRI radiomic features for discriminating tumour grading in soft tissues sarcomas. Hell J Radiol 2019; 4(3): 22-31.

Trivizakis E, Manikis GC, Nikiforaki K, et al (2019) Extending 2-D Convolutional Neural Networks to 3-D for Advancing Deep Learning Cancer Classification with Application to MRI Liver Tumor Differentiation. IEEE J Biomed Heal Informatics 23:923–930. <https://doi.org/10.1109/JBHI.2018.2886276>

Manikis GC, Marias K, Lambregts DMJ, et al (2017) Diffusion weighted imaging in patients with rectal cancer: Comparison between Gaussian and non-Gaussian models. PLoS One 12:.  
<https://doi.org/10.1371/journal.pone.0184197>

Katsaros KV, Nikiforaki K, Manikis G, Marias K, Liouta E, Boskos C, Kyriakopoulos G, Stranjalis G, Papanikolaou N. 2017. Whole tumor MR Perfusion histogram analysis in assessment of patients with gliomas: Differentiation between high- and low-grade tumors. Hellenic Journal of Radiology. Vol 2, No 1

Nikiforaki K, Manikis GC, Boursianis T, et al (2017) The impact of spin coupling signal loss on fat content characterization in multi-echo acquisitions with different echo spacing. Magn Reson Imaging 38:6–12.  
<https://doi.org/10.1016/J.MRI.2016.12.011>

Marias K, Papanikolaou N, Beets-Tan RG. Whole-liver diffusion-weighted MRI histogram analysis: effect of the presence of colorectal hepatic metastases on the remaining liver parenchyma. Eur J Gastroenterol Hepatol. 2015 Apr;27(4):399-404. doi: 10.1097

Drevelegas K, Nikiforaki K, Constantinides M, Papanikolaou N, Papalavrentios L, Stoikou I, Zarogoulidis P, Pitsiou G, Pataka A, Organtzis J, Papadaki E, Porpodis K, Kougioumtzi I, Kioumis I, Kouskouras C, Akriviadis E, Drevelegas A. Apparent Diffusion Coefficient Quantification in Determining the Histological Diagnosis of Malignant Liver Lesions. J Cancer. 2016 Mar 29;7(6):730-5. doi: 10.7150/jca.14197

Lambregts DM, Martens MH, Quah RC, Nikiforaki K, Heijnen LA, Dejong CH, Beets GL,

Potsi S, Chourmouzi D, Moumtzouoglou A, Nikiforaki A, Gkouvas K, Drevelegas A. Transient contrast encephalopathy after carotid angiography mimicking diffuse subarachnoid haemorrhage. Neurol Sci. 2012 Apr;33(2):445-8. doi: 10.1007/s10072011-0765-3. Epub 2011 Sep 17.

#### ◆ BOOK CHAPTERS

Manikis GC, Kontopodis E, Nikiforaki K, Marias K, Papanikolaou N. 2016. Imaging Biomarkers Model-Based Analysis. Imaging Biomarkers: Development and Clinical Integration, Springer International Publishing, pp.71-86. [https://doi.org/10.1007/978-3-319-43504-6\\_7](https://doi.org/10.1007/978-3-319-43504-6_7)

Kontopodis E, Manikis GC, Skepasianos I, Tzagkarakis K, Nikiforaki K, Papadakis GZ, Maris TG, Papadaki E, Karantanis A, Marias K. 2018. DCE-MRI radiomics features for predicting breast cancer neoadjuvant therapy response, IEEE International Conference on Imaging Systems and Techniques (IST), Krakow, 2018, pp. 1-6.  
<https://doi:10.1109/IST.2018.8577128>

#### ◆ PAPERS IN PROCEEDINGS (fullpaper reviewed)

Kontopodis E, Manikis GC, Nikiforaki K, Venianaki M, Marias M, Maris TG, Karantanis A, Papadaki E. 2018. Incremental diagnostic information obtained via novel Dynamic Contrast Enhanced MRI framework applied on

Multiple Sclerosis patients: A preliminary study. IEEE EMBS International Conference on Biomedical Health Informatics (BHI), pp. 46-49, <https://doi.org/10.1109/BHI.2018.8333366>

Manikis GC, Nikiforaki K, Ioannidis G, Papanikolaou N, Marias K. 2016. Addressing Intravoxel Incoherent Motion challenges through an optimized fitting framework for quantification of perfusion. IEEE International Conference on Imaging Systems and Techniques (IST), Chania, Greece. pp. 487-492. <https://doi.org/10.1109/IST.2016.7738275>

Manikis GC, Nikiforaki K, Papanikolaou N, Marias K. 2016. Diffusion Modelling Tool (DMT) for the analysis of Diffusion Weighted Imaging (DWI) Magnetic Resonance Imaging (MRI) data. Computer Graphics International (CGI), the 33th Annual Conference, pp. 97-100. <https://doi.org/10.1145/2949035.2949060>

Marias K, Nikiforaki K, Manikis GC, Kontopodis E, Papanikolaou N. 2016. Visualizing tumor environment with perfusion and diffusion MRI: Computational challenges. Computer Graphics International (CGI), the 33th Annual Conference, pp. 113-116, <https://doi.org/10.1145/2949035.2949064>

♦ **PAPERS IN PROCEEDINGS (abstract reviewed)**

Nikiforaki, K, Kalaitzakis G, Ioannidis G, Maris TG, Marias K, Karantanas A. Visualizing sites of increased cellularity and high permeability in soft tissue sarcomas Physica Medica: European Journal of Medical Physics, Vol. 52, p19

Nikiforaki K, Lagoudaki E, Manikis GC, Kontopodis E, Marias K, Bree E, Karantanas A, Maris TG. 2018. Spin coupling signal loss correlates with differentiation grade of lipomatous tumors: Preliminary results. Physica Medica: European Journal of Medical Physics, Volume 52, Supplement 1, Page 9, <https://doi.org/10.1016/j.ejmp.2018.06.093>

Nikiforaki K, Manikis GC, Lagoudaki E, Veniadaki M, Marias K, Bree E, Maris TG, Karantanas A. 2018. T2 and T\* relaxometry of benign and malignant lipomatous tumors. Physica Medica: European Journal of Medical Physics, Volume 52, Supplement 1, Pages 9–10, <https://doi.org/10.1016/j.ejmp.2018.06.094>

Manikis GC, Nikiforaki K, Papanikolaou N, Albiin N, Kartalis N, Marias K. 2016. Diffusion weighted imaging of pancreatic adenocarcinoma: which model is the most appropriate?. ECR 2016–26th European Congress of Radiology, March 2-6, 2016, Vienna, Austria.

Nikiforaki K, Boursianis T, Manikis GC, Marias K, Karantanas A, Maris TG. 2016. Feasibility of fat fraction quantification by measuring J-coupling related signal modulation in Multi Echo Fast Spin Echo Sequences. Supplement to the Physica Medica: European Journal of Medical Physics, Volume 32, Supplement 3, Page 249 <https://doi.org/10.1016/j.ejmp.2016.07.529>

Irene Tsiapa, Themistoklis Boursianis, Georgios Kalaitzakis, Katerina Nikiforaki, Efrosini Papadaki, George Bontzos, Apostolos H. Karantanas, Miltiadis K.Tsilimbaris, Preliminary study for non-invasive magnetic resonance imaging and spectroscopy of the eye: A novel technique for monitoring pharmacokinetics of ocular drug delivery and others *Physica Medica: European Journal of Medical Physics*, Vol. 32, p249

T. Boursianis, G. Kalaitzakis, K. Nikiforaki, I. Tsiapa, E. Papadaki, A. Karantanas, T.G. Maris SNR dependence on hardware installation and patient immobilization in fMRI examinations. MR imaging protocol optimization *Physica Medica: European Journal of Medical Physics*, Vol. 32, p315 Published in issue: September 2016

Nikiforaki K, Katsaros VK, Manikis G, Marias K, Strantzalis G, Papanikolaou N. Glioma grading based on perfusion MRI: a normalized blood volume histogram metrics quantification study, ECR 2014–24th European Congress of Radiology, March 6-10, 2014, Vienna, Austria

Katsaros V, Nikiforaki K, Manikis G, Marias K, Stranzalis G, Papanikolaou N. 2014. Glioma Grading based on Histogram Analysis: Comparison between Apparent Diffusion Coefficient and normalized Blood Volume metrics. The International Society for Magnetic Resonance in Medicine, Joint Annual Meeting. ISMRM-ESMRMB, Milano, Italy, 2014, 10-16 May.

Manikis GC, Nikiforaki K, Ioannidis G, Papanikolaou N, Marias K. 2017. Addressing challenges in fitting bi-exponential DW-MRI data. ECR 2017–27th European Congress of Radiology, March 1-5, 2017, Vienna, Austria, 10.1594/ecr2017/C-2964

◆ **POSTER PRESENTATIONS (abstract reviewed)**

Manikis GC, Nikiforaki K, Papanikolaou N, Matos C, Marias K. 2017. A versatile platform for the longitudinal analysis of the DW-MRI data. ECR 2017–27th European Congress of Radiology, March 1-5, 2017, Vienna, Austria, 10.1594/ecr2017/C-2835

Drevelegas K, Nikiforaki K, Manikis GC, Marias K, Constantinides M, Stoikou I, Papalavrentios L, Bangeas P, Drevelegas A. 2017. Classification of focal liver lesions based on histogram analysis of 3D pixel based ADC parametric maps. ECR 2017–27th European Congress of Radiology, March 1-5, 2017, Vienna, Austria, 10.1594/ecr2017/C-2993

Manikis GC, Marias K, Nikiforaki K, Kartalis N, Albiin N, Papanikolaou N. 2016. Comparison between Gaussian and non-Gaussian diffusion models in hepatic metastatic disease and normal liver. ECR 2016–26th European Congress of Radiology, March 2-6, 2016, Vienna, Austria. DOI: 10.1594/ecr2016/C-2359

Manikis GC, Marias K, Nikiforaki K, Lambregts DMJ, Heeswijk MV, Beets-Tan RGH, Papanikolaou N. 2016. Diffusion imaging of rectal cancer: comparison between four different models. ECR 2016–26th European Congress of Radiology, March 2-6, 2016, Vienna, Austria. DOI: 10.1594/ecr2016/C-2178