Curriculum Vitae

# Personal Information

Name: Antonios Matakos

Address: 519 W. William

 Argus Bldg I

 Ann Arbor, MI 48103

Phone: +1 (734) 358-4841

Email: amatakos@med.umich.edu

Web: [www.umich.edu/~amatakos](http://www.umich.edu/~amatakos)

# Education

Sep 2007 – Aug 2013 Ph.D. Electrical Engineering University of Michigan

Sep 2007 – May 2009 M.Sc. Electrical Engineering University of Michigan

Oct 2001 – Nov 2006 B.Eng. Electrical Engineering Aristotle University of Thessaloniki

# Scholarships and Awards

2011 Engineering Graduate Symposium Technical Session Award (Signal Processing).

 Poster presentation in University of Michigan Engineering Graduate Symposium.

2010 Reithmiller Fellowship, University of Michigan.

2004 Hellenic Government scholarship for academic year 2003-2004.

2002 Hellenic Government scholarship for academic year 2001-2002.

# Publications

## Refereed Journals

1. A Matakos, J Balter, Y Cao “Undistorted field map estimation for liver imaging using multi-echo acquisitions” *Med. Phys.* 2015. In preparation
2. A Matakos, J Balter, Y Cao “Geometric distortion correction of anatomic MRI using undistorted B0 inhomogeneity maps for precision therapy” *Med. Phys.*, 2014. Under review
3. A Matakos, J Balter, Y Cao “Estimation of geometrically undistorted B0 inhomogeneity maps” *Med. Phys.* 59(17):4945-59, Sep 2014
4. A Matakos, J F Nielsen, J A Fessler “Model based Nyquist ghost correction for EPI” *IEEE Trans. Med. Imag.* 2013. In revision
5. A Matakos, S Ramani, J A Fessler “Accelerated edge-preserving image restoration without boundary artifacts” *IEEE Trans. Im. Proc.* 22(5):2019-29, May 2013

## Conference Proceedings

1. A Matakos, S Ramani, J A Fessler “Image restoration using non-circulant shift-invariant system models” *Proc. IEEE Intl. Conf. on Image Processing*, pp. 3061-4, 2012
2. A Matakos, J A Fessler “Dynamic MR image and fieldmap joint reconstruction accounting for through-plane fieldmap gradients” *Proc. IEEE Intl. Symp. Biomed. Imag.*, pp. 393-6, 2011
3. A Matakos, J A Fessler “Joint estimation of image and fieldmap in parallel MRI using single-shot acquisitions” *Proc. IEEE Intl. Symp. Biomed. Imag.*, pp. 984-7, 2010

## Conference Abstracts

1. A Matakos, J Balter, Y Cao “Novel method for geometrically undistorted B0 inhomogeneity field map estimation and image correction” *AAPM Annual Meeting, Med. Phys.* 41(6):528, Jun. 2014
2. A Matakos, J Balter, Y Cao “Undistorted phase-wraparound free field map estimation from triple gradient-echoes” *MR in RT Symposium*, 2014
3. A Matakos, J Balter, Y Cao “Iterative correction of subject-dependent B0 inhomogeneity field maps for geometric distortion correction” *ESTRO 33*, 2014
4. A Matakos, S Ramani, J A Fessler “Image restoration using non-circulant shift-invariant system models” *UM Graduate Symposium*, 2011
5. A Matakos, J A Fessler “Dynamic MR image and field map joint reconstruction accounting for through-plane field map gradients” *UM Graduate Symposium*, 2010

## Theses

1. A Matakos “Dynamic Image and Fieldmap Joint Estimation Methods for MRI Using Single-Shot Trajectories” *Ph.D. thesis*, University of Michigan, Dept. of Electrical Engineering:Systems, Jun 2013
2. A Matakos “Improved method for 3D reconstruction of coronary arteries using 3D IVUS” *Diploma thesis*, Aristotle University of Thessaloniki, Polytechnic School, Dept. of Electrical Engineering, Nov 2006

# Work Experience

## Research

Sep 2013 – Present **Post-doctoral Research Fellow**

 Dept. of Radiation Oncology, University of Michigan Medical School

 MRI image reconstruction for radiation therapy. Focus on geometric distortion

 correction through statistical modeling and optimization methods.

Jan 2008 – Aug 2013 **Graduate Student Research Assistant**

 Dept. of Electrical Engineering: Systems, University of Michigan

 Iterative, model-based image reconstruction methods for MRI. Focus on field

 inhomogeneity and ghosting artifact correction.

 Model-based, edge-preserving image restoration methods

Jul 2005 – Sep 2005 **Research Intern**

 Biomedical Image Technologies Laboratory, Dept. of Electronic Engineering,

 Technical University of Madrid.

 Implementation of image processing algorithms on FPGA.

Sep 2004 – Nov 2006 **Undergraduate Student Research Assistant**

 Cardiovascular Engineering and Atherosclerosis Laboratory, Medical School,

 Aristotle University of Thessaloniki.

 Image processing algorithms and vessel modeling for Real 3D IVUS

## Teaching

Jan 2012 – Apr 2012 **Graduate Student Instructor (W 2012)**

Dept. of Electrical Engineering and Computer Science, University of Michigan

 Image Processing (EECS 556)

Jan 2008 – Apr 2009 **Graduate Student Instructor (W 2008, F 2008, W 2009)**

 College of Engineering, University of Michigan

 Introduction to computers and programming (ENGR 101)

## Other

Oct 2005 – Jun 2007 **Software Developer/Engineer**

 Voyager Software Solutions – Thessaloniki, Greece

 Multimedia and content management .Net application programming. Front end

 GUI and web development. Back end database and web server programming.

# Research Interests

* Applications of MRI in Radiation Therapy
* MRI geometric distortion correction
* Model based image reconstruction for MRI
* Model based image restoration
* Biomedical imaging
* Statistical image and signal processing
* Inverse problems and optimization

## Current Projects

* Applications of MRI in precision Radiation Therapy
* Geometric distortion correction of MR anatomical imaging
* Estimation of undistorted B0 inhomogeneity maps

## Past Projects

* MRI image and inhomogeneity field map joint estimation
* MRI model based ghost artifact correction for EPI trajectories
* Edge preserving image de-noising and de-blurring

# Skills

## Languages

* English (fluent)
* Greek (native)
* French (basic)
* German (basic)

## Programming

* Scientific: Matlab (10+ years), LaTeX (10+ years), R (2 years)
* Object Oriented: C++ (10+ years), Java (10+ years), C# (3 years), VB .Net (3 years)
* Database: SQL (3 years)
* Web: html, css, javascript (2 years)
* Excel: VBA (2 years)

## Technical

* Operating Systems: Windows (XP, 7, 8), Linux (Ubuntu, Debian, Red Hat, Mint), Mac OS X
* Office Suites: MS Office, OpenOffice, LibreOffice
* IDEs: Visual Studio, Eclipse, TexMaker, Kile, Dreamweaver
* CAD: AutoCAD, Rhino