

Alexandra Koulouri

PERSONAL

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RESEARCH EXPERIENCE & EDUCATION

Post-Doc. research, Institute of Applied Maths Oct. 2014 - present
University of Münster

PhD research, Imperial College London 2010 - 2015
Dept. of Electrical & Electronic Engineering

Research program, University College London (UCL) 2008 - 2009
Dept. of Bioengineering and Medical Physics
Program title: Medical Image Computing (Score: 72%)

MSc Degree, Imperial College London (IC) 2007 - 2008
Dept. of Electrical & Electronic Engineering
MSc course title: Communications & Signal Processing, Merit (71%)

Diploma of Electrical & Computer Engineer 2002 - 2007
Aristotle University of Thessaloniki, Greece (AUTH)

PEER REVIEW PUBLICATIONS AND BOOK

A. Koulouri, M. Brookes and V. Rimpiläinen. Vector tomography for reconstructing electric field with non-zero divergence in bounded domains (under review in Journal of Computational Physics)

A. Koulouri, V. Rimpiläinen, M. Brookes and J. P. Kaipio. Compensation of domain modelling errors in the inverse source problem of the Poisson equation: application in electroencephalographic imaging, *Applied Numerical Mathematics*, Vol. 106, Aug. 2016, P. 24-36

A. Koulouri and M. Petrou: Vector Field Tomography: Reconstruction of an Irrotational Field in the Discrete Domain, *Proceeding (778) Signal Processing, Pattern Recognition and Applications, 2012*

Automatic segmentation of the abdominal Aorta from CT images: an initial approach towards the aortic Aneurysm detection. Authors: Alexandra Koulouri, Prof. Maria Petrou.
Publisher: LAP LAMBERT Academic Publishing (22 May 2011).

THESES

- PhD thesis
[Reconstruction of Bio-electric fields and Source Distributions in EEG Brain Imaging](#) 2015
Supervisor: Mr. Mike Brookes (mike.brookes@imperial.ac.uk)
- UCL MSc thesis
[Automatic Segmentation of the Thoracic Organs for Image Registration and Radiotherapy Treatment Planning](#) 2009
Supervisors: Prof. D. Hawkes (d.hawkes@ucl.ac.uk) and Dr. J. McClelland
- Imperial College MSc thesis
[Automatic Segmentation & 3D Reconstruction of abdominal aorta from CT images](#) 2008
Supervisor: Prof. Maria Petrou
- AUTH Diploma thesis
3D previewing of Aorta Aneurysm from CT Scans 2007
Supervisor: L. J. Hadjileontiadis (leontios@auth.gr)

PRESENTATIONS IN CONF./WORKSHOPS & TECHNICAL REPORTS

Mathematical Imaging and Emerging Modalities: Osnabrück 27-30/6/2016: Super-resolution in sparse peak de-convolution on discrete grids

HD-Tomo workshop, Copenhagen, April 6-8, 2016: Reconstruction of Electric Fields with non-zero Divergence in Homogeneous Domains using Vector Tomography.

Inverse Days (Tampere Dec.2014) : [Compensation of Modelling Errors in EEG Source Imaging using Bayesian Statistics](#) (Presentation)

NZMASP 2012: Stable Reconstruction of Irrotational Vector Fields using Longitudinal Line Integrals - Application in Inverse EEG (Presentation)

SPPRA June 18-20, 2012: Vector Field Tomography: Reconstruction of an Irrotational Field in the Discrete Domain (Presentation)

A.Koulouri, M. Petrou. Stable Reconstruction of Irrotational Vector Fields based on the Discrete Longitudinal Ray Transform (2012 - [report](#)).

SKILLS

- signal and image Processing, machine vision, partial differential equations, finite element method, linear and non-linear optimization techniques, regularization methods.
- Programming languages: C/C++ and Matlab
- Free open source libraries:
 - Medical Image processing: ITK, VTK and FieldTrip
 - Image processing: CImg (C++ Template Image Processing Toolkit)
- Development tools: MS Visual Studio 2010
- Languages: Greek (native), English (fluent) and French (basic).

TEACHING EXPERIENCE

- Tutor in Mathematics, Imperial College London 2010-2012
The course included Calculus, Differential Equations, Linear Algebra and introduction to Discrete Mathematics.
Responsibilities included:
 - Marking exams and providing feedback
 - Helping students with maths learning(Coordinator: Dr. S. Wright s.wright02@imperial.ac.uk)
- C/C++ lab demonstrator and C/C++ homework assignment author 2010-2012

SCHOLARSHIPS

- PhD scholarship, John S. Latsis Public Benefit Foundation 2009-2013
- EPSRC - UCL studentship 2008-2009

RESEARCH VISIT

University of Auckland, Dept. of Mathematics, New Zealand
Invited by Prof. J. Kaipio and Dr. V. Rimpiläinen 2013-2014

WEB-PAGE

Codes, Projects and General Information
[Münster university personal web-page](#)
[Google personal web-page](#)