

# **NATALIA PETRIDOU**

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## **Education**

National Institutes of Health, Bethesda MD / George Washington University, Washington DC

D.Sc. in Biomedical Engineering (June 2004)

*Focus:* medical imaging, functional neuroanatomy and neurophysiology

Harvard University, Cambridge, MA

Applied Physics (June 1999)

George Washington University, Washington, DC

M.Sc. in Electrical Engineering (May 1997)

*Thesis:* "Time domain metabolite estimation and automatic analysis of spectra in proton magnetic resonance spectroscopy of the brain"

American College of Greece (Deree), Athens, Greece

B.Sc. in Computer Science (June 1995; *top of major*)

*Thesis:* "Image processing methodology for Computed Tomography"

Atlanta College, Athens, Greece

Informatics (July 1991; *top of class*)

## **Professional Experience**

September '99 – presently

Visiting Fellow, Unit on Functional Imaging Methods, Laboratory of Brain and Cognition, National Institute of Mental Health, National Institutes of Health, Bethesda MD ( Supervisor: Peter A. Bandettini, Ph.D. )

Development and implementation of functional magnetic resonance imaging (fMRI) techniques and image processing algorithms for the study of brain function and disease.

August '98 – August '99

Research Coordinator, Radiology / MRI, Children's Hospital, Harvard Medical School, Boston MA ( Aria A. Tzika, Ph.D.)

Development and implementation of pulse sequences and processing algorithms for spectroscopic and functional imaging as related to brain tumors and brain diseases in children.

January '98 – July '98

Research Scientist, Laboratory of Diagnostic Radiology Research, National Institutes of Health, Bethesda MD (Jeff H. Duyn, Ph.D.)

Development and implementation of functional magnetic resonance imaging techniques (perfusion/ BOLD; pulse sequences/hardware optimization) and image processing algorithms for mapping of cerebral metabolism and hemodynamics.

June '96 – December '97

Visiting Scientist, In Vivo Nuclear Magnetic Resonance Research Center, National Institutes of Health, Bethesda MD (Chrit T.W. Moonen, Ph.D.)

Algorithm design and development for the analysis and processing of magnetic resonance spectroscopic imaging (MRSI) data. MRI basic methodology and focused ultrasound (fus).

May '96 – January '97

Lab Technician, Center for Career Education, George Washington University, Washington DC

Support of four computer networks (Unix, Novell, Mac, Windows). Maintenance of functionality. Assistance of users, equipment installation and upgrading.

October '93 – January '95

Analyst/ Programmer, H. Anastasiadis Company, Ltd., Athens, Greece

Design, development, and installation of information systems.

October '89 – October '93

Assistant, Medical Office - A. Vaiou, M.D. Surgeon Ophthalmologist, Athens, Greece

Assistance in minor operations, operation of medical equipment, and medical office administration.

## Relevant Skills

Clinical and high field MRI scanners (General Electric, Bruker - General Electric, Varian, Omega consoles); Programming: C, C++, EPIC, IDL, Fortran, Pascal, etc.; Hardware / Software design (pulse sequence, signal/image processing); fMRI/MRS methodology development – MR physics; Functional neuroanatomy and neurophysiology (health and disease); Heart physiology.

## Honors / Awards

- National Institutes of Health, Fellows Award for Research Excellence (FARE, 2002)
- SPIE Medical Imaging Conference, Honorable Mention Poster Award, (San Diego, February 2002)
- Organization for Human Brain Mapping (OHBM) fellowship for scientific presentation (San Antonio, June 2000)
- Fulbright Scholarship (1995-1998)
- European Society for MR in Medicine and Biology (ESMRMB) fellowship for scientific presentation (Brussels, September 1997)
- Society of Imaging Science and Technology, Raymond Davis Scholarship (1997)
- Gerondellis Foundation Fellowship (1996)
- American College of Greece Scholarship (1992-93, 1993-94, 1994-95)
- Texaco Co. Award for top of major graduation (1995)
- Goethe Institute Scholarship (1991-92)

## Affiliations

International Society for Magnetic Resonance in Medicine (ISMRM)  
The Institute of Electrical and Electronic Engineers (IEEE)

## Languages

Fluent in Greek (native speaker), English, and French. Working knowledge of German

## Other

Dance (Diploma of Modern Dance, awarded by the Royal Academy of Dance, London, UK)  
Piano and history of music for 10 years at the National Conservatory of Greece  
Flute (Soprano, Alto, Tenoro) for 7 years (private lessons)  
Swimming (7 years at "Ilisiakos" swimming team, Athens, Greece)  
Horseback riding, sailing. Outdoor activities  
Travel

## Publications / Presentations

- N. Petridou, F.Q. Ye, A.C. McLaughlin, P.A. Bandettini, "The Optimal Spatial Resolution for fMRI – Temporal Sensitivity and Signal to Noise Considerations". International Society of Magnetic Resonance in Medicine (ISMRM), 10th Annual Meeting, Honolulu HI, May 2002.
- N. Petridou, P.A. Bandettini. "Echo Time Dependence, Spatial Distribution, and Spectral Characteristics of Physiologic Fluctuations". ISMRM 10th Annual Meeting, Honolulu HI, May 2002.
- N. Petridou, M. Loew, P.A. Bandettini. "S/N and fMRI Sensitivity". SPIE Medical Imaging Proc Journal, 4682: , 2002.
- N. Petridou, J. Bodurka, P.A. Bandettini. "Modeling of MRI Fractional Signal Changes and Phase Shifts Induced by Cortical Neuronal Activity". Human Brain Mapping (HBM), Brighton UK, June 2001.
- N. Petridou, F.Q. Ye, A.C. McLaughlin, P.A. Bandettini, " Relationship between S/N and fMRI sensitivity", ISMRM, 9th Annual Meeting, Glasgow UK, April 2001.
- J. Bodurka, N. Petridou, P.A. Bandettini, "MRI based method for detection of weak and transient magnetic field changes", ISMRM, 9<sup>th</sup> Annual Meeting, Glasgow UK, April 2001.
- N. Petridou, J. Bodurka, M. Loew, P.A. Bandettini. "Neuronal current imaging using MRI: a feasibility study". SPIE Medical Imaging Proc Journal, 4321: 188-194, 2001.
- N. Petridou, J. Bodurka, M. Loew, P.A. Bandettini. "Neuronal Current Imaging Using MRI". SPIE Medical Imaging, San Diego, California, February 2001. (*oral*)
- N. Petridou, F.Q. Ye, A.C. McLaughlin, P.A. Bandettini. "TE and Field Strength Dependence of Temporal and Spatial S/N in Human and Phantom Single Shot Imaging". European Society for Magnetic Resonance in Medicine and Biology (ESMRMB), Paris, France, September 2000. (*oral*)
- N. Petridou and P.A. Bandettini. "Comparison of the TE and Field Strength Dependence in Single Shot Image S/N and Time Series Standard Deviation in Humans and Phantoms". HBM, San Antonio, June 2000.
- N. Petridou and J.H. Duyn. " Evaluation of Echo-Shifting in Single Shot fMRI". ISMRM, 7<sup>th</sup> Annual Meeting, Philadelphia, May 1999.
- A.A. Tzika, N. Petridou, R.L. Robertson, A. Dupplexis, T.Y. Poussaint, C.D. Robson, P.D. Barnes. "Proton MRS in Neonates with Suspected Cerebral Ischemic Encephalopathy". ISMRM, 7<sup>th</sup> Annual Meeting, Philadelphia, May 1999.
- N. Petridou C.T.W. Moonen. "Automatic Method for Reliable Analysis and Quantitation of Spectroscopic Imaging Data". ISMRM, 6<sup>th</sup> Annual Meeting, Sydney, Australia, April 1998.
- N. Petridou, Y. Shiferaw, A. Bertolino, C.T.W. Moonen. "Automatic Method for Analysis and Quantitation of Time Domain Spectroscopic Imaging Data". ESMRMB, Brussels, Belgium, September 1997. (*oral*)
- N. Petridou, Tissue classification in the human brain using MRI. Neural Networks Seminar Proceedings. GWU, 1997.
- Y. Shiferaw, N. Petridou, A. Bertolino, C.T.W. Moonen. "Automatic Analysis of Multi-Slice Long Echo Time Proton Spectroscopic Imaging Data". ISMRM, 5<sup>th</sup> Annual Meeting, Vancouver, Canada, April 1997.
- N. Petridou, Y. Shiferaw, A. Bertolino, C.T.W. Moonen. "Automatic Analysis and Quantitation of Proton Spectroscopic Imaging Data Using VARPRO". Automatic Signal Processing Methods in MRI/MRS (ASPM-MRI/MRS) Workshop, Xanthi, Greece, March 1997. (*invited chair*)