

Constantinos Loukas

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RESEARCH INTERESTS

- **Medical Simulation Training:** augmented and virtual reality systems for medical training, surgical skill assessment, surgical workflow analysis.
- **Medical Image and Signal Analysis:** object and activity recognition, visual tracking, video processing, EEG signal analysis, statistical signal modeling.

EDUCATION

Ph.D. in Medical Physics-Informatics , University College London (UCL)	2002
M.Sc. in Medical Physics , University of Surrey, UK	1998
B.Sc. (Hons) in Physics , University of Athens, Greece	1996

RESEARCH EXPERIENCE & EMPLOYMENT

Assistant Professor , University of Athens, School of Medicine R&D Coordinator, Medical Physics Lab-Simulation Center	March 2013 - present
Lecturer , University of Athens, School of Medicine	May 2009 – Feb. 2013
Project Manager , ATKO-Soft, Datamed, Athens	Jan. 2007 - Apr. 2009
Senior Research Scientist , FORTH-Photonics, Athens	June 2005 - Dec. 2006
Postdoctoral Scientist , GlaxoSmithKline (GSK)	Jan. 2002 - Jan. 2004
Research Fellow , Gray Cancer Institute, UK	Nov. 1998 - Dec. 2001

TEACHING

- University of Athens, School of Medicine (2009-present): Computer Applications in Medicine, Medical Simulation Technology, Medical Image Analysis (labs and theory).
- Technological Educational Institute of Athens (2006-2011): Artificial Neural Networks (Dept of Informatics), Control Systems (Dept. of Medical Technological Instrumentation), Medical Informatics (Dept. of Radiology).

THESES

- “Quantitative image analysis of biological factors influencing radiotherapy”, Ph.D. Thesis, University of London - UCL, 2002.

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- “Analysis of ^{99m}Tc-DTPA clearance from the lung”, M.Sc. Thesis, Univ. of Surrey, 1998.
- “Computer-based modelling in gamma-ray spectroscopy”, Graduate Thesis, University of Athens, 1996.

SCIENTIFIC ACTIVITIES

- Journal referee for: Cytometry, J Neurosci Methods, Med Biol Eng Comput, Int J Med Robot Comput Assist Surg, Int J Comput Assist Radiol Surg, Comp Biol Med, Comput Methods Programs Biomed, BMC Bioinformatics, BioTechniques.
- Reviewer for national and European research project proposals.
- Member of: IEEE, IEEE Engineering in Medicine and Biology, Institute of Physics in Engineering & Medicine.

AWARDS & DISTINCTIONS

- Appointed member of the Technologies & Simulation Committee of the American College of Surgeons (ACS) June 2010
- Principal role in the establishment of the Medical Physics Lab-Simulation Centre May 2009
- First prize in the annual Ph.D. project presentations meeting at UCL Oct. 1999
- Three years Ph.D. scholarship from Cancer Research UK (CRUK) Aug. 1998
- Erasmus Fellowship, Technical University of Vienna, Austria April 1996

SELECTED PUBLICATIONS

- **C. Loukas** and E. Georgiou, ‘Smoke detection in endoscopic surgery videos: A first step towards retrieval of semantic events’, Int J Med Robot Comput Assist Surg (accepted).
- **C. Loukas**, V. Lahanas, E. Georgiou, ‘An integrated approach to endoscopic instrument tracking for augmented reality applications in surgical simulation training’, Int J Med Robot Comput Assist Surg, 9(4):e34-51, 2013.
- **C. Loukas** and E. Georgiou, ‘Surgical workflow analysis with Gaussian mixture multivariate autoregressive (GMMAR) models: a simulation study’, Comput Aided Surg, 18(3-4):47-62, 2013.
- **C. Loukas**, N. Nikiteas, D. Schizas, V. Lahans, E. Georgiou, ‘A head-to head comparison between virtual reality and physical reality simulation training for basic skills acquisition’, Surg Endosc, 26(9), 2550-8, 2012.
- **C. Loukas** and P. Brown, ‘A PC-based system for predicting movement from deep brain signals in Parkinson’s disease’, Comp Meth Prog Biomed, 107(1):36-44, 2012.
- **C. Loukas** and E. Georgiou, ‘Multivariate autoregressive modeling of hand kinematics for laparoscopic skills assessment of surgical trainees’, IEEE Trans Biomed Eng, 58(11), 3289-3297, 2011.
- **C. Loukas**, N. Nikiteas N, M. Kanakis and E. Georgiou, ‘Deconstructing laparoscopic competence in a virtual reality simulation environment’, Surgery, 149(6), 750-60, 2011.
- **C. Loukas** and P. Brown, ‘Online prediction of self-paced hand movements from subthalamic activity using neural networks in Parkinson’s disease’, J Neurosci Methods, 137(2), 193-205, 2004.
- **C.G. Loukas**, G.D. Wilson. B. Vojnovic, A. Linney, ‘An image analysis-based approach for automated counting of cancer cell nuclei in tissue sections’, Cytometry, 55A(1), 30-42, 2003.

(Jan. 2014)