

Georgios D. Mitsis

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<http://www.eng.ucy.ac.cy/gmitsis>

Education

- 1997-2002** **Ph.D. in Biomedical Engineering**
University of Southern California, Los Angeles, CA
 Doctoral thesis: “Nonlinear Physiological Systems Modeling using Laguerre-Volterra Networks”
- 1999-2001** **M.S. in Electrical Engineering**
University of Southern California, Los Angeles, CA
- 1997-2000** **M.S. in Biomedical Engineering**
University of Southern California, Los Angeles, CA
- 1992-1997** **Diploma in Electrical and Computer Engineering**
National Technical University of Athens, Athens, Greece
 Diploma thesis: “Focusing of Electromagnetic Energy in a Tissue using Short Baseband Pulses”

Research Interests

- Systems identification/ modeling
 - Identification of nonlinear and nonstationary systems
 - Applications of machine learning techniques to systems identification
 - Model order selection for dynamic systems
- Quantitative and systems physiology
 - Cardiovascular regulatory mechanisms, cerebral hemodynamics and blood flow autoregulation
 - Insulin-glucose interactions, glucose metabolism and control in diabetics
 - Multiscale mathematical modeling and optimal therapy design for cancer
 - Neural systems modeling
- Functional neuroimaging
 - Mathematical modeling of the Blood Oxygenation Level Dependent (BOLD) response
 - Pharmacological functional MRI: Functional imaging as a tool for drug development
 - Assessment of functional and effective brain connectivity in healthy and diseased (e.g. epileptic) subjects
 - Resting-state network analysis of multimodal functional neuroimaging data

Professional Experience

Research

- 2012-present** **Assistant Professor, Department of Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus**
 Research Lab: Biosignal Processing and Quantitative Systems Physiology Lab
<http://www.eng.ucy.ac.cy/gmitsis/Lab/Lab.html>
- 2009-2012** **Lecturer (Tenure-Track), Department of Electrical and Computer Engineering, University of Cyprus, Nicosia, Cyprus**
- 2007-2008** **ENTER Research Fellow, Department of Electrical and Computer Engineering, National Technical University of Athens, Greece**
- 2006-2007** **Postdoctoral Research Fellow, Centre for Functional Magnetic Resonance Imaging of the Brain (fMRIB Centre) University of Oxford, Oxford, United Kingdom**

2002-2005 Postdoctoral Research Associate, Biomedical Simulations Resource,
University of Southern California, Los Angeles, CA

1998-2002 Research Assistant, Department of Biomedical Engineering,
University of Southern California, Los Angeles, CA

Teaching

University of Cyprus

2009-present **ECE220 – Signals and Systems I (Spring 2009-2013)**
Core curriculum course for 2nd year ECE students: Continuous Time Signals and Systems, Linear Time Invariant Systems, Convolution, Differential Equation Models, Frequency Response and Filtering, Fourier and Laplace Transforms.
<http://www.ece.ucy.ac.cy/gmitsis/ece220/>

ECE429 - Introduction to Digital Signal Processing (Spring 2011, Spring 2012)
Elective course for 4th year ECE students: Discrete-time signals and systems, Sampling and digital signal reconstruction, Decimation and interpolation, Z Transform, Discrete Fourier Transform (DFT), Algorithms for DFT computation - the Fast Fourier Transform (FFT), FIR and IIR digital filters, Random discrete-time signals, Power spectral density estimation, Applications and advanced methods of DSP.
<http://www.eng.ucy.ac.cy/gmitsis/ece429/>

ECE623 – Digital Signal Processing (Spring 2013)
Graduate course for M.S. and Ph.D. students: Discrete-time signals and systems, Random signals and linear systems, Sampling and reconstruction, Decimation and Interpolation, Discrete Time Fourier Transform and Fast Fourier Transform, Filter design, Power spectral density estimation, Autoregressive signal modeling, Hilbert transform, Spectrograms and Short time Fourier transform.
<http://www.eng.ucy.ac.cy/gmitsis/ece623/>

ECE636 – Systems identification (Fall 2009, Fall 2011)
Graduate course for M.S. and Ph.D. students: Random signals and linear systems, Models of linear and nonlinear systems, Nonparametric identification in the time and frequency domains, Model parametrizations, Parametric identification, Recursive identification, Identification of closed-loop systems, Model order selection and validation, Input design, Identification of nonlinear systems.
<http://www.eng.ucy.ac.cy/gmitsis/ece636/>

ECE795 – Pattern recognition (Fall 2010)
Graduate course for M.S. and Ph.D. students: Probability theory, Bayesian decision theory, Parameter estimation, Nonparametric density estimation, Linear classifiers, Neural Networks, Kernel methods, Support vector machines, Mixture models and expectation maximization, Principal and independent component analysis, Unsupervised learning.
<http://www.eng.ucy.ac.cy/gmitsis/ece795/>

ECE701/704 – Graduate Seminar (Fall 2009, Spring 2010)
Organized the Departmental Graduate Seminar (M.S. and Ph.D students)

Supervision:

Postdoctoral researchers: Achilleas Achilleos, Marios Hadjiandreou, Charalambos Loizides.

Ph.D. students: Anthi Alexandrou, Maria Anastasiadou, Louiza Sophocleous, Kyriaki Kostoglou, Foivia Nicolaou.

M.S. students: Marios Markou (graduated June 2011), Michalis Panagiotou, Kyriaki Kostoglou (graduated June 2012).

Undergraduate students: Theodora Kakkouli (June 2010), Andreas Zaharakis (February 2011), Charoulla Lazarou (June 2011), Maria Soteriou (June 2011), Elena Kaplani (June 2011), Zenon Panagiotou (June 2011), Kalliopi Charalambous (June 2011), Prokopis Prokopiou (June 2012) – best

senior design project award, Neofytos Iosif (June 2012), Antrie Zakhri (June 2012), Maria Meli (June 2012).

University of Southern California

2002-2005 **Supervision of M.S. students, Department of Biomedical Engineering, University of Southern California, Los Angeles, CA:** Pramod V. Butte (Jan-Aug 2002), Aarthi Mahalingam (Sep 2002- Jun 2004), Ankita Agarwal (May 2003- May 2004), Mahmoud Hajo (Jan 2004- May 2005).

2003-2004 **Guest Lecturer, Department of Biomedical Engineering
University of Southern California, Los Angeles, CA**
Graduate courses: Biomedical Control Systems, Measurement and Processing of Biological Signals.

1997-1999 **Teaching Assistant, Department of Biomedical Engineering
University of Southern California, Los Angeles, CA**
Undergraduate and graduate courses: Introduction to Biomedical Engineering, Signals and Systems Analysis, Biomedical Computer Simulation Methods, Medical Electronics.

University and Departmental Service

University of Cyprus

Chairman: Graduate Studies Committee, ECE Department (2011-present).

Member: Publications Committee, ECE Department (2011-present).

Member: Public Relations Committee, University of Cyprus (2011-present).

Coordinator: Annual Robotics Competition “Technoplefsi”, ECE Dept., April 2010 (with C. Nicopoulos).

Member of M.Sc. thesis committees: Ioannis Tziortzis (advisor: C.D. Charalambous, other committee members: C.N. Chadjicostis), Christoforos Keroglou (advisor: E. Christoforou, other committee members: C. Pitris and I. Seimenis), Elisavet Dimosthenous (advisor: G.E. Georgiou, other committee members: M. Zervos), Antonitsa Pantagou (advisor: E. Kyriakides, other committee members: G. Ellinas, C.A. Charalambous).

Member of Ph.D. committees: Ioanna Ioannou (advisor: C.D. Charalambous, other committee members: C.N. Chadjicostis, I. Krikidis, T. Charalambous, C. Georgiades), Evgenia Mpousi (advisor: C. Pitris, other committee members: S. Iezekiel), Ioannis Sokratous (advisor: C.D. Charalambous, other committee members: C.N. Chadjicostis), Demetres Evagorou (advisor: G.E. Georghiou, other committee members: C.D. Charalambous, A. Stavrou and H. Edin), George Makrides (advisor: G.E. Georghiou, other committee members: C.D. Charalambous, A. Stavrou, A. Kyprianou and W. van Sark).

Member of Ph.D. research proposal committees: Panagiotis Panagi (advisor: M. Polycarpou, other committee members: C.N. Chadjicostis, C. Panagiotou), George Makrides (advisor: G.E. Georgiou, other committee members: C.D. Charalambous), Evgenia Mpousi (advisor: C. Pitris, other committee members: S. Iezekiel).

Member of Ph.D. qualifying exams: Christodoulos Keliris (with M. Polycarpou, C. Panayiotou), Fotis Stavrou (with C.D. Charalambous, C.N. Chadjicostis), Markos Asprou (with E. Kyriakides, C.A. Charalambous), Christos Kyrkou (with T. Theocharides, C. Nicopoulos), George Milis (with M. Polycarpou and E. Kyriakides), Vasiliki Paraskeva (with G.E. Georgiou and M. Zervos), Guillaume Garreau (with J. Georgiou and T. Theocharides), Alexandros Phoinikarides (with G.E. Georgiou, C.D. Charalambous).

External

Member of Ph.D. committees: Alexandros Charalambides (ECE Department, National Technical University of Athens, Greece – advisor: G.P. Papavassilopoulos), Tatjana Loncar-Turukalo (EE Department, University of Novi Sad, Serbia – advisor: D. Bajic).

Other Experience

2006 **Military Service, Department of Health Services
Hellenic Army**

Professional Affiliations

- IEEE Senior Member (2010-present)
- IEEE Member (2002-2009)
- IEEE Student Member (1999-2002)
- Member of IEEE Signal Processing Society, IEEE Engineering in Medicine and Biology (EMBS) Society, Computational Intelligence Society, Systems, Man & Cybernetics Society (2002-present)
- Member of the Biomedical Engineering Society (BMES)
- Member of the Organization for Human Brain Mapping (OHBM)
- Member of the Technical Chamber of Greece

Reviewer and Editorial Board Memberships

- Track Chair (2012-present), Signal Processing and Physiological System Modeling Track and Associate Editor (2008- present), Biosignal Processing Theme
 - Annual Conference of the IEEE Engineering in Medicine and Biology Society (EMBS) Conference, (largest annual IEEE bioengineering related conference).
- Special Issues Editor
 - *Medical Engineering and Physics*, Special issue: Mathematical modeling of cerebral autoregulation (in progress).
 - *Biomedical Signal Processing and Control*, Special Issue: ITAB 2009, vol. 6 (3): 2011.
- Book editing
 - Data-driven Modeling for Diabetes Diagnosis and Treatment, Springer (in progress).
- Reviewer
 - Journals: IEEE Transactions on Biomedical Engineering, IEEE Transactions on Information Technology in Biomedicine, IEEE Transactions on Signal Processing, IEEE Signal Processing Letters, Annals of Biomedical Engineering, Physiological Measurement, Neural Networks, Neuroscience, American Journal of Physiology, Journal of Applied Physiology, Computer Methods and Programs in Medicine, Biomedical Signal Processing and Control, Computerized Medical Imaging and Graphics, Signal Processing.
 - Conferences: IEEE Engineering in Medicine and Biology Society (EMBS) Annual Conference, IEEE Annual Conference on Decision and Control (CDC), IEEE International Biomedical Informatics and Bioengineering Conference (BIBE), IEEE Workshop on Machine Learning for Signal Processing (MLSP), IEEE Biosignal Interpretation Conference, IEEE Information Technology and Applications to Biomedicine (ITAB) Conference, IEEE International Symposium on Communications, Control and Signal Processing (ISCCP), Annual Meeting of the Organization for Human Brain Mapping (OHBM) and others.

Fellowships - Awards

- Fulbright Fellowship, Athens, Greece, 1997
- Eminent Scientist, Greek Army, 2004

Research Funding

National Technical University of Athens

General Secretariat for Research and Development of Greece, European Social Fund (75%) and National Resources (25%) – Program ENTEP04 (TP04EP058) “Nonlinear mathematical modeling of cerebral hemodynamics under normal and pathophysiological conditions”, 2007-2008 (Principal Investigator - 70.200,00 €).

University of Cyprus

Research Promotion Foundation – Program ΔΙΑΚΤΩΡ (ΔΙΑΚΤΩΡ/0609/48) “Model-based investigation of optimal cancer chemotherapy”, 2010-2013 (Coordinator and PI -144.180,00 €).

Research Promotion Foundation – Program ΔΥΓΕΙΑ (ΔΥΓΕΙΑ/0609/22) “Multimodal epileptic seizure prediction from long-duration EEG and ECG measurements”, 2011-2014 (Coordinator and PI -139.780,00 €).

European Union Territorial Cooperation Programmes – Program INTERREG (Cyprus-Crete) “Development of computational tools and services for the diagnosis and personalized optimal therapy of oncological diseases”, 2011-2013 (Coordinator and PI – Total 1.150.000,00 €, UCY 430.550,00 €).

General Secretariat for Research and Development of Greece, Program THALIS “Study and Analysis of Medical Data using structural and functional Magnetic Resonance Imaging procedures (MRI/DTI/fMRI): Assessment of changes induced by Brain Radiotherapy”, 2012-2015 (Invited expert – Total 600.000,00 €, UCY 10.500,00 €)

Academic and Industry Collaborations

• United States

- Institute for Exercise and Environmental Medicine, University of Texas Southwestern Medical Center at Dallas and Presbyterian Hospital of Dallas, Dallas, Texas.
- Medtronic-Minimed, Northridge, California.

• United Kingdom

- Nuffield Department of Anaesthetics, University of Oxford.
- University Laboratory of Physiology, University of Oxford.
- Department of Neuroscience, Physiology and Pharmacology, University College London.
- CUBRIC, Cardiff University.
- Pfizer, Sandwich, Kent.

• Canada

- University of Calgary, Department of Physiology and Biophysics, School of Medicine, Calgary, Alberta.
- Dalhousie University, Department of Physiology and Biophysics, Halifax, Nova Scotia.

Invited Lectures and Presentations

- Graduate Seminar “Data-driven modeling for biological/ physiological systems”, Departments of Bioengineering and Biomedical Engineering, McGill University, Montreal QC, Canada, January 2013 (Hosts: Profs. Dan Nicolau and Robert Kearney).
- Seminar “Modeling of cerebral hemodynamics using transcranial Doppler and BOLD fMRI”, Institute for Exercise and Environmental Medicine, **Presbyterian Hospital of Dallas and University of Texas Southwestern Medical Center at Dallas**, Dallas, Texas, August 2009 (Hosts: Profs. Rong Zhang and Benjamin Levine).
- Seminar “Advanced methods of nonlinear systems identification and applications to systems biology/physiology”, **EURECOM**, Sophia-Antipolis, France, July 2008 (Host: Prof. Petros Elia).
- Seminar “Advanced methods of nonlinear systems identification and applications to physiology, neurosciences and functional magnetic resonance imaging”, Department of Informatics and Telecommunications, **University of Athens**, April 2008 (Hosts: Profs. Elias Manolakos and Sergios Theodoridis).
- Seminar “Advanced methods of nonlinear systems identification and applications to biosignal and image processing”, Department of Electrical and Computer Engineering, **University of Cyprus**, Nicosia, Cyprus, April 2008 (Host: Prof. Charalambos Charalambous).
- Oxford Respiratory fMRI Meeting, “Dynamic Modelling Applied to Respiration and fMRI,” **University of Oxford**, October 2007 (Host: Dr. Kyle Pattinson).
- Seminar, “Modeling of Cerebral Hemodynamics Using Transcranial Doppler Ultrasound and BOLD fMRI,” Department of Cardiovascular Sciences, **University of Leicester**, United Kingdom, May 2007 (Host: Prof. Ronney Panerai).

- Advanced Imaging Seminar, “Modeling of Cerebral Hemodynamics Using Transcranial Doppler Ultrasound and BOLD fMRI,” Department of Radiology, **University of Calgary**, Alberta, Canada, March 2007 (Hosts: Profs. Marc J. Poulin and Jeff Dunn).
- Seminar, “Biotechnology and Bioengineering: Inventing the Future of Medicine”, Department of Computer Science and Telecommunications Engineering, **University of Western Macedonia**, Kozani, Greece, January 2006.
- Graduate Lecture, “Systems Modeling in Physiology”, Department of Electrical Engineering and Computer Science, **National Technical University of Athens**, Athens, Greece, December 2005 (Host: Prof. Dimitris Koutsouris).
- External Seminar, “Advanced Methods of Nonlinear Systems Modeling and Applications to Neural and Cardiovascular physiology”, **European Bioinformatics Institute**, Cambridge, United Kingdom, September 2005 (Host: Dr. Wolfgang Huber).
- Seminar, “Advanced Methods of Nonlinear Systems Identification and Applications to Cerebral Hemodynamics and Neural Encoding in Mechanoreceptors”, Department of Technology, **Pompeu Fabra University**, Barcelona, Spain, September 2005 (Host: Prof. Alejandro Frangi).
- Electrical Engineering Seminar, “Recent Advances in Nonlinear Dynamic Systems Modeling and their Applications to Physiological Systems”, Department of Electrical and Computer Engineering, **The University of British Columbia**, Vancouver, BC, Canada. April 2005 (Host: Prof. Vijay Barghava).
- Biomedical Engineering Seminar, “Identification of Nonlinear Physiological Systems: Recent Advances and their Applications”, Department of Biomedical Engineering, **The University of Texas at Arlington**, Arlington, Texas, March 2004 (Host: Prof. Khosrow Behbehani).
- Seminar, “Identification of Nonlinear Physiological Systems and their Applications to Cardiovascular Physiology”, Institute for Exercise and Environmental Medicine, **Presbyterian Hospital of Dallas and University of Texas Southwestern Medical Center at Dallas**, Dallas, Texas, March 2004 (Hosts: Profs. Rong Zhang and Benjamin Levine).
- Seminar, "Identification of Nonlinear systems: Applications to Physiological Problems", IMBB Seminar, Foundation of Research and Technology, **Institute of Molecular Biology and Biotechnology** (FORTH-IMBB), Heraclion, Crete, Greece, January 2004 (Host: Dr. Panayiota Poirazi).
- Seminar, “Modeling Nonlinear Systems with Fast and Slow Dynamics: Methodology and Application to Dynamic Cerebral Autoregulation”, Department of Computer Science, **University of Ioannina**, Ioannina, Greece, May 2001 (Host: Prof. Dimitrios Fotiadis).

Languages

English, German, Spanish

LIST OF PUBLICATIONS

Theses

1. **Ph.D. Thesis: Mitsis, G.D.** “Nonlinear Physiological Systems Modeling with Laguerre-Volterra Networks: Methods and Applications”, Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, **August 2002**.
2. **M.S. Thesis: Mitsis, G.D.** “Nonlinear Physiological System Modeling with Laguerre-Volterra Networks”, Department of Biomedical Engineering, University of Southern California, Los Angeles, CA, **May 2000**.
3. **Diploma Thesis: Mitsis, G.D.** “Focusing of Electromagnetic Energy in a Tissue using Short Baseband Pulses”, Dept of Electrical and Computer Engineering, National Technical University of Athens, Athens, Greece, **July 1997**.

Journal Publications (I.F.: ISI impact factor)

Distinctions: #8 - Editorial comment (Journal of Applied Physiology, April 2009 – J.G. van den Aardweg “Respiratory variability after opioids: See it happen”)

1. Loizides C.L., Achilleos A.A., Iannetti G.D. and **G.D. Mitsis** “Assessment of nonlinear interactions in event-related potentials (ERPs) elicited by stimuli presented at short inter-stimulus intervals,” *Neuroimage* (submitted).
2. Hadjiandreou M.M. and **G.D. Mitsis** “Controlling cancer progression in mice: Mathematical modeling and optimal control,” *IEEE Transactions on Biomedical Engineering* (submitted).
3. Harris A.D., Robertson V.H., Huckle D.L., Saxena N., Evans C.J., Murphy K., Hall D.E., Bailey D.M., **Mitsis G.D.**, Edden R.A.E. and R.G. Wise, “Temporal dynamics of lactate concentration in the human brain during acute inspiratory hypoxia,” *Journal of Magnetic Resonance Imaging*, in press (I.F. 2.749).
4. Markakis, M.G., **Mitsis, G.D.**, Papavassilopoulos, G.P., Ioannou, P.A. and V.Z. Marmarelis “A Switching Control Strategy for the Attenuation of Blood Glucose Disturbances,” *Optimal Control, Applications and Methods* 32, 185-195, 2011 (I.F. 0.882).
5. Ioannides A.A. and **G.D. Mitsis** “Do we need to consider non-linear information flow in corticomuscular interaction?,” *Clinical Neurophysiology* 121 (3): 272-273, 2010 (I.F. 2.972).
6. **Mitsis, G. D.**, R. Zhang, B.D. Levine, E. Tzanalariidou, D. G. Katritsis and V.Z. Marmarelis “Autonomic Neural Control of Cerebral Hemodynamics: A Nonlinear Study,” *IEEE Engineering in Medicine and Biology Magazine* 28 (6): 54-62, 2009 (I.F. 1.066).
7. **Mitsis, G.D.**, Markakis, M.G. and V.Z. Marmarelis, “Nonlinear Modeling of Glucose Metabolism: Comparison of Compartmental with Volterra models,” *IEEE Transactions on Biomedical Engineering* 56: 2347-2358, 2009 (I.F. 2.496).
8. **Mitsis, G.D.**, Governo, R.J., Rogers, R. and K.T.S. Pattinson, “The effect of remifentanyl upon respiratory variability, evaluated with dynamic modeling,” *Journal of Applied Physiology* 106: 1038-1049, 2009 (I.F. 3.658).
9. Pattinson, K.T.S., **Mitsis, G. D.**, Harvey, A. K., Jbabdi, S., Dirckx, S., Mayhew, S. D., Rogers, R., Tracey, I. and R. G. Wise “Imaging the Human Brainstem Respiratory Network,” *Neuroimage* 44: 295-305, 2009 (I.F. 5.654).
10. **Mitsis, G.D.**, Iannetti, G.D., Smart, T.S., Tracey, I. and R.G. Wise “Regions of Interest analysis in fMRI: how do the Definition Criteria influence the inferred Result?,” *Neuroimage* 40: 121-132, 2008 (I.F. 5.654) .
11. **Mitsis, G.D.**, French, A.S., Höger, U., Courellis, S. and V Z. Marmarelis. “Principal Dynamic Mode Analysis of Action Potential Firing in a Spider Mechanoreceptor,” *Biological Cybernetics* 96: 113-127, 2007 (I.F. 2.142).
12. **Mitsis, G.D.**, Zhang, R., Levine, B.D. and V.Z. Marmarelis. “Cerebral Hemodynamics during Orthostatic Stress assessed by Nonlinear Modeling,” *Journal of Applied Physiology* 101: 354-366, 2006 (I.F. 3.658).

13. **Mitsis, G.D.**, Ainslie, P.N., Poulin, M.J., Robbins P.A. and V. Z. Marmarelis. “Nonlinear Modeling of the Dynamic Effects of Arterial Pressure and Blood Gas variations on Cerebral Blood Flow in Healthy Humans” *Advances in Experimental Medicine and Biology* 551: 259-265, 2004 (I.F. 0.663).
14. **Mitsis, G.D.**, Poulin, M.J., Robbins, P.A. and V.Z. Marmarelis. “Nonlinear Modeling of the Dynamic Effects of Arterial Pressure and CO₂ Variations on Cerebral Blood Flow in Healthy Humans,” *IEEE Transactions on Biomedical Engineering* 51: 1932-1943, 2004 (I.F. 2.496).
15. **Mitsis, G.D.**, Zhang, R., Levine, B.D. and V.Z. Marmarelis. “Modeling of Nonlinear Systems with Fast and Slow Dynamics. II. Application to Cerebral Autoregulation in Humans,” *Annals of Biomedical Engineering* 30: 555-565, 2002 (I.F. 2.605).
16. **Mitsis, G.D.** and V.Z. Marmarelis. “Modeling of Nonlinear Systems with Fast and Slow Dynamics. I. Methodology,” *Annals of Biomedical Engineering* 30: 272-281, 2002 (I.F. 2.605).
17. Nikita, K.S., **Mitsis, G.D.** and N.K. Uzunoglu. “Analysis of Focusing of Pulsed Baseband Signals inside a Layered Tissue Medium,” *IEEE Transactions on Microwave Theory and Techniques* 48: 30-39, 2000 (I.F. 2.711).

Special issue editorials

1. Pattichis, C.S., Bamidis, P.D., Christodoulou, C., Kyriakou, E., Mitsis, G.D., Pattichis, M.S. and C. Pitris “Guest Editorial introduction to the special issue on Biomedical Signal Processing and Analysis, selected papers from ITAB 2009”, *Biomedical Signal Processing and Control* 6(3): 217-218.

Book Chapters

1. **Mitsis, G.D.**, Markakis, M.G and V.Z. Marmarelis “Data-driven Modeling of Dynamic Insulin-Glucose Interactions: Comparison of Volterra Models with Compartmental Models and Application to Resting Insulin-Glucose Fluctuations in a Fasting Dog,” in *Springer Lecture Notes in Mathematics, Mathematical Biosciences Subseries*, Springer (in press).
2. Markakis, M.G., **Mitsis, G.D.**, Papavassilopoulos, G.P. and V.Z. Marmarelis “Nonparametric modeling and model-based control of the insulin-glucose system,” in *Recent Advances in Biomedical Engineering*, edited by D. Campolo, In-Tech, Vienna, Austria, pp. 1-20, 2010.
3. **Mitsis, G.D.**, Zhang, R., Levine, B.D. and V. Z. Marmarelis “Nonlinear Physiological Systems Identification: Application to Cerebral Hemodynamics under Orthostatic Stress,” *Mathematical Methods in Scattering Theory and Biomedical Engineering, Proceedings of the 7th International Workshop*, edited by D.I. Fotiadis, World Scientific, pp. 362-369, 2006.

Conference Proceedings Publications and Abstracts

Awards/ Distinctions: #19 - Selected for publication in the International Journal of Bioelectromagnetism, #20 – Selected for publication in Computerized Medical Imaging and Graphics, #25 – Selected for publication in the IEEE EMB magazine, #26 – Best paper (Association of Anaesthetists of Great Britain and Ireland), #39 Travel Fellowship for young researchers (National Science Foundation).

1. Hadjiandreou M.M. and **G.D. Mitsis** "Model-based control of cancer progression subject to drug-resistance" *51st IEEE Conference on Decision and Control*, Maui HI, December 2012.
2. Kostoglou, K., Michmizos, K.P., Stathis, P., Sakas, D., Nikita, K.S. and **G.D. Mitsis** “Prediction of the Parkinsonian subthalamic nucleus spike activity from local field potentials using nonlinear dynamic models,” *12th IEEE International Biomedical Informatics and Bioengineering Conference (BIBE 2012)*, pp. 298-302, Larnaca, Cyprus, November 2012.
3. Achilleos, A.A., Loizides, C.L., Stylianopoulos, T. and **G.D. Mitsis** “Linear Dynamic Modelling and Bayesian Forecasting of Tumor Evolution,” *12th IEEE International Biomedical Informatics and Bioengineering Conference (BIBE 2012)*, pp. 671-676, Larnaca, Cyprus, November 2012.

4. Hadjiandreou M.M. and **G.D. Mitsis** “Model-based control of tumor progression” *12th IEEE International Biomedical Informatics and Bioengineering Conference (BIBE 2012)*, pp. 614-619, Larnaca, Cyprus, November 2012.
5. Christodoulakis, M., Anastasiadou, M., Papacostas, S.S., Papathanasiou, E and **G.D. Mitsis** “Investigation of network brain dynamics from EEG measurements in patients with epilepsy using graph-theoretic approaches,” *12th IEEE International Biomedical Informatics and Bioengineering Conference (BIBE 2012)*, pp. 303-308, Larnaca, Cyprus, November 2012.
6. **Mitsis G.D.** "Nonlinear, data-driven modeling of cerebral hemodynamics from spontaneous physiological variability," *Proc. 34th Ann. Intern. Conf. IEEE EMBS, San Diego CA, September 2012* (invited).
7. Hadjiandreou M.M., Gkoutos G.V., Conejeros R. and **G.D. Mitsis** “Investigation of cancer progression via mathematical modelling and optimal control” *11th International Symposium on Process Systems Engineering (PSE2012)*, Singapore, July 2012.
8. Prokopiou, P., Pattinson, K.T.S., Wise, R.G. and **G.D. Mitsis** “Identification of the regional variability of the brain hemodynamic response to spontaneous and step-induced CO₂ changes using function expansions,” *Proc. 16th IFAC Symposium on System Identification*, pp. 792-797, Brussels, Belgium, July 2012.
9. Hadjiandreou M.M. and **G.D. Mitsis** “Towards tumor growth control subject to reduced toxicity,” *American Control Conference (ACC2012)*, pp. 5592-5597, Montreal QC, Canada, June 2012.
10. Hadjiandreou M.M. and **G.D. Mitsis** “Model-based treatment of colon cancer in mice,” *European Symposium on Computer Aided Process Engineering (ESCAPE22)*, London, UK, June 2012.
11. Markou M.M., Poulin M.J. and **G.D. Mitsis** “Nonstationary analysis of cerebral hemodynamics using adaptive multiple-input nonlinear models”, *50th IEEE Conference on Decision and Control and European Control Conference*, pp. 5768 – 5773, Orlando FL, December 2011.
12. **Mitsis G.D.** and M.M. Markou “Recursive least squares estimation of nonlinear multiple-input systems using orthonormal function expansions,” *Proc. 33rd Ann. Intern. Conf. IEEE EMBS*, pp. 3728-3731, Boston MA, September 2011.
13. **Mitsis G.D.** “The Volterra-Wiener approach in neuronal modeling”, *Proc. 33rd Ann. Intern. Conf. IEEE EMBS*, pp. 5912-5915, Boston MA, September 2011 (invited).
14. **Mitsis G.D.** “Data-driven modeling of cerebral hemodynamics,” *Cerebral haemodynamics: measurement & management IPeM meeting*, London, UK, June 2011 (invited).
15. **Mitsis, G.D.** and G.D. Iannetti “Assessment of nonlinear interactions in event-related potentials (ERPs) elicited by stimuli presented at short inter-stimulus intervals” *Proc. 32nd Ann. Intern. Conf. IEEE EMBS*, pp. 4834 - 4837, Buenos Aires, Argentina, August 2010.
16. **Mitsis, G.D.** and S. Jbabdi “Bayesian estimation of dynamic systems function expansions,” *Proc. 4th Intern. Symp. Communic. Cont. Signal Proc. (ISCCSP 2010)* Limassol, Cyprus, March 2010.
17. **Mitsis, G.D.** “Nonlinear, data-driven modeling of cardiovascular and respiratory control mechanisms,” *Proc. 9th International Conference on Information Technology and Applications in Biomedicine (ITAB 2009)*, pp. 1-4, Larnaca, Cyprus, November 2009.
18. **Mitsis, G.D.** “Nonlinear, data-driven modeling of cardiorespiratory control mechanisms,” *Proc. 31st Ann. Intern. Conf. IEEE EMBS*, pp. 4360-4366, Minneapolis, MN, August 2009 (invited).
19. **Mitsis, G.D.**, Governo, R.J., Rogers, R. and Pattinson, K.T.S. “The effect of remifentanil on respiratory control, assessed from resting physiological variability,” *Biosignal Interpretation Conference*, pp. 100-103, New Haven, CT, June 2009.
20. **Mitsis, G.D.**, Harvey, A. K., Dirckx, S., Mayhew, S. D., Rogers, R., Tracey, I., Wise, R.G. and K.T.S. Pattinson “Modeling of regional dynamic CO₂ reactivity in respiratory related brain areas using BOLD fMRI,” *Proc. 8th Intern. Conf. Bioinform. Bioengin. (BIBE)*, pp. 1-5, Athens, Greece, October 2008.

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