

# CURRICULUM VITAE THEODOROS ZANOS

## PERSONAL INFORMATION

**Theodoros Zanos**  
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Nationality: Greek

Date of Birth: 7/31/1980

## UNIVERSITY STUDIES

- 07/2004 - Now                    2nd Year PhD Student, University of Southern California, Viterbi School of Engineering, Biomedical Engineering Department
- 07/2004 - 05/2006                Master of Science in Biomedical Engineering, University of Southern California, Viterbi School of Engineering, Biomedical Engineering Department
- Overall GPA: 3.7 out of 4
- 07/1998 - 04/2004                5-Year Engineering Diploma, Aristotle University of Thessaloniki, Engineering School, Department of Electrical & Computer Engineering, Specialization - Division of Electronics & Computer Engineering.
- Overall GPA: 7.61 out of 10 (passable 5 out of 10 or higher)
- Major (Specialization, last 2 years) GPA: 8.43 out of 10

## LANGUAGES & CERTIFICATES

- Greek (Mother Language)
- English - Excellent Written & Spoken
  - ETS GRE Exams: Verbal 450/800 (%45), Quantitative 760/800 (%83), Analytical Writing 4.5/6 (%47), December 2003, Thessaloniki
  - ETS TOEFL Exams: Overall 300/300, Essay Rating 6/6, December 2003, Thessaloniki
  - Certificate of Proficiency in English, University of Cambridge, UK, June 1996, Thessaloniki

## RESEARCH & PROFESSIONAL EXPERIENCE

- 06/2004 - Now                    Graduate Research Assistant at the University of Southern California, Viterbi School of Engineering, Biomedical Engineering Department, Biomedical Simulations Resource, in Dr. Marmarelis' research lab under the supervision of Dr. Spiros Courellis, implementing computational algorithms for neuroprosthetics
- 02/2004 - 06/2004                Signal Processing Researcher & Software Developer for the "Thersippos" project of the MRI Lab of the Computer Engineering School, AUTH, researching and implementing advanced signal processing methods for signal detection under heavy noise environment under professor George Sergiadis

05/2004 - 06/2004	Web Site Developer for the "Union of Foresters of Eastern Macedonia & Thrace", ( <a href="http://www.dasofylakesamt.gr">www.dasofylakesamt.gr</a> )
07/2002 - 06/2004	Member of the MRI Lab of the Computer Engineering School, AUTH, researching EEG & MRI signal processing methods under professor George Sergiadis
Summer 2002	2 months of research in the Functional Brain Connectivity Lab, Dept of Radiology, University of Washington, Seattle, focusing on fcMRI studies under professor Dietmar Cordes
Summer 2002	2 months of research in the Center on Human Development and Disability, University of Washington, Seattle, focusing on ERP studies under professor Heracles Panagiotides
Summer 1999	Software & Hardware Technical Support, "Organotechniki", Drama.
Summer 1998	Software & Hardware Technical Support, "Computer Center", Drama.
1995 – 96	Participation in Computerization & Software Development for Department Of Forestry, Drama.

#### **JOURNAL, CONFERENCE & SYMPOSIUM PAPERS**

- T. P. Zanos, S. H. Courellis, R. E. Hampson, S. A. Deadwyler, V. Z. Marmarelis, T. W. Berger, "A multi-input modeling approach to quantify hippocampal nonlinear dynamic transformations", Proc. of IEEE 2006 International Conference of the EMBS, New York, NY, 2006
- T. P. Zanos, S. H. Courellis, R. Hampson, V. Z. Marmarelis, T. W. Berger, "Modeling transformations of neural information flow in behaving rats: A multi-input / multi-output approach", Proc. of 10<sup>th</sup> Annual Fred S. Grodins Graduate Symposium, Los Angeles, CA, 2006
- T. P. Zanos, S. H. Courellis, R. Hampson, V. Z. Marmarelis, T. W. Berger, "Spatiotemporal kernels describing hippocampal nonlinear dynamics in behaving rats", Proc. of 9<sup>th</sup> Annual Fred S. Grodins Graduate Symposium, Los Angeles, CA, 2005
- V. Z. Marmarelis, T. P. Zanos, S. H. Courellis, T. W. Berger, "Boolean Modeling of Neural Systems with Point-Process Inputs and Outputs", Proc. of IEEE 2006 International Conference of the EMBS, New York, NY, 2006
- S. H. Courellis, T. P. Zanos, M. C. Hsiao, R. E. Hampson, S. A. Deadwyler, V. Z. Marmarelis, T. W. Berger, "Modeling Hippocampal Nonlinear Dynamic Transformations with Principal Dynamic Modes", Proc. of IEEE 2006 International Conference of the EMBS, New York, NY, 2006
- M. Hsiao, C. H. Chan, V. Srinivasan, A. Ahuja, G. Erinjippurath, T. P. Zanos, G. Gholmieh, D. Song, J. D. Wills, J. LaCross, S. H. Courelis, A. R. Tanguay, J. J. Granacki, V. Z. Marmarelis, T. W. Berger, "VLSI Implementation of a nonlinear neuronal model: A "Neural Prosthesis" to restore hippocampal trisynaptic dynamics, Proc. of IEEE 2006 International Conference of the EMBS, New York, NY, 2006
- M. Hsiao, V. Srinivasan, T. P. Zanos, A. Ahuja, G. Gholmieh, S. H. Courellis, D. Song, V. Z. Marmarelis, J. LaCross, J. D. Wills, A. R. Tanguay, J. J. Granacki, T. W. Berger, "Cortical Prosthesis Project: Proof-of-Concept in Hippocampal Slice", Proc. of 10<sup>th</sup> Annual Fred S. Grodins Graduate Symposium, Los Angeles, CA, 2006

## PAST RESEARCH ACTIVITIES

- Contribution of the cardiac rate in undersampled fMRI data to functional connectivity  
Theodoros P. Zanos, Dietmar Cordes
- **Senior Thesis Projects**
  - Implementation of a GUI based EEG signal processing software for use on ERP experiments  
Theodoros P. Zanos, Ioannis Voskas, Georgios Tzimiropoulos, Heracles Panagiotides
  - Implementation of a quick FEM based EEG source localization software, using adaptable head models from MRI images, rapid sparse matrix solvers and self-learning algorithms for the solution of the inverse problem  
Theodoros P. Zanos, Ioannis Voskas, Georgios Tzimiropoulos, Drosos Kourounis, Traianos Youltsis
  - Temporal and spatial detection of objective responses on multi-trial ERP waveforms  
Theodoros P. Zanos, Ioannis Voskas, Georgios Tzimiropoulos, Heracles Panagiotides, George Sergiadis
  - Connectivity study using EEG data for the N170 brain response using coherence on wavelets and cross-correlation statistical analysis  
Theodoros P. Zanos, Ioannis Voskas, Georgios Tzimiropoulos, Georgios Sergiadis, Heracles Panagiotides

## AWARDS – DISTINCTIONS - ACTIVITIES

04/2006	1 <sup>st</sup> Prize Winner, Oral Presentation Award, 10 <sup>th</sup> Annual Fred Grodings Graduate Research Symposium, Los Angeles, CA
05/2004	1 <sup>st</sup> Prize Winner, Senior Thesis Contest, Aristotle University of Thessaloniki, Engineering School, Department of Electrical & Computer Engineering, Thessaloniki, Greece
2003 - 2004	Founder & Chairman of the IEEE EMB Thessaloniki Student Branch Chapter, first in Greece, organizing Hospital & Industry visits, Workshops and other activities
1996	2 <sup>nd</sup> Prize Winner, Physics & Mathematics Contest "Vasileios Xanthopoulos", Drama, Greece

## MEMBERSHIPS:

- **IEEE** (Institute of Electrical & Electronics Engineers, U.S.A.) since 1999
  - **EMBS** (Engineering in Medicine and Biology Society)
  - **Computer Society**
  - **Signal Processing Society**

## RESEARCH INTERESTS:

- Modeling of Non-Linear, Non-Stationary Biological Systems
- Neuroprosthetic Algorithms
- Advanced Signal & Image Processing Techniques applied on Biomedical Data
- Computational Neuroscience
- Scientific Programming & Computational Methods

**PROGRAMMING LANGUAGES:**

- Mathworks Matlab (Advanced)
- Visual C++ (Microsoft Visual Studio 6.0) (Advanced)
- GCC (Advanced)
- Visual Basic (Microsoft Visual Studio 6.0) (Advanced)
- DSP Programming (TI 6177) (Basic)
- Microsoft SQL Server (Basic)
- Assembly Programming (6502, 6809, 68000) (Basic)
- HTML (Basic)
- Turbo Pascal (Basic)
- Fortran F77 (Basic)

**SOFTWARE PACKAGES:**

- SuSe Linux 8.2
- Code Composer Studio
- Mathematica
- Microsim Spice 8

**INTERESTS & HOBBIES:**

- Music (electronic, 70's funk-jazz)
- Sports (Basketball)
- Cinema
- Computer Games
- Fantasy And Horror Literature