



Annual Activity Report

For the period Sep. 1, 2006 - Aug. 31, 2007

Chania, Crete, Jan. 11, 2008



Message from the Chair

Dear Colleague,

The Department of Electronic and Computer Engineering (ECE) at the Technical University of Crete (TUC) was founded in the late '80's, and admitted its first class of (30) undergraduate students in 1990. Since then, the Department has grown considerably, by all counts. As of this writing, the incoming class of freshmen has grown to 125, and the number of faculty to 21 (with several more to join us soon).

The Department is organized in four Divisions: Computer Engineering, Telecommunications, Electronics & Computer Architecture, and Control Systems. There is a successful research-oriented graduate studies program in place since the early 90's, which has grown considerably over the years.

The Department is proud of the accomplishments of its graduates. Many of our former students have pursued graduate studies here and abroad. Their ranks include faculty members at top-rated North-American Universities (Georgia Tech, McMaster University), researchers at University, Government, and Industry Research Labs (e.g., Rice-U.S., NICTA-Australia, Telcordia-U.S., Ericsson - Sweden), and successful professional engineers across Greece and Europe.

Over half of the faculty members have obtained their Doctoral degrees in top-rated foreign Universities, and several worked for many years as faculty members abroad prior to joining us. The current levels of peer-reviewed scientific publication activity and competitive research funding are testament to the talent, visibility, and productivity of the faculty. Faculty credits further include multiple best paper awards at the IEEE Society level, professional recognition in terms of associate editor and technical committee member appointments, and leadership in conference organization.

While the Department's gradient is positive in all these metrics, there is still a lot of room for improvement. Towards this end, an Annual Activity Report (AAR) process was instituted in 2005. You are holding the Department's third AAR, covering the period from Sep. 1, 2006 to Aug. 31, 2007. It is our hope that the AAR process will contribute towards improving the quality of our Department, and, at the same time, give a credible snapshot of the state of the Department as of this writing. Your feedback is most welcome.

Dionisios Pnevmatikatos
pnevmati@mhl.tuc.gr

Telecommunications Division

Faculty members:

- Vassilios Digalakis, Professor
- Michael Zervakis, Professor
- Georgios Karystinos, Assistant Professor
- Athanasios Liavas, Associate Professor
- Michael Paterakis, Professor
- Alexandros Potamianos, Associate Professor
- Nikolaos Sidiropoulos, Professor



Annual Activity Report

For the period: September 1, 2006 to August 31, 2007

Name: Vassilis Digalakis

Rank: Full

Years in rank: 7

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Information & Computer Networks Lab

A – Teaching

- Undergraduate courses taught
 - *Introduction to speech processing*
 - *Probabilities and Random Signals*
- Graduate courses taught
 - *Advanced topics in speech processing*

B – Publications

- Publications in refereed journals
 - Published
 - N. Chatzichrisafis, V. Diakouloukas, **V. Digalakis** and C. Harizakis, “Gaussian Mixture Clustering and Language Adaptation for the Development of a New Language Speech Recognition System”, IEEE Transactions on Speech and Audio Processing, Vol. 15, No. 3, March 2007, pp. 928 – 938.
- Publications in refereed conferences
 - Published

- G. Tsontzos, V. Diakouloukas, C. Coniaris and **V. Digalakis**, “Estimation of General Identifiable Linear Dynamic Models with an Application in Speech Recognition”, Proceedings of ICASSP 2007, Hawaii, USA, April 2007.
- N. Tsourakis and **V. Digalakis**, “A Generic Methodology of Converting Transliterated Text To Phonetic Strings. Case Study: Greeklish”, Proceedings of Interspeech/Eurospeech 2007, Antwerp, Belgium, August 2007.
- D. Oikonomidis, V. Diakouloukas and **V. Digalakis**, “A Sub- optimal Viterbi-like Search for Linear Dynamic Models Classification,” Proceedings of Interspeech/Eurospeech 2007, Antwerp, Belgium, August 2007.
- Accepted
 - D. Pratsolis, N. Tsourakis and **V. Digalakis**, “Degradation of Speech Recognition Performance over Lossy Data Networks”, to appear at the Third ACM International Workshop on Wireless Multimedia Networking and Performance Modeling (WMuNeP), October 2007, Chania, Greece.

C – Awards & Distinctions

D – Funded Projects

- Current projects: (PI)
 - «Ανάπτυξη υποδομής και τεχνογνωσίας για Παροχή Υπηρεσιών σε Δίκτυα Επικοινωνίας», ΑΚΜΩΝ, ΓΓΕΤ, 9/2006-3/2008, PI, PI’s Budget €164.500.
 - “Ανάπτυξη Πολυτροπικής Πλατφόρμας με ενσωματωμένες υπηρεσίες Αναγνώρισης και Σύνθεσης Φωνής για Φορητές Συσκευές”, ΠΕΝΕΔ, PI, PI’s Budget € 180.000.
- Current projects: (Collaborator)
 - Μοντελοποίηση, Συνθεση Και Αναγνώριση Φωνής Με Υπολογιστική Αεροδυναμική Ανάλυση Του Ανθρώπινου Ηχητικού Σωληνα, ΠΕΝΕΔ, Co-PI, PI’s Budget € 180.000.
 - Hiwire, Ευρωπαϊκή Επιτροπή (IST STREP), 6/2004-5/2007, Co-PI, PI’s Budget € 277.628.
 - Muscle, Ευρωπαϊκή Επιτροπή (IST NoE), 3/2004-2/2008, Co-PI, PI’s Budget € 160.000.
- Project proposals submitted:
 - MIEUX, Multimodal Interactive Agent for Enhanced User Experience, IP Proposal, FP7.

E – Professional service

- Reviewer in several journals.
- ICASSP 2007 Reviewer Committee
- Conference Organization (specify role)
 - Technical Co-Chair for IEEE MMSP 2007 workshop

F – Service to the Department and the School

- Departmental responsibilities
 - Deputy Department Chair
 - Director, Information and Computer Networks Lab
- School-level responsibilities
 - Director, Telecommunication Systems Institute

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Costas Charizakis, PhD, 2003
 - Chris Vosnidis, PhD, 2004
 - Dimitris Oikonomidis, 2003
 - Orfeas Tsergoulas, MSc, 2007
 - Kostas Athanasoglou, MSc, 2007
- Undergraduate students supervised
 - Diploma theses completed
 - K. Athanasoglou
 - Z. Malafouris
 - O. Tsergoulas
 - T. Zervopoulos



Annual Activity Report

For the period: Sept 1, 2006 to Sept 1, 2007

Name: Michalis Zervakis

Rank: Professor

Years in rank: 8

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Digital Image and Signal Processing Lab,
Lab of Automation

A – Teaching

- Undergraduate courses taught
 - Digital Signal Processing
 - Digital Image Processing
- Graduate courses taught
 - Pattern Recognition
- Labs taught
 - Digital Signal Processing
 - Digital Image Processing
- Curriculum & course development
 - New courses / labs developed:
 - Lecture notes / slides developed: Digital Image Processing, Digital Signal Processing, Pattern Recognition
 - Authored textbooks: none

B – Publications

Conference Papers

- M. E. Blazadonakis and **M. Zervakis**, "Support Vector Machines and Neural Networks as Marker Selectors for Cancer Gene Analysis", *Proceeding of 3rd International IEEE Conference on Intelligent Systems*. London Sept. 4-6 2006, pp. 626-630.
- M E. Blazadonakis and **M Zervakis**, "Improving Filter Methods Through Wrapper Approaches - A Breast Cancer Case Study", *"Proceedings of the 3rd International Conference on Computational Intelligence in Medicine"*. Plymouth England 25-27 July 2007.
- M. E. Blazadonakis, A. Perperoglou and **M. Zervakis**, "Using a Single Neuron as a Marker Selector – A Breast Cancer Case Study", *"Proceedings of the 29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society"*. Lyon France Aug. 23-26 2007, pp. 4219-4222
- M. E. Blazadonakis and **M. Zervakis**, "Polynomial and RBF Kernels as Marker Selection Tools – A Breast Cancer Case Study", *"Proceedings of the 6th International Conference on Machine Learning and Applications"*. Cincinnati Ohio 13-15 Dec. 2007, accepted.
- V. Sakkalis, V. Tsiraras, **M. Zervakis**, and I. Tollis, "Optimal brain network synchrony visualization: Application in an alcoholism paradigm", Engineering in Medicine and Biology Society (EMBC 2007), Lyon, France, August 23-26, 2007.
- P. Ktonas, S. Golemati, P. Xanthopoulos, V. Sakkalis, M.D. Ortigueira, H. Tsekou, **M. Zervakis**, T. Paparrigopoulos, and C.R. Soldatos, "Potential dementia biomarkers based on the time-varying microstructure of sleep EEG spindles", Engineering in Medicine and Biology Society (EMBC 2007), Lyon, France, August 23-26, 2007.
- P. Ktonas, S. Golemati, P. Xanthopoulos, V. Sakkalis, M. D. Ortigueira, H. Tsekou, **M. Zervakis**, T. Paparrigopoulos, and C. R. Soldatos, "Model-based quantification of the time-varying microstructure of sleep eeg spindles: possibilityfor eeg-based dementia biomarkers", Third International Conference on Computational Intelligence in Medicine and Healthcare (CIMED), Plymouth, England, 25-27 July 2007.
- V. Sakkalis, T. Oikonomou, E. Pachou, I. Tollis, S. Micheloyannis, and **M. Zervakis**, "Time-significant Wavelet Coherence for the Evaluation of Schizophrenic Brain Activity using a Graph theory approach", Engineering in Medicine and Biology Society (EMBC 2006), New York, USA, August 30-Sept. 3, 2006.
- P. Xanthopoulos, S. Golemati, V. Sakkalis, P.Y. Ktonas, **M. Zervakis**, and C.R. Soldatos, "Modeling the time-varying microstructure of simulated sleep EEG spindles using time-frequency analysis methods", Engineering in Medicine and Biology Society (EMBC 2006), New York, USA, August 30-Sept. 3, 2006.
- V. Sakkalis, **M. Zervakis**, C. Bigan, T. Cassar, K.P. Camilleri, S.G. Fabri, and Sifis Micheloyannis, "Validation of time-frequency and ARMA feature extraction methods in classification of mild epileptic signal patterns", Information Technology Applications in Biomedicine (IEEE-ITAB 2006), Ioannina - Epirus, Greece, October 26-28, 2006.

- V. Sakkalis, C.D.Giurcăneanu, P. Xanthopoulos, **M. Zervakis**, Y. Yang, and S. Micheloyannis, "Assessment of linear and non-linear EEG synchronization measures for evaluating mild epileptic signal patterns", Information Technology Applications in Biomedicine (ITAB 2006), Ioannina - Epirus, Greece, October 26-28, 2006.
- P. Xanthopoulos, S. Golemati, V. Sakkalis, P.Y. Ktonas, M.D. Ortigueira, **M. Zervakis**, T. Paparrigopoulos, X.Tsekou, and C.R. Soldatos, "Comparative analysis of time-frequency methods estimating the time-varying microstructure of sleep EEG spindles", Information Technology Applications in Biomedicine (ITAB 2006), Ioannina - Epirus, Greece, October 26-28, 2006.
- Z. Gketsis, G. Stavrakakis, **M. Zervakis**, "Detection of winding faults in windmill generators using the wavelet transform analysis method," *XVIII International Conf. on Electrical Machines, ICEM2006*, 2-5 September 2006, Chania, Crete, Greece, pp. 492-497.
- Z. Gketsis, **M. Zervakis**, G. Stavrakakis, "Early detection of winding faults in windmill generators using wavelet transform and ANN classification," *International Conf. on ANN, ICAN2006*, part II, LNCS 4132, pp. 746-756
- Z. Gketsis, **M. Zervakis**, G. Stavrakakis, "Detection and Classification of Winding Faults in Windmill Generators Using Wavelet Transform and ANN", *IEEE International Electric Machines and Drives Conf., IEMD2007*, vol. 1, pp. 178-183
- Z.E. Gketsis, D. Tzagkas, P.V. Hatzilias, **M.E. Zervakis**, "Laparoscopic Image Analysis for Robotic Arm Guidance", Engineering in Medicine and Biology Society (EMBC 2006), New York, USA, August 30-Sept. 3, 2006.
- Z.E. Gketsis, D. Tzagkas, G. Stavrakakis, **M.E. Zervakis**, P.V. Hatzilias, "Simulation Model of Robotic Arm for Laparoscopic Surgery", *European Control Conference 2007, July 2-5, 2007, Kos, Greece*
- Dimou, B. Van Calster, S. Van Huffel, D. Timmerman, **M.E. Zervakis**, "Comparison Of Imputation Approaches In Ovarian Tumour Diagnostic Models Based On LS-SVMs" accepted in 29th IEEE EMBS Annual International Conference, August 23-26, 2007, Lyon, France
- P. Kapsalas, **M. Zervakis**, P. Maravelaki-Kalaitzaki, E.T Delegou, A. Moropoulou, "NDT Detection of Decay Areas and Evaluation of their Attributes", in XXI CIPA Conference, Athens, 1-6 October 2007.
- P. Kapsalas, P. Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, A. Moropoulou, "Machine-Vision Schemes as a Tool for Estimating the Degradation State and Evaluating the Efficiency of the Cleaning Strategies", Accepted for publication in Lacona VII Conference, Madrid, September 2007.

Journal Papers

- P. Kapsalas, **M. Zervakis**, P. Maravelaki-Kalaitzaki, "Evaluation of Image Segmentation Approaches for Non-Destructive Detection and Quantification of

- Corrosion Damage on Stonework”, Intl. Journal on Corrosion Science (2007), doi:10.1016/j.corsci.2007.03.049
- P.Kapsalas, P.Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, A. Moropoulou, “A Morphological Fusion Algorithm for Optical Inspection and Quantification of decay Patterns on Stone Surfaces”, Intl. Journal of Construction & Building Materials (2006), doi:10.1016/j.conbuildmat.2006.08.024.
 - P.Kapsalas, P.Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, and A. Moropoulou, “Optical Inspection for Quantification of Decay on Stone Surfaces” Intl. Journal on NonDestructive Testing and Evaluation (NDT &E International), 40 (1), 2007, pp. 2-11.
 - Z. Theodosiou, I. Kasampalidis, G. Livanos, **M. Zervakis**, I. Pitas, and K. Lyroutdia, “Automated Analysis of FISH and Immunohistochemistry Images: A Review”, Cytometry Part A 71A:439–450 (2007)
 - V. Sakkalis, **M. Zervakis**, and S. Micheloyannis, "Significant EEG Features Involved in Mathematical Reasoning: Evidence from Wavelet Analysis", Brain Topography, Vol. 19, No.1-2, pp. 53-60, 2006.
 - B.W. Jervis, S.Y. Belal, K. Camilleri, T. Cassar, C. Bigan, D.E.J. Linden, K. Michalopoulos, **M. Zervakis**, M. Besleaga, S. Fabri and J. Muscat, “The independent components of auditory P300 and CNV evoked potentials derived from single trial recordings”, Journal of Physiological Measurements, **accepted** June 2007.

Book Chapters

- M. E. Blazadonakis and **M. Zervakis**, “Support Vector Machines and Neural Networks as Marker Selectors for Cancer Gene Analysis”, Intelligent Systems Applications (*book*) Springer Verlag, accepted March 2007; *20 papers selected for publication out of 175 from IEEE Intl. Conference on Intelligent Systems.*

Submitted Journal Papers- Under Review

- S. Goumas, J. Dimou and **M. Zervakis**, “Combination of Multiple Classifiers for Post Placement Quality Inspection of Components”, re-submitted to Journal of Information Fusion, Jan 2007.
- V. Sakkalis, C.D. Giurcăneanu, P. Xanthopoulos, **M. Zervakis**, V. Tsiaras, Y. Yang, and Sifis Micheloyannis, "Assessment of linear and nonlinear synchronization measures for evaluating mild epileptic electroencephalograms", IEEE Trans. Inf. Tech. (under review).
- V. Sakkalis, T. Cassar, **M. Zervakis**, K.P. Camilleri, S.G. Fabri, C. Bigan, and S. Micheloyannis, "Time-Frequency Analysis and Modelling of EEGs for the Diagnosis of Controlled Epileptic Activity in Young Children", Computational Intelligence & Neuroscience (under review).
- Z. Gketsis, **M. Zervakis**, G. Stavrakakis, “Detection and Classification of Winding Faults in Windmill Generators Using Wavelet Transform and ANN,” *IEEE Transaction on Industry Applications* (under review).

- M. E. Blazadonakis and **M.Zervakis**, “The Linear Neuron as Marker Selector and Clinical Predictor”. Computer Methods and Programs in Biomedicine, Elsevier, under review.
- Patents: none

C – Awards & Distinctions

D – Funded Projects

- *Principal investigator for TUC*, project BIOPATTERN: Computational intelligence for biopattern analysis in support of eHealthcare, Network of Excellence, FP6. Total budget 3,400,000 euros, PI’s budget 264,630 euros, Period: 2004-2008
- Getting Cretan Businesses On-Line and Doing E-Business (eKONES), *Principal investigator for TUC* Funding Agency: Ministry of Development, General Secretariat for Research and Technology. TUCbudget 30.000 Euro, Period: 2006-2008
- Meta-Genomic Methods and Technologies for Diagnosis and Therapy Selection: Analysis of Genotype and Molecular Markers (GONOTYPOS) *Principal investigator for TUC* Funding Agency: Ministry of Development, General Secretariat for Research and Technology. Totalbudget 871.000 euros, TUC budget 100.000 Euro, Period:2006-2008
- Integrated Inspection System supported by Automated Motion Detection *Co-Principal investigator for TUC*, (PI for TUC Euripides Petrakis) Funding Agency: Ministry of Development, General Secretariat for Research and Technology, Total budget 800.000 Euros, TUC Budget 244,402 Euro, 2006, Period: 2006-2008
- District Technology Platform for Wideband Health Services *Principal investigator for TUC* Funding Agency: District of Crete under the Programme “Poles of Innovation”, Period:2006-2008
- *Principal investigator for TUC*, project HERPS Center: *Training Centre for Health Care, Prophylactic and Rehabilitation Services*, LEONARDO DA VINCI Community Vocational Training Action, 2nd phase, PI’s budget 46,538 Euro, Period: 2005-2007
- *Principal investigator for TUC*, project OPTAG: Improving Airport Security and Passenger Flow by Enhanced Passenger Monitoring, STREP, FP-6. Total budget 2,234,853 euros, PI’s budget, 269,640 euros.Period: 2004-2007
- Project proposals submitted:
 - During the 1st Call of Health submitted one STREP as project coordinator and participated in one other IP as a coordinating technical partner
 - During the 1st Call of ICT participated in two STREPs and one IP

- During the 2nd Call of Health participated in one STREP (VIVIANA) and one IP (TECDEM)
- During the 2nd Call of ICT submitted one STREP as project coordinator (CANVAS) and participated in one other STREP as a coordinating technical partner (BRAINAGING). Also participated in two IPs (HERAKLES and SENSES).

E – Professional service

- Society Technical Committee duties
 - Session Chair CIMED-07)
- Conference Technical Program Committee service
 - Technical Committee Member: IEEE EMBC 2006 (Engineering in Medicine and Biology Conference).
 - Programme Committee Member: CIMED-07 (European Symposium on Artificial Neural networks).
- Reviewing activities:
 - Reviewer for “IEEE Transactions on Image Processing”, “Image and Vision Computing”, “Pattern Recognition”, “Journal of Visual Communication and Image Representation”, and many conferences in his fields of expertise.
- Other
 - External reviewer for one PhD thesis from TUT, Finland (supervisor: Prof. Alpo Varrie)
 - External reviewer for one PhD thesis from UNIPI, Italy (supervisor: Prof. Antonina Starita)

F – Service to the Department and the School

- Departmental responsibilities
 - Lab Director: Digital Image and Signal Processing Laboratory
 - Lab Director: Automation Laboratory
- School-level responsibilities
 - Member and vice-chair ELKE

G – Advising

- Completed PhDs
 - Vaggelis Sakkalis, PhD

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Zacharias Getsis MASc student - Graduated
 - Ioannis Dimou PhD student
 - Michalis Kounelakis, PhD student
 - Michalis Blazantonakis PhD student
 - Stefanos Goumas PhD student
 - George Manikis MASc student
 - Antonis Tsihclas MASc student
 - Kostantina Moirogiorgou MASc student
 - Nikolas MARKopoulos MASc student
 - George Livanos MASc student
 - Kostas Michalopoulos MASc student
 - PhD. And M.Sc. degrees awarded
 - V. Sakkalis, **PhD** Thesis: “Statistical Quantitative EEG analysis based on Time-frequency and Nonlinear Synchronization methods during Altered States of Consciousness”, Technical University of Crete, Department of Electronic and Computer Engineering, April 2007, Chania, Greece, **accepted**.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - > 10
 - Diploma theses completed (supervisor):
 - 5



Annual Activity Report

For the period: Sept. 1, 2006 to Aug. 31, 2007

Name: George Karystinos

Rank: Assistant Professor

Years in rank: 1

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 201 – Signals and Systems (Fall 2006)
 - TEL 412 – Information Theory and Coding (Spring 2007)
- Graduate courses taught
 - TEL 601 – Probability and Random Processes (Fall 2006)
- Labs taught
 - TEL 201 – Signals and Systems Lab (Fall 2006)
 - TEL 412 – Information Theory and Coding Lab (Spring 2007)
- Curriculum & course development
 - New courses / labs developed
 - TEL 412 – Information Theory and Coding (Spring 2007)
 - TEL 601 – Probability and Random Processes (Fall 2006)
 - Lecture notes / slides developed
 - TEL 201 – Signals and Systems (Fall 2006)
 - TEL 412 – Information Theory and Coding (Spring 2007)
 - TEL 601 – Probability and Random Processes (Fall 2006)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - **G. N. Karystinos** and D. A. Pados, “Rank-2-optimal adaptive design of binary spreading codes,” *IEEE Transactions on Information Theory*, accepted May 2007.
 - Published
 - **G. N. Karystinos** and D. A. Pados, “Supervised phase correction of blind space-time DS-CDMA channel estimates,” *IEEE Transactions on Communications*, vol. 55, pp. 584-592, Mar. 2007.
- Publications in refereed conferences
 - Submitted: those accepted or published (see below)
 - Accepted: those published (see below), plus
 - D. A. Pados, **G. N. Karystinos**, S. N. Batalama, and J. D. Matyjas, “Auxiliary-vector RADAR on MCARM data,” (invited paper) to appear in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA.
 - D. S. Papailiopoulos and **G. N. Karystinos**, “Near ML detection of nonlinearly distorted OFDM signals,” to appear in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, accepted Aug. 2007.
 - Published
 - H. Ganapathy, D. A. Pados, and **G. N. Karystinos**, “New bounds on the aperiodic total squared correlation of binary signature sets and optimal designs,” in *Proc. IEEE ICC 2007 - Intern. Conf. Communications*, Glasgow, Scotland, June 2007, pp. 914-919.
 - D. A. Pados, **G. N. Karystinos**, S. N. Batalama, and J. D. Matyjas, “Short-data-record adaptive detection,” in *Proc. 2007 IEEE Radar Conference*, Waltham, MA, Apr. 2007, pp. 357-361.
 - **G. N. Karystinos** and A. P. Liavas, “Efficient computation of the binary vector that maximizes a rank-3 quadratic form,” in *Proc. 2006 Allerton Conference on Communication, Control, and Computing*, Allerton House, Monticello, IL, Sept. 2006, pp. 1286-1291.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects
 - PI of FP6 MC-IRG project “Power and rate efficient modulation in UHF-SHF multicarrier communications.”
 - Participated in FP6 FET project “CoopCom,” led by Prof. A. P. Liavas.
- Project proposals submitted

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
 - TPC member for IEEE ICC 2007 – Intern. Conf. Communications, Wireless Communications Symposium.
 - TPC member for IEEE GLOBECOM 2007, Communication Theory Symposium.
- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for journals
 - *IEEE Trans. on Information Theory*
 - *IEEE Trans. on Wireless Communications*
 - *IEEE Trans. on Signal Processing*
 - *IEEE Communications Letters*
 - *IEEE Signal Processing Letters*
 - *Wireless Communications and Mobile Computing*
 - Reviewer for conferences
 - *IEEE GLOBECOM 2007 - Global Communications Conference*
 - *IEEE ICC 2007 - International Conference on Communications*
 - *IEEE VTC 2007 (Fall) – Vehicular Technology Conference*
 - *IEEE WCNC 2007 – Wireless Communications and Networking Conference*

F – Service to the Department and the School

- Departmental responsibilities
 - Organized the Spring 2007 Telecommunications Division Seminar Series, Department of Electronic and Computer engineering, Technical University of Crete.

- School-level responsibilities

G – Advising

- Active graduate students supervised
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Dimitris Papailiopoulos, “Efficient maximum-likelihood block noncoherent MPSK detection in SIMO wireless systems.”



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Athanasios P. Liavas

Rank: Associate Professor

Years in rank: 3+1/2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 501 – Mobile Telecommunication Systems and Networks (Fall 2006)
 - TEL 311 – Telecommunication Systems II (Spring 2007)
- Graduate courses taught
 - TEL 609 – Special Topics in Telecommunication Systems (Network Information Theory) (Fall 2006)
- Labs taught
 - TEL 311 – Telecommunication Systems II Lab (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the transmit Wiener filter with respect to channel and noise second-order statistics inaccuracies,” to appear in *IEEE Trans. Signal Processing*.
 - Published
 - **A. P. Liavas** and D. Tsipouridou, “On the performance of the mismatched MMSE and LS linear equalizers,” *IEEE Trans. Signal Processing*, vol. 55, no. 7, part 1, pp. 3302-3311, July 2007.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Accepted: those published (see below), plus
 - Published
 - D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the transmit Wiener filter for broadcast channels with respect to channel uncertainties,” *ICASSP 2007*.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - FET- Open “*Cooperative and Opportunistic Communications for Wireless Networks*,” (COOPCOM), Project Coordinator and PI for TSI. (Oct. 2006-Sept. 2009).
- Project proposals submitted:

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing*
- Society Technical Committee duties
 - Member, *Signal Processing for Communications Technical Committee*, *IEEE Signal Processing Society*.
- Conference Technical Program Committee service
 - SPAWC 2007

- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for *IEEE Trans. on Signal Processing*, *IEEE Trans. on Communications*, *IEEE Journal on Selected Areas in Communications*, *IEEE Trans. Information Theory*.

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Member, Library Committee

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Despoina Tsipouridou (PhD), Year of initial enrollment in PhD program: 2006.
 - Efthimios Ambatzis (MSc), Year of initial enrollment in MSc program: 2004
 - PhD. And M.Sc. degrees awarded
 - Apollon Maniadakis (MSc), Year of initial enrollment in MSc program: 2004
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Ioannis Lazaridis and Sotiris Vlahodimitropoulos, “Software implementation of a digital receiver for single carrier telecommunication systems.”
 - Diploma theses completed (supervisor)



Annual Activity Report

For the period: September 1, 2006 to August 31, 2007

Name: Michael Paterakis

Rank: Professor

Years in rank: 8

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Information and Computer Networks Laboratory

A – Teaching

Exemption, due to University administrative duties (Vice-Rector responsible for Academic Affairs and Personnel).

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - A. Lazaris, P. Koutsakis and **M. Paterakis**, “On Modeling MPEG-4 Videoconference Traffic”, Performance Evaluation Journal, Elsevier Publ., to appear in 2007.
 - S. Chatziperis, P. Koutsakis and **M. Paterakis**, “A New Call Admission Control Mechanism for Multimedia Traffic over Next Generation Wireless Cellular Networks”, IEEE Transactions on Mobile Computing, to appear in 2007.
 - Published
 - A. Satsiou and **M. Paterakis**, “Frequency-Based Cache

Management Policies for Collaborative and Non-Collaborative Topologies of Segment Based Video Caching Proxies”, ACM Multimedia Systems Journal, Springer Publ., Vol. 12, No.2, pp.117 – 133, October 2006

- T. Chiras, P. Koutsakis and **M. Paterakis**, “Efficient Scheduling for PLC Networks”, IEE Electronic Letters, Vol. 43, No.3, February 1st 2007.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
- A. Satsiou and **M. Paterakis**, "Efficient Caching of Video Content to an Architecture of Proxies according to a Frequency-Based Cache Management Policy", in Proc. of the 2nd Intl. Workshop on Advanced Architectures and Algorithms for Internet Delivery and Applications, Pisa, Italy, October 2006.
- T. Chiras, P. Koutsakis and **M. Paterakis**, “A New MAC Protocol for Broadband Powerline Communications Networks”, in Proc. of the 49th IEEE GLOBECOM 2006, November 2006, San Francisco, USA.
- T. Drivas, P. Koutsakis and **M. Paterakis**, “On Improving the Performance of MI-MAC over Next Generation Wireless Cellular Networks”, in Proc. of the 3rd International Conference on Wireless and Mobile Communications (ICWMC) 2007, Guadeloupe, French Carribean.
- S. Chatziperis, P. Koutsakis and **M. Paterakis**, “On Achieving Accurate Call Admission Control for Videoconference Traffic Transmission over Wireless Cellular Networks”, in Proc. of the 2007 IEEE Wireless Communications and Networking Conference(WCNC 2007), March 2007, Hong Kong.
- T. Chiras, P. Koutsakis and **M. Paterakis**, “Efficient Medium Access Control for Broadband Powerline Communications Networks”, in Proc. of the 20th Canadian Conference on Electrical and Computer Engineering (CCECE 2007), April 2007, Vancouver, Canada.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Technical Adviser of the National Administrative Authority of the Information Society Program for the project: *Design, Development and Construction of Broadband Fiber Optic-Based Metropolitan Area Networks (MANs) in the Region of Crete*” (MANs will be built in six municipalities). Funded for the period 1/10/2004 – 30/6/2008, by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 450K €.
 - “Pilot Application of Encoding/Transcoding and Storage of Video Files Using the National Computer Grid Infrastructures”, funded for the period 1/10/2006 – 30/9/2007 by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 54K €.

E – Professional service

- *April 2004 – April 2007 and April 2007 – April 2010*: Member of the Executive Board, Greek Universities Network (GUnet), a not for profit company founded by all the Greek Academic Institutions.

F – Service to the Department and the School

- Departmental responsibilities
 - June 1997 - . Director of the Graduate Program, ECE Department, Technical University of Crete.
- School-level responsibilities
 - September 2005 – August 2008. Vice-Rector of Academic Affairs and Personnel, Technical University of Crete.
 - Member of the Executive Board, Telecommunication Systems Research Institute (T.S.I.), Technical University of Crete.

G – Advising

- Active graduate students supervised

- Ph.D. students supervised
 - Spyros Psychis.
- M.Sc. degrees awarded
 - Theodoros Chiras, M.Sc., ECE Dept., Tech. Univ. of Crete, Completion Time Fall 2006. M.Sc. Thesis: MAC Protocol Design and Performance Evaluation for Broadband Powerline Communication Networks
- M.Sc. students supervised
 - Sotiris Bouros.
 - Aggelos Lazaris, co-supervision with Assistant Prof. P. Koutsakis.
 - Moisis Vafiadis, co-supervision with Assistant Prof. P. Koutsakis.
- Undergraduate students supervised



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Alexandros Potamianos

Rank: Associate Professor

Years in rank: 4+1/2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Speech and Dialogue Group

A – Teaching

- Undergraduate courses taught
 - TEL 411 – Natural Language Processing
 - TEL 303 – Statistical Modeling and Pattern Recognition
 - TEL 211 – Probability and Random Processes (with V. Digalakis)
- Graduate courses taught
 - TEL 611 – Natural Language Processing
- Curriculum & course development

B – Publications

- Publications in refereed journals
 - Submitted
 - M. Perakakis and **A. Potamianos**, "A study in efficiency and modality usage in multimodal form filling systems," *IEEE Transactions on Audio, Speech and Language Processing*, submitted, 2007.
 - Accepted
 - Published.
 - E. Ammicht, E. Fosler-Lussier, and **A. Potamianos**, "Information seeking spoken dialogue systems - Part I: Semantics and pragmatics," *IEEE Transactions on Multimedia*, Apr. 2007.
 - **A. Potamianos**, E. Fosler-Lussier, E. Ammicht, and M. Perakakis, "Information seeking spoken dialogue systems - Part II: Multimodal dialogue," *IEEE Transactions on Multimedia*, Apr. 2007.
- Publications in refereed conferences
 - Submitted/Accepted/Published
 - E. Iosif and **A. Potamianos**, "Unsupervised semantic similarity computation using web search engines," in *Proc. IEEE/ACM Intern. Conf. on Web Intelligence*, (Silicon Valley, USA), Nov. 2007.
 - E. Sanchez-Soto, K. Daoudi, and **A. Potamianos**, "Unsupervised stream weight computation in a segmentation task: Application to audio-visual speech recognition," in *Proc. IEEE Intern. Conf. on Signal Proc. and Communications*, (Dubai, UAE), Nov. 2007.
 - M. Perakakis and **A. Potamianos**, "The effect of input mode on inactivity and interaction times of multimodal systems," in *ACM Internat. Conf. on Multimodal Interfaces*, (Nagoya, Japan), Nov. 2007.
 - **A. Potamianos** and S. Narayanan, "A review of the acoustic and linguistic properties of children's speech," in *Proc. IEEE Intern. Workshop on Multimedia Signal Processing*, (Chania, Greece), Oct. 2007.
 - S. Siltanen et al, "Multimodal user interface for augmented assembly," in *Proc. IEEE Intern. Workshop on Multimedia Signal Processing*, (Chania, Greece), Oct. 2007.
 - E. Iosif and **A. Potamianos**, "A soft-clustering algorithm for automatic induction of semantic classes," in *Proc. Interspeech*, (Antwerp, Belgium), Aug. 2007.
 - D. Dimitriadis, J. Segura, L. Garcia, **A. Potamianos**, P. Maragos, and V. Pitsikalis, "Advanced front-end for robust speech recognition in extremely adverse environments," in *Proc. Interspeech*, (Antwerp, Belgium), Aug. 2007.

- A. Katsamanis, P. Tsiakoulis, P. Maragos, and **A. Potamianos**, "Investigations in articulatory synthesis," in *Proc. Internat. Conf. on Phonetics*, (Saarbrücken, Germany), Aug. 2007.
- E. Sanchez-Soto, **A. Potamianos**, and K. Daoudi, "Unsupervised stream weight computation using anti-models," in *Proc. IEEE Internat. Conf. on Acoust., Speech, and Signal Process.*, (Hawaii, USA), Apr. 2007
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects (Principal Investigator):
 - MUSCLE: Multimedia Understanding through Semantics, Understanding and Learning, IST-FP6 Network of Excellence, Award Period: 3/2004 – 2/2008. PI: **A. Potamianos** Funding level: 160K €.
 - HIWIRE: Speech Recognition in Noisy Environments, IST-FP6 STREP, Award Period: 6/2004–5/2007. PI: **A. Potamianos**, Funding level: 290K €.
 - PENED: Aero-acoustic modeling of the vocal tract using Navier-Stokes equations with application to speech synthesis, GRST, Award Period: 11/2005–10/2008. PI: **A. Potamianos**, Funding level: 60K €.
- Current projects (collaborator):
 - PENED: Multimodal platforms for mobile devices, GRST, PI: V. Digalakis
 - ASPI: Acoustics to phone inversion using audio-visual cues, IST-FP6 FET project, sub-contractor for NTUA.
- Project proposals submitted:
 - C5, "Content Creation for Children in Online Communities", EU-IST FP7
 - MIRAILE, "Augmented Reality Interfaces for the Elderly", EU-IST FP7

E – Professional service

- Conference Reviewer Committee
 - ICASSP 2007
- Conference Organization (specify role)

- General Co-Chair for IEEE *MMSP 2007* workshop
- Technical Co-Chair for ACM *ICMI 2007* conferences
- Special Session organizer and Session chair for *Interspeech 2007*
- Reviewing activities
 - Reviewer for *IEEE Trans. on Speech and Audio Processing*, *IEEE Signal Proc. Letters*, *Speech Processing*, *Signal Processing etc.*

F – Service to the Department and the School

- School-level responsibilities
 - Alternate representative of Dept. of ECE to ELKE
 - Alternate representative of Dept. of ECE to Univ. Assembly

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Manolis Perakakis (Ph.D.), 2004-
 - Ilias Iosif (Ph.D.), 2007-
 - Pirros Tsiakoulis (Ph.D.) (co-supervised with Prof. Karagiannis), Natl. Tech. Univ. of Athens, 2005-
 - Michalis Toutoudakis (M. Sc.) 2002-
 - Michail Maragkakis (M.Sc.) 2003-
 - Ioannis Klasinas, (M. Sc.) 2005-
 - Thanasis Tegos, (M. Sc.) (in collaboration with Demokritos Research Center), 2005-
 - Theofanis Kanetis (M.Sc.), 2006-
 - Ph.D. And M.Sc. degrees awarded
 - Ilias Iosif (M.Sc. degree awarded), 2007.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Vasso Farantouri
 - Spyros Dimopoulos
 - Nikos Malandrakis
 - Diploma theses completed (supervisor)
 - Fotis Garitos
 - Giannis Milogianakis
 - Theofanis Kanetis
 - Zafiris Malafouris



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Nikos Sidiropoulos

Rank: Professor

Years in rank: 5+1/2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 301 – Telecommunication Systems I (Fall 2006)
- Graduate courses taught
 - TEL 603 – Estimation and Detection (Spring 2007)
- Labs taught
 - TEL 301 – Telecommunication Systems I Lab (Fall 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, ``Optimal Particle Filters for Tracking Time-Varying Harmonic and Second-Order

Polynomial Phase Signals'', *IEEE Trans. on Signal Processing*, submitted Apr. 2, 2007.

- E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, L. Tassiulas, ``Convex Approximation Techniques for Joint Multiuser Downlink Beamforming and Admission Control'', *IEEE Trans. on Wireless Communications*, to appear.
- E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. Luo, ``Far-field Multicast Beamforming for Uniform Linear Antenna Arrays'', *IEEE Trans. on Signal Processing*, to appear.
- A. Ribeiro, **N.D. Sidiropoulos**, G.B. Giannakis, ``Optimal Distributed Stochastic Routing Algorithms for Wireless Multihop Networks'', submitted to *IEEE Trans. on Wireless Communications*, May 2007; in revision.

○ Accepted

- E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, L. Tassiulas, ``Convex Approximation Techniques for Joint Multiuser Downlink Beamforming and Admission Control'', *IEEE Trans. on Wireless Communications*, to appear.
- E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. Luo, ``Far-field Multicast Beamforming for Uniform Linear Antenna Arrays'', *IEEE Trans. on Signal Processing*, to appear.
- G. Latsoudas, **N.D. Sidiropoulos**, ``A Fast and Effective Multidimensional Scaling Approach for Node Localization in Wireless Sensor Networks'', *IEEE Trans. on Signal Processing*, to appear.
- E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. Luo, ``Quality of Service and Max-min-fair Transmit Beamforming to Multiple Co-channel Multicast Groups'', *IEEE Trans. on Signal Processing*, to appear.

○ Published

- **N.D. Sidiropoulos**, Z.-Q. Luo, ``A Semidefinite Relaxation Approach to MIMO Detection for High-Order QAM Constellations'', *IEEE Signal Processing Letters*, 13(9):525-528, Sep. 2006.
- Z.-Q. Luo, **N.D. Sidiropoulos**, P. Tseng, S. Zhang, ``Approximation Bounds for Quadratic Optimization with Homogeneous Quadratic Constraints'', *SIAM Journal on Optimization*, 18(1):128, Feb. 2007.
- Alejandro Ribeiro, **N.D. Sidiropoulos**, G. B. Giannakis, Yingqun Yu, ``Achieving Wireline Random Access Throughput in Wireless Networking via User Cooperation'', *IEEE Trans. on Information Theory*, 53(2):732-758, Feb. 2007.
- A. Stegeman, and **N.D. Sidiropoulos**, ``On Kruskal's uniqueness condition for the Candecomp/Parafac decomposition'', *Linear Algebra and its Applications*, 420:540-552, 2007.

- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, and L. Tassiulas, ``Joint Multicast Beamforming and Admission Control", *Proc. IEEE CAMSAP 2007*, Dec. 12-14, St. Thomas, U.S. Virgin Islands, submitted.
 - A. Valyrakis, **N.D. Sidiropoulos**, A. Swami, ``Multichannel Particle Filters for Tracking a Frequency Hopped Signal", *Proc. IEEE CAMSAP 2007*, Dec. 12-14, St. Thomas, U.S. Virgin Islands, submitted.
 - Accepted: same as published (see below)
 - Published
 - E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, and L. Tassiulas, ``A Second-order Cone Deflation Approach to Joint Multiuser Downlink Beamforming and Admission Control", in *Proc. IEEE SPAWC 2007*, Helsinki, Finland, June 17-20, 2007.
 - A. Ribeiro, **N.D. Sidiropoulos**, G.B. Giannakis, ``Distributed Routing Algorithms for Wireless Multihop Networks", *Proc. of IEEE ICASSP 2007*, April 15-20, 2007, Honolulu, Hawaii, U.S.A.
 - E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, and L. Tassiulas, ``Joint Multiuser Downlink Beamforming and Admission Control: A Semidefinite Relaxation Approach", *Proc. of IEEE ICASSP 2007*, April 15-20, 2007, Honolulu, Hawaii, U.S.A.
 - A. Ribeiro, Z.-Q. Luo, **N.D. Sidiropoulos**, G.B. Giannakis, ``Modelling and Optimization of Stochastic Routing for Wireless Multi-hop Networks", *Proc. IEEE Infocom 2007*, Anchorage, Alaska, May 6-12, 2007.
 - A. Ribeiro, Z.-Q. Luo, **N.D. Sidiropoulos**, and G.B. Giannakis, ``A General Optimization Framework for Stochastic Routing in Wireless Multihop Networks", *Proc. of 2006 Asilomar Conference on Signals, Systems & Computers*, Oct. 29 - Nov. 1, 2006, Asilomar Conference Grounds, Pacific Grove, CA.
 - E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, ``Time-Frequency Analysis Using Particle Filtering: Closed-form Optimal Importance Function and Sampling Procedure for a Single Time-varying Harmonic", in *Proc. Nonlinear Statistical Signal Processing Workshop: Classical, Unscented, and ParticleFiltering Methods*, Sep. 13-15, 2006, Corpus Christi College, Cambridge, U.K.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Joint Transceiver Optimization and Scheduling / Admission Control in Wireless Networks, ERO, PI: N.D. Sidiropoulos. Period: Sep. 2006 – Aug. 2007. Funding level: 20K €.
 - Ultra High Bit Rate over Copper Technologies for BROADband Multiservice Access (U-BROAD - Εθνική συμμετοχή). PI: N.D. Sidiropoulos. Period: 2006 – 2008. Funding level: 25K €.
 - Design, development, and deployment of fixed wireless Internet infrastructure to serve the University community in the Akrotiri area. Regional Pole of Innovation for the region of Crete (Περιφερειακός Πόλος Καινοτομίας Κρήτης). PI: N.D. Sidiropoulos; co-PI's M. Paterakis, S. Christodoulakis. Period: 11/2006-10/2008. Funding level: 37K €.
 - Multiuser Downlink Beamforming and Scheduling for Broadband Wireless Access Beyond 3G, Greek Secretariat for Research and Technology, Division of International Collaboration in Research and Technology. PI: Nikos Sidiropoulos; Co-PIs: Georgios Giannakis (UMN-U.S.A.) and Michael Paterakis (TSI-TUC, GR). Award Period: July 2004 – March 2007. Budget: 60K €.
 - Participant in FP6 projects COOPCOM (PI: A. Liavas); NEWCOM (PI: L. Tassioulas), WIP (PI: L. Tassioulas)
- Project proposals submitted:
 - Participated in FP7 ICT STREP proposal QWEST, led by Huawei, Inc. (ranked in the top-50, passed evaluation thresholds, not funded)
 - Participated in FP7 ICT STREP proposal N-CRAVE (ranked in top-10) through CERTH. PI: L. Tassioulas; N. Sidiropoulos is co-PI.

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing* (term ended Dec. 2006)
- Society Technical Committee duties
 - Chair, *Signal Processing for Communications Technical Committee, IEEE Signal Processing Society*.
 - Member, *Sensor Array and Multichannel Signal Processing Technical Committee, IEEE Signal Processing Society*.

- Conference Technical Program Committee service
 - IEEE ICASSP 2007
 - IEEE SPAWC 2007
 - Several other smaller workshops
- Conference Organization (specify role)
 - *General Co-Chair* (with R. Rao, RIT) for *IEEE CAMSAP 2007 Workshop*, St. Thomas, U.S. Virgin Islands, Dec. 12-14, 2007: [CAMSAP2007](#)
 - *Technical Program Committee co- Chair* (with B. Sadler, ARL) for *IEEE SAM 2008 Workshop*, July 21-23, Darmstadt, Germany: [SAM2008](#)
- Reviewing activities
 - Regular reviewer for *IEEE Trans. on Signal Processing*, *IEEE Trans. on Information Theory*

F – Service to the Department and the School

- Departmental responsibilities
 - Chair, Department of Electronic and Computer engineering, Technical University of Crete.
 - Laboratory Director, Telecommunications Lab, Department of Electronic and Computer engineering, Technical University of Crete.
- School-level responsibilities
 - Associate Director and Member of the Board, Telecommunication Systems Institute, Technical University of Crete.

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Eleftherios Karipidis (Ph.D). Year of initial enrollment in Ph.D. program: 2004.
 - Evaggelia Matskani (Ph.D). Year of initial enrollment in program: 2007.
 - Alexandros Valyrakis (M.Sc.). Year of initial enrollment in program: 2004.
 - PhD. And M.Sc. degrees awarded
 - Evaggelia Matskani (M.Sc.). Year of initial enrollment in program: 2005.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)

- Euthemios Tsakonas, “Particle filtering tools for tracking a time-varying harmonic”.
- Georgina Abouelxir, “Experimental evaluation of PHY-layer multicasting algorithms using measured wireless channel data”.
- Valentina Oikonomakou, “Spectrogram segmentation-based tracking of a frequency-hopped signal”.
- Ioannis Mitliagas, “Joint Admission and Power Control in Wireless Networks”.
- Diploma theses completed (supervisor)
 - Dimitrios Evaggelinakis, “Hybrid semidefinite programming – sphere decoding approaches to MIMO detection”.
 - Manolis Koufidakis, “A study of multidimensional scaling algorithms for node localization in sensor networks: performance assessment of iterative majorization and improvements thereof”.

Computer Engineering Division

Faculty members:

- Michalis Lagoudakis, Assistant Professor
- Katerina Mania, Assistant Professor
- Euripides Petrakis, Associate Professor
- Vassilis Samoladas, Assistant Professor
- Stavros Christodoulakis, Professor



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Michail G. Lagoudakis

Rank: Assistant Professor

Years in rank: 2

Full-time or part-time: Full-time

Division: Computer Science / Informatics

Lab affiliation: Intelligent Systems Laboratory

A – Teaching

- Undergraduate courses taught
 - COMP 401 – Theory of Computation (Fall 2006)
 - COMP 405 – Artificial Intelligence (Fall 2006)
 - AIS 413 – Autonomous Agents (Spring 2007)
- Graduate courses taught
 - AIS 613 – Autonomous Agents (Spring 2007)
 - COMP 501 – Capita Selecta in Algorithms and Complexity (Spring 2007)
co-taught with Vasilis Samoladas
- Labs taught
 - AIS 413 – Autonomous Agents Lab (Spring 2007)
- Curriculum & course development
 - New courses / labs developed
 1. Autonomous agents course and lab (AIBO robots)
 2. Capita Selecta in Algorithms and Complexity
 - Lecture notes / slides developed
 1. Lecture slides for Theory of Computation
 2. Lecture slides for Artificial Intelligence
 3. Lecture slides for Autonomous Agents
 4. Notes for Capita Selecta in Algorithms and Complexity

B – Publications

- Publications in refereed journals
 - Accepted
 - Adrienne Chu, Hongshik Ahn, Bhawna Halwan, Bruce Kalmin, Everson LA Artifon, Alan Barkun, **Michail G. Lagoudakis**, and Atul Kumar, “A decision support system to facilitate management of patients with acute gastrointestinal bleeding”, accepted to the *International Journal of Artificial Intelligence in Medicine (AIIM)*.
- Publications in refereed conferences
 - Accepted
 - Georgios Kontes and **Michail G. Lagoudakis**, “Coordinated Team Play in the RoboCup Four-Legged League”, to appear in the *Proceedings of the 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI-07)*, Patras, Greece, October 2007.
 - Konstantinos Karakasiliotis, Leonidas Kagkarakis, and **Michail G. Lagoudakis**, “Chlorochlamys Loop-like Locomotion: Combining Crawling and Climbing Robotics”, to appear in the *Proceedings of the IEEE International Conference on Robotics and Biomimetics (RoBio 2007)*, Sanya, China, December 2007.
 - Published
 - **Michail G. Lagoudakis**, “Incremental Multi-Objective Motion Control of Nonholonomic Mobile Robots”, *Proceedings of the 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2006)*, Beijing, China, October 2006, pp. 2804-2809.

C – Awards & Distinctions

D – Funded Projects

- Projects in progress
 - “RLvSL: Reinforcement Learning via Supervised Learning”, *Marie Curie International Reintegration Grant*, MIRG-CT-2006-044980, PI: M. G. Lagoudakis, Dec. 2006 – Dec. 2008, Budget: 80,000 €.
 - “Experimental Evaluation of Auction-Based Robot Coordination”, *TUC Junior Faculty Grant 226*, Jan. 2007 – Dec. 2007, Budget: 5,000 €.
- Project proposals submitted
 - Proposal to the European Research Council (ERC)
 - Proposal to the TUC Research Office, Call for basic research grants

E – Professional service

- Conference Technical Program Committee service
 - *IEEE International Symposium on Approximate Dynamic Programming and Reinforcement Learning (ADPRL 2007)*
 - *International Conference on Autonomic and Trusted Computing (ATC-07)*
 - *23rd Conference on Uncertainty in Artificial Intelligence (UAI 2007)*
 - *18th European Conference on Machine Learning (ECML 2007)*
 - *IEEE International Conference on Tools with Artificial Intelligence (ICTAI-07)*
 - *1st CP Workshop on Autonomous Search 2007*
- Conference Organization (specify role)
 - *Session Chair, IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2006), Beijing, China, October 2006*
- Reviewing activities
 - *Journal of Field Robotics (JFR)*
 - *IEEE Transactions on Automation Science and Engineering (TASE)*
 - *International Journal on Artificial Intelligence Tools (IJAIT)*
 - *Journal of Artificial Intelligence Research (JAIR)*
 - *Automatica*
 - *IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics*
 - *International Conference on Autonomic and Trusted Computing (ATC-07)*
 - *23rd Conference on Uncertainty in Artificial Intelligence (UAI 2007)*
 - *18th European Conference on Machine Learning (ECML 2007)*
 - *IEEE International Conference on Tools with Artificial Intelligence (ICTAI-07)*
 - *European Control Conference (ECC-07)*
 - *22nd AAAI Conference on Artificial Intelligence (AAAI-07)*
 - *3rd IEEE Conference on Automation Science and Engineering (CASE-07)*
 - *Neural Information Processing Systems 2007 (NIPS-2007)*
 - *1st CP Workshop on Autonomous Search 2007*

F – Service to the Department and the School

- Departmental responsibilities
 - Web mastering and maintenance of www.ece.tuc.gr
 - Faculty search visit coordinator (Computer Science Division)
- School-level responsibilities
 - Editorial Board of the “TUC News” publication

G – Advising

- Graduate students
 - Ph.D. and M.Sc. theses in progress (supervisor)
 - Rexakis Ioannis (Ph.D program), “Reinforcement Learning via Supervised Learning”, Enrollment: 2006

- Markos Mpervanakis (M.Sc. program), “Experimental Evaluation of Auction-Based Coordination”, Enrollment: 2006
 - Ph.D and M.Sc. theses completed (committee member)
 - Nikolaos Hourdakakis (M.Sc.), “Design and Evaluation of Clustering Approaches for Large Document Collections: The Bic-Means Approach”, October 2006
 - Panagiotis Polydoros, “Design and Implementation of a Graphical Management System for OWL Ontologies”, July 2007
 - Anastasia Karanastasi, “OntoNL: A Generator of Natural Language Interfaces to Knowledge Bases”, August 2007
 - Ph.D and M.Sc. theses in progress (committee member)
 - Alejandro Mosteo (Ph.D. program), University of Zaragoza, Spain
Visiting student April 2007 – July 2007
- Undergraduate students
 - Diploma theses in progress (supervisor)
 - Vasileios Skourtis, “Implementation of a Software Framework for Auction-Based Multi-Agent Coordination”
 - Georgios Kontes, “Coordinated Team Play in the RoboCup Four-Legged League”
 - Konstantinos Makantasis, “Active Face Tracking with an AIBO”
 - Stylianos Tsigdinos, “Improving Traffic Light Control using Reinforcement Learning”
 - Suzanna Volioti, “Histogram-Based Landmark Recognition in the Four-Legged RoboCup League”
 - Nikolaos Hartampas, “Heuristic Search Techniques for a Combinatorial Scheduling Problem”
 - Konstantinos Haldezos, “Interactive Robot Gaming”
 - Iasonas Pazis, “Microprocessor Control of a Hexapod Robot”
 - Nikolaos Papoulias, “High-Level Debuggers, Facilities, and Interfaces”
 - Lefteris Tsalas, “GeoRSS Firefox Plugin”
 - Aliko Mpandi, “Avatar-Based Visualization of Sign Language”
 - Nikolaos Alexandris, “Reinforcement Learning for Network Routing”
 - Diploma theses completed (supervisor)
 - Konstantinos Kapourakis, “PacMan: Parametric Implementation of the Game and Design of Autonomous Agent-Player”, June 2007
 - Diploma theses completed (committee member)
 - Christos Tsiamantas, “SQL-PARSE: Object-Oriented Generic Compiler for ANSI-SQL”, May 2007
- Student team projects
 - Founder and leader of the four-legged robot soccer team Kouretes (www.intelligence.tuc.gr/kouretes), the first and the only Greek team participating in the RoboCup competition. Kouretes 2007 consisted of 7 graduate and undergraduate ECE students.



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Katerina Mania

Rank: Assistant Professor

Years in rank: 1 year, 9 months

Full-time or part-time: Full-time

Division: Computer Science

Lab affiliation: Distributed Multimedia Information Systems and Applications (MUSIC)

A – Teaching

- Undergraduate courses taught
 - PLH 503 - Computer Graphics (Spring 2007)
 - PLH 101 – Introduction to Computers and Computer Science (C programming)
- Graduate courses taught
 - PLH 610 – Computer Graphics (Spring 2007)
- Curriculum & course development
 - New course notes/labs developed: PLH 503, PLH 610, Computer Graphics, undergraduate and graduate level, lab exercises and major project spec. (new, 2007).
 - Lecture notes/slides updated: PLH 101 (C programming).

B – Publications

- Publications in refereed journals
 - Submitted

- N. Mourkoussis, F. Rivera, T. Troscianko, **K. Mania**, R. Hawkes, P. Watten, (submitted 2007). “Quantifying Fidelity for Virtual Environment simulations employing memory schema assumptions”, submitted to *IEEE Transactions on Visualization and Computer Graphics*.
 - N. Mourkoussis, F. Rivera, **K. Mania**, T. Troscianko, T. Dixon, R. Hawkes, (submitted 2007). “Slant Perception based on Gait in Real and Virtual Environments”, submitted to *ACM Transactions on Applied Perception*.
 - H. Badariah, **K. Mania**, M. Coxon, (revised 2007). “Cognitive Transfer of Training from Immersive Virtual Environments to Reality”, submitted to *ACM Transactions on Applied Perception*.
- Published
 - A. Robinson, **K. Mania**, P. Perey, (2007). “Flight Simulation: Research Challenges and Flight Crew Assessments of Fidelity”. *Simulation and Gaming*, 38(1), 112-135 SAGE Publications. ISSN: 1046-8781.
 - T. Troscianko, N. Mourkoussis, Rivera, F. Rivera, **Mania, K. Mania**, T. Dixon, Hawkes, R. Hawkes, (2007). “Memory for objects in virtual environments, *Journal of Vision*, Volume 7”, Number 9, Page 763a, ISSN 1534-7362.
- Publications in refereed conferences
 - Submitted
 - **K. Mania**, E. Reinhard, “Perceptually-Motivated Graphics”. Half-day tutorial submitted to *Eurographics 2008*, Crete, Greece.
 - Accepted: those published (see below), plus
 - M. Sifniotis, M. White, P. Watten, **K. Mania**, (to appear, 2007). “Influencing factors on the visualization of archaeological uncertainty. In proc. of *The 8th International Symposium on Virtual Reality, Archaeology and Cultural Heritage*”, Brighton, UK, sponsored by Eurographics (full paper).
 - Published
 - T. Troscianko, N. Mourkoussis, Rivera, F. Rivera, **Mania, K. Mania**, T. Dixon, Hawkes, R. Hawkes, (2007). “Memory for objects in virtual environments, Abstract at *6th Annual Meeting Vision Sciences Society (VSS 2007)*”, Sarasota, Florida, 11-16 May 2007, 225-225.
 - N. Mourkoussis, Rivera, F. Rivera, T. Troscianko, **K. Mania**, R. Hawkes, (2007). “Action-based Slant Perception in Real and Virtual Environments. Poster in Proc. of *ACM Siggraph Symposium on Applied Perception in Graphics and Visualization*”, Germany.

- T.Troscianko, N. Mourkoussis, F. Rivera, **K. Mania**, T. Dixon, R. Hawkes, (2007). “Graphics, memory, and surrealism – an experimental investigation. Poster in Proc. AVA Meeting (*Active Vision 2007*)”, Bradford, UK.
- P. Petridis, **K. Mania**, D. Pletinckx, M. White, (2006). “The EPOCH Multimodal Interface for Interacting with Digital Heritage Artefacts, *Lecture Notes in Computer Science*”, Springer Berlin / Heidelberg, 408-417, ISSN: 0302-9743.
- P. Petridis, **K. Mania**, D. Pletinckx, M. White, (2006). “Usability Evaluation of the EPOCH Multimodal User Interface: Designing 3D Tangible Interactions. *Proc. of ACM Symposium on Virtual Reality Software and Technology (VRST) 2006*”, 116-122, Cyprus, Nov. 2006.
- P. Petridis, D. Pletinckx, **K. Mania**, M. White, (2006). “The EPOCH Multimodal Interface for Interacting with Digital Heritage Artefacts. *Proc. of 12th International conference on Virtual Systems and Multimedia (VSMM) 2006*”, 408-417, China, Oct.2006.
- M. Sifniotis, B. Jackson, M. White, **K. Mania**, P. Watten, (2006). “Presenting Uncertainty in Archaeological Reconstructions using Possibility Theory and Information Visualisation Schemes. *Proc. of the 7th International Symposium on Virtual Reality, Archaeology and Cultural Heritage*”, sponsored by Eurographics, 198-202, Cyprus, Oct. 2006.

C – Awards & Distinctions

D – Funded Projects

- Current projects (at the University of Sussex, UK):
 - Quantifying fidelity for virtual environment simulations employingschema assumptions, Engineering and Physical Sciences Council (EPSRC), UK. PI: Katerina Mania Co-PI: Prof. Tom Troscianko(University of Bristol, UK). Collaborator: Dr Rycharde Hawkes (Hewlett Packard Laboratories). £121.000. Oct.2004-Nov. 2006.
 - INTUITION, EU FP6, Network of Excellence on Virtual Reality andVirtual Environment Applications for Future Workspaces. PI: Dr. Martin White. Co-PIs: Professor Paul Lister, Dr Katerina Mania, Dr Paul Newbury. 2004-2008.
 - EPOCH, EU FP6, Network of Excellence on Excellence in Processing Cultural Heritage. PI: Dr. Martin White. Co-PIs: Professor Paul Lister, Dr Katerina Mania, Dr Paul Newbury. 2004-2008.

- Current projects (at the Technical University of Crete, Greece):
 - Internal TUC project awarded (basic research call): *Perceptual and cognitive* impact of tracking latency in ecologically valid immersive synthetic simulations with applicability to remote virtual design and tele-operation towards efficient man-machine interaction
 - Internal TUC project awarded (basic research call for junior faculty): Real-time selective rendering algorithms based on spatial cognition
- Project proposals submitted:
 - Submitted EU proposals ERC PERLA, I-LIFE, Marie Curie ARCHUN3D.

E – Professional service

- Associate Editor duties
 - Associate Editor, *Presence Tele-operators and Virtual Environments*, MIT Press (since June 2006).
 - Associate Editor, *ACM Transactions on Applied Perception*, ACM Press (since September 2007).
- Conference Technical Program Committee service
 - Member of the program committee of Computational Aesthetics 2008, sponsored by Eurographics, Portugal, June 2008
 - Member of the program committee of Computational Aesthetics 2007, sponsored by Eurographics, Canada, June 2007
 - Member of the program committee of Symposium on Applied Perception in Graphics and Visualisation (APGV) 2007 sponsored by ACM Siggraph, Germany, July 2007
 - Member of the program committee of Artificial Reality & Telexistence 2007, sponsored by IEEE, Denmark, November 2007
 - Member of the program committee of the 9th Annual International Workshop on Presence 2007, Barcelona, Sept. 2007
 - Program Committee of the IADIS Computer Graphics and Visualization 2007, Portugal, July 2007
 - Member of the program committee of INTUITION 2007 Workshop & Conference on Virtual Reality and Virtual Environments, Athens, Sept. 2007
 - Member of the program committee of the VAST 2007 Workshop: Virtual Museums-Cultural Heritage, Education, Entertainment supported by INTUITION and EPOCH Networks of Excellence.
 - Member of the program committee of ACM Symposium on Virtual Reality Software and Technology (VRST) 2006, Nov. 2006, Cyprus.
 - Member of the program committee of 12th International conference on Virtual Systems and Multimedia (VSMM) 2006, Oct. 2006, China

- Conference Organization (specify role)
 - Co-chair of short papers program: Eurographics 2008, Crete, Greece.
 - Co-chair of international program committee: The 7th International Symposium on Virtual Reality, Archaeology and Cultural Heritage and the 4th Eurographics workshop on Graphics and Cultural Heritage, Nov. 2006, Cyprus.
- Reviewing activities
 - Reviewer for *Presence, Tele-operators and Virtual Environments, IEEE Transactions on Visualisation and Computer Graphics, IEEE Multimedia, Winter School of Computer Graphics conference and journal 2008 (WSCG 2008 – sponsored by Eurographics), Eurographics 2007, IEEE Virtual Reality 2007* and other major international conferences.

F – Service to the Department and the School

- Departmental responsibilities
 - Substitute member of the Undergraduate Studies committee of the Dept. of Electronic and Computer Engineering (ECE) since 2005-2006
 - Regular member of the Graduate Studies committee since September 2007
- School-level responsibilities
 - Substitute member of the Graduate Studies committee of the Technical University of Crete since September 2007

G – Advising

- Active graduate students supervised
 - Ph.D. students supervised (at the University of Sussex)
 - Fiona Rivera (Ph.D): Year of initial enrollment in Ph.D. program: 2005.
 - Maria Sifniotis (Ph.D): Year of initial enrollment in Ph.D program: 2003.
 - Post-doc researcher (at the University of Sussex)
 - Nick Mourkoussis (Oct. 2004 – January 2007)
 - Graduate students (at the Technical University of Crete)

- Aleksandros Zotos (M.Sc., subject to acceptance of his application)
- Undergraduate students supervised (in progress)
 - Spiros Mpolierakis (Implementation of a 3D multi-level game)
 - Isidwros Tsouris (Utilizing game engines for visualization)
 - Kwnstantinos Sfakianakis (Simulation of the Haas machine)
 - Maria Kalenteri (Graphical 3D reconstruction of the ancient site of Delphi using photorealistic graphics)
 - Giannis Charcharos (Implementation of a 3D on-line shopping experience linked with dynamic database technologies)
 - Kostas Pappas (Implementation of a networked 3D maze game for two users)



Annual Activity Report

For the period: Sep. 1, 2005 to Aug. 31, 2006

Name: Euripides G.M. Petrakis

Rank: Associate Professor

Years in rank: 4+1/2

Full-time or part-time: Full-time

Division: Computer Science

Lab affiliation: Intelligent Systems Laboratory

(<http://www.intelligence.tuc.gr>)

Personal Web Page: <http://www.intelligence.tuc.gr/~petrakis>

A – Teaching

- Undergraduate courses taught
 - Multimedia Data Management (Fall 2006)
 - Data Structures and Algorithms (Autumn 2007)
- Graduate courses taught
 - Multimedia Data Management (Fall 2006)
- Labs taught
 - Multimedia Data Management (Fall 2006)
 - Data Structures and Algorithms (Autumn 2007)
- Curriculum & course development
 - Lecture notes & slides developed

B – Publications

- Publications in refereed journals

- Submitted
- Accepted
 - Evdoxios Mparatis, **Euripides G.M. Petrakis**, Evangelos Milios, "Automatic Web Site Summarization by Image Content: A Case Study with Logo and Trademark Images", IEEE Transactions to Knowledge and Data Engineering (IEEE TKDE), July 2007.
- Published
 - **Euripides G.M. Petrakis**, Giannis Varelas, Angelos Hliaoutakis, Paraskevi Raftopoulou, "X-Similarity: Computing Semantic Similarity between Concepts from Different Ontologies", Journal of Digital Information Management (JDIM), Vol. 4, No. 4, December 2006, pp. 233-238.
 - Angelos Hliaoutakis, Giannis Varelas, Epimenidis Voutsakis, **Euripides G.M. Petrakis**, Evangelos Milios, "Information Retrieval by Semantic Similarity", International Journal on Semantic Web and Information Systems (IJSWIS), Special Issue of Multimedia Semantics, Vol. 3, No. 3, July/September, 2006, pp.55-73.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Paraskevi Raftopoulou, **Euripides G.M. Petrakis** "*iCluster: a Self-Organising Overlay Network for P2P Information Retrieval*", European Conf. on Information Retrieval (ECIR'2007), Rome 2-5 April 2007
 - Efthimios Drymonas, Kalliope Zervanou, **Euripides G.M. Petrakis**, Exploiting Multi-Word Similarity for Information Retrieval, **Fifth** International Symposium on Foundations of Information and Knowledge Systems (FoIKS) February 11-15, 2008 - Pisa, Italy.
 - Accepted: those published (see below)
 - Published
 - Angelos Hliaoutakis, Kalliopi Zervanou, **Euripides G.M. Petrakis**, "Medical Document Indexing and Retrieval: AMTE_x vs. NLM MMT_x", 12th International Symposium for Health Information Management Research, 18-20 July 2007, Sheffield, UK.
 - **Euripides G.M. Petrakis**, Epimenides Voutsakis, Evangelos Milios, "Searching for Logo and Trademark Images on the Web", ACM International Conference on Image and Video Retrieval (CIVR 2007), July 9-11 2007, Amsterdam, The Netherlands
 - Angelos Hliaoutakis, Kalliopi Zervanou, **Euripides G.M. Petrakis**, Evangelos Milios, "Automatic Document Indexing in Large Medical Collections", ACM International Workshop on Health Information and Knowledge Management (ACM HIKM2006), November 11, 2006, Arlington, VA, USA.

- Angelos Hliaoutakis, Giannis Varelas, **Euripides G.M. Petrakis**, Evangelos Milios, "*MedSearch: A Retrieval System for Medical Information Based on Semantic Similarity*", 10th ECDL European Conference on Research and Advanced Technology for Digital Libraries (ECDL'2006), pp. 512-515, September, 17-22, 2006. Alicante, Spain.
- Epimenidis Voutsakis, **Euripides G.M. Petrakis**, Evangelos Milios, "*IntelliSearch: Intelligent Search for Images and Text on the Web*", 3rd Intern. Conference on Image Analysis and Recognition (ICIAR'2006), pp. 697-708, Sept. 18-20, 2006, Povia de Varzim, Portugal.
- Evdoxios Mparatis, **Euripides G.M. Petrakis**, Evangelos Milios, "An Approach to Web-Site Summarization by Image Content", Fourth Workshop on Algorithms and Models for the Web-Graph (WAW'2006), Nov. 30 - Dec. 1, 2006, Banf, Alberta, Canada
- Books and edited book chapters
 - **Euripides G.M. Petrakis**, "*Intelligent Search for Text and Image Information on the Web*", Cross-Modal Integration/Interaction for Performance Improving in ultimedia: State-of-the-Art Review, Petros Maragos (eds), Springer Verlag, 2007
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Integrated Inspection System supported by Automated Motion Detection (2006 - 2008), Funding Agency: Greek Secretariat for Research and Technology, Participants: TUC, ANKO INC, ARMAOS INC, Principal Investigator for TUC: Euripides G.M. Petrakis. Total Budget 669,000euros, TUC's share: 150,000 euros.
 - TOWL (Project No 026896): Time-determined ontology based information system for real time stock (2006 - 2008), Funding Agency: IST-STREP FP6, Participants: Technical University of Crete (TUC),Zoorobotics B.V., Erasmus Universiteit Rotterdam, Politecnico di Bari, Akademia Ekonomiczna W Poznaniu, S.I.I Semantic Internet Inovatoins SPA, Citigroup Global Markets Limited. Project Coordinator & Principal Investigator for TUC: Euripides G.M. Petrakis. Total Budget 1,375,000 euros, TUC's share: 241,000 euros
 - Getting Cretan Businesses On-Line and Doing E-Business (April 2006 - April 2008), Funding Agency: Ministry of Development, General Secretariat for Research and Technology, Participants: University of

Crete, Technical University of Crete, Technological Institute of Crete, Role: The role of this laboratory is to train consultants that will advise Cretan businesses about the benefits of getting on-line and doing e- business. Grant Holder for TUC: Euripides G.M. Petrakis, Total Budget 2,000,000 euros, TUC's share: 320,000 euros

- BIOPATTERN (Project No 508803): Computational Intelligence for Biopattern Analysis in Support of eHealthcare (2004 - 2008), Funding Agency: Network of Excellence. Funded by the European Commission, eHealthcare, FP6, IST. Role: Participation in WP6: eOntologies under action Edelivery1: "architecture, and services, integration, datamanagement, quality of service and security for medical networks" Co- Principal Investigator for TUC: Euripides Petrakis (PI: Prof. Michalis Zervakis). Total Budget (full project duration): 6,400,000 euros, TUC's share: 180,000 euros.
- HERAKLETOS program for basic doctoral research (2004-2006), Funding Agency: General Secretariat for Research and Technology (PhD,Candidate, Budget: 33,400 euros (PhD Candiate: Mrs Paraskevi Raftopoulou, PI: Euripides Petrakis).
- Project proposals submitted:
 - In addition to the above, several new project proposals have also been submitted in EU-FP7 (calls 1 & 2)

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
 - Program committee member of “2nd International Symposium on Visual Computing (ISVC07)” Nov. 6-8, 2006 Lake Tahoe, Nevada, USA (<http://www.isvc.net/>)
 - Program committee member of “2nd International Workshop on Semantic Matchmaking and Resource Retrieval: Issues and Perspectives (SMR 2007)”, Co-located with 6th International Semantic Web 2007 Conference, Bousan, Korea - September 11, 2007 <http://www-ags.dfki.uni-sb.de/~klus/smr2/index.html>
 - Program committee member of “3rd International Symposium on Visual Computing (ISVC07)” Nov. 26-28, 2007 Lake Tahoe, Nevada, USA <http://www.isvc.net/>
 - Program committee member of “10th International Conference on Business Information Systems BIS, Poznan, Poland 25-27 April 2007 http://bis.kie.ae.poznan.pl/10th_bis
 - Program committee member and Publications Chair of

- “2007 International Workshop on Multimedia Signal Processing, Chania, Crete, Greece, October 1-3, 2007 <http://www.mmsp2007.org>
 - Program committee member of “1st International Workshop on Semantic Matchmaking and Resource Retrieval: Issues and Perspectives (SMR 2006)”, Co-located with VLDB 2006, Seoul, Korea - September 11, 2006 <http://sisinflab.poliba.it/smr06/>
 - Program committee member of “2nd International Symposium on Visual Computing (ISVC06)” Nov. 6-8, 2006 Lake Tahoe, Nevada, USA <http://www.isvc.net/>
 - Program committee member of “International Conference on Image Analysis and Recognition” (ICIAR 2006) September 18-20, 2006 Póvoa de Varzim, Portugal <http://www.iciar.uwaterloo.ca/iciar06>
- Conference Organization (specify role)
 - Reviewing activities
 - Reviewer for IEEE Trans. on Knowledge and Data Engineering (IEEE TKDE), IEET Trans. On Pattern Analysis and Machine Intelligence (IEEE PAMI), ACM Trans. On Information Systems (ACM TOIS), Image and Vision Computing and in many Conferences in the areas of Multimedia and Information Systems, Computer Vision.

F – Service to the Department and the School

- Departmental responsibilities
 - Laboratory Director, Intelligent Systems Laboratory, Department of Electronic and Computer engineering, Technical University of Crete.
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Kalliope Zervanou, Post.Doct (PhD Univ. of Manchester, UK), Natural Language Processing, Text processing, Information Extraction.
 - Paraskevi Raftopoulou, P2P systems.
 - Rena Peraki, Consumer Health Information Systems (expected Dec. 2007)
 - Sotiris Batsakis, learning (focused) WebCrawlers (expected Oct 2007)

- Angelos Hliaoutakis, Medical Information Systems
 - Evdoxios Baratis, Time Ontologies
- PhD. And M.Sc. degrees awarded
 - Nikos Hourdakis, Data Clustering , Oct.2006.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Mixalhs Argyriou, DynamicClustering.
 - Savvas Petrou, Time ontologies and applications in the clinical domain
 - Dimitris Siskos, Medical Ontologies
 - Diploma theses completed (supervisor)
 - Efthimios Drymonas, Exploiting multi-wordsimilarity measures for information retrieval applications: the T- SRM method, Oct. 2006



Annual Activity Report

For the period: Sept 1 2006 to Aug 31 2007

Name: Vasilis Samoladas

Rank: Assistant Professor

Years in rank: 3

Full-time or part-time: Full-time

Division: Informatics

Lab affiliation: Software technology and network applications (softlab)

A – Teaching

- Undergraduate courses taught
 - ΠΛΗ-301 Λειτουργικά συστήματα
 - ΠΛΗ-302 Αλγόριθμοι και πολυπλοκότητα
 - ΠΛΗ-414 Αρχές καταναεμημένων συστημάτων λογισμικού
- Graduate courses taught
 - ΠΛΗ-602 Αρχές καταναεμημένων συστημάτων λογισμικού
 - ΠΛΗ-616 Ειδικά θέματα Αλγορίθμων και Πολυπλοκότητας (συνδιδ. με τον κ. Λαγουδάκη)
- Labs taught
 - ΠΛΗ-301 Λειτουργικά Συστήματα
 - ΠΛΗ-414 Αρχές Καταναεμημένων Συστημάτων
- Curriculum & course development
 - New courses / labs developed
 - ΠΛΗ-616 Ειδικά θέματα Αλγορίθμων και Πολυπλοκότητας (συνδιδ. με τον κ. Λαγουδάκη)
 - Lecture notes / slides developed
 - Σημειώσεις για το ΠΛΗ-302: Αλγόριθμοι και πολυπλοκότητα
 - Authored textbooks

- (In progress) Βιβλίο με τίτλο «ΑΡΧΕΣ ΚΑΤΑΝΕΜΗΜΕΝΩΝ ΣΥΣΤΗΜΑΤΩΝ» στα πλαίσια του ομώνυμου μαθήματος (ΠΛΗ-414)

B – Publications

- Publications in refereed journals
 - Submitted
 - Spyros Blanas, **V. Samoladas**, Contention-based performance evaluation of Multidimensional Range Search in Peer-to-peer Networks, submitted to Future Generation Computer Systems (under review).
 - Accepted
 - Lars Arge, **Vasilis Samoladas**, Ke Yi: Optimal External Memory Planar Point Enclosure. Submitted to *Algorithmica* (to appear).
 - Salah Juba, **Vasilis Samoladas**, Nikos Boretos, Ioannis Manakos, George Karydas: IMS – A Web-based map server for spatial decision support. Submitted to *Neural, Parallel and Scientific Computations*, 15(2) June 2007.
- Publications in refereed conferences
 - Submitted
 - S. Blanas, **V. Samoladas**, Contention-Based Performance Evaluation of Multidimensional Range Search in Peer-to-peer Networks, In SIGMOD'07 (rejected).
 - Juba, S., **Samoladas, V.**, Boretos, N., Manakos, I. and Karydas, C., 2006. Open Source Web Mapping Portal with Spatial Decision Support System. **Poster presentation**, 26th Annual Symposium of the European Association of Remote Sensing Laboratories (EARSeL), Warsaw, Poland, 29 May – 2 June.
 - S. Blanas, **V. Samoladas**, Contention-Based Performance Evaluation of Multidimensional Range Search in Peer-to-peer Networks, In Proc. InfoScale'07,
 - Ioannis Manakos, Salah Juba, **Vasilis Samoladas**, Nikos Boretos, Christos Karydas, An interactive web mapping portal for spatial analysis, submitted to 8th Hellenic Geographic Conference (rejected).
 - Accepted
 - Juba, S., **Samoladas, V.**, Boretos, N., Manakos, I. and Karydas, C., 2006. Open Source Web Mapping Portal with Spatial Decision Support System. **Poster presentation**, 26th Annual Symposium of the European Association of Remote Sensing Laboratories (EARSeL), Warsaw, Poland, 29 May – 2 June.
 - S. Blanas, **V. Samoladas**, Contention-Based Performance Evaluation of Multidimensional Range Search in Peer-to-peer Networks, In Proc. InfoScale'07,

- Published
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - ΠΥΘΑΓΟΡΑΣ Ι, (ΓΓΕΤ), Διάρκεια: 9/2004-12/2007, ρόλος: Επιστημονικός υπεύθυνος, Προϋπολογισμός 57600€
- Project proposals submitted:

E – Professional service

- Conference Technical Program Committee service
 - VLDB (Very Large Databases) 2007
 - ISWC (International Semantic Web Conference) 2007
 - HDMS (Hellenic Data Management Symposium) 2007

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Other
 - Ιδρυματικός εκπρόσωπος: Μ/Κ Εταιρεία ΕΛ/ΛΑΚ (Ελεύθερου Λογισμικού/Λογισμικού Ανοιχτού Κώδικα) (υπο τον ΕΔΕΤ).

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - George Hatzisymeon (PhD), 3st year
 - Stergios Charalambakis (MSc), 2st year
 - Yiannis Botsis (MSc), 2st year
 - Σπύρος Μπλάνας (Msc), 1st year
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Κώστας Κατάκης

- Μιχάλης Αργυρίου
 - Γιώργος Τσατσάνιφος
- Diploma theses completed (supervisor)
 - Γιώργος Ηλίας
 - Χρήστος Τσιαμαντάς
 - Παναγιώτης Δρακωτός
- Diploma theses in progress (committee member)
- Diploma theses completed (committee member)



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Stavros Christodoulakis

Rank: Professor

Years in rank: 18

Full-time or part-time: Full-time

Division: Informatics

Lab affiliation: MUSIC Laboratory

A – Teaching

- Undergraduate courses taught
 - Data Bases
 - Web Applications
 - Information and Service Integration
- Graduate courses taught
 - Web Applications
 - Information and Service Integration
- Curriculum & course development

B – Publications

- **Publications in refereed journals**
 - Accepted (in addition to Published)
 - C. Tsinaraki, **S.Christodoulakis**, "An MPEG-7 Query Language and a User Preference Model that allow Semantic Retrieval and Filtering of Multimedia Content", ACM-Springer Multimedia Systems Journal, in

Special Issue on Semantic Multimedia Adaptation and Personalization,
Sept 2007

○ Published

- C.Tsinarakis, P.Polydoros, **S.Christodoulakis**, "Interoperability support between MPEG-7/2 and OWL in DS-MIRF", In IEEE Transactions on Knowledge and Data Engineering (IEEE-TKDE), Special Issue on the Semantic Web Era, Feb 2007
- C. Tsinarakis, P. Polydoros, A. Syntzanaki, A. Martin, A. Perego, **S. Christodoulakis**, "Semantic, Constraint & Preference Based Authoring of Multi-topic Multimedia Presentations", In the Journal of Digital Information Management (JDIM), December 2006 .
- P.Polydoros, C.Tsinarakis, **S.Christodoulakis**, "GraphOnto: OWL-Based Ontology Management and Multimedia Annotation in the DS-MIRFFramework", In the Journal of Digital Information Management (JDIM), December 2006.
- A. Karanastasi, A. Zotos, **S. Christodoulakis**, "*User Interactions with Multimedia Repositories using Natural Language Interfaces - OntoNL: an Architectural Framework and its Implementation*", In the Journal of Digital Information Management (JDIM), Volume4, Issue4, December 2006.

● **Publications in refereed conferences**

○ Accepted (in addition to published)

- A. Karanastasi, **S. Christodoulakis**, "The OntoNL Semantic Relatedness Measure for OWL Ontologies", in the Proceedings of the Second IEEE International Conference on Digital Information Management (IEEE ICDIM), 28-31 October 2007, Lyon, France.
- A. Ntousias, N. Gioldasis, C. Tsinarakis, and **S. Christodoulakis**, "Exploiting Cultural Heritage Documentation in Semantic Multimedia Annotations", in the Proceedings of the 2nd IEEE International Workshop on Semantic Media Adaptation and Personalization (SMAP 2007), London, UK, December 17-18, 2007
- C. Tsinarakis, **S. Christodoulakis**, "Interoperability of XML Schema Applications with OWL Domain Knowledge and Semantic Web Tools", In the proceedings of the 6th International Conference on

Ontologies, DataBases, and Applications of Semantics (ODBASE 2007), Vilamoura, Algarve, Portugal, November 27-29, 2007

- A. Karanastasi, **S. Christodoulakis**, "Semantic Processing of Natural Language Queries in the OntoNL Framework", in the Proceedings of the IEEE International Conference on Semantic Computing (IEEE ICSC), 17-19 September 2007, Irvine, CA
- K. Adistambha, M. Doeller, R. Tous, M. Gruhne, M. Sano, C. Tsinaraki, **S. Christodoulakis**, K. Yoon, C. Ritz, I. Burnett, "TheMPEG-7 Query Format: A New Standard in Progress for Multimedia Query by Content", In the proceedings of the IEEE ISCIT 07 Symposium, Sydney, Australia, 2007
- P. Arapi, N. Moumoutzis, M. Mylonakis, G. Theodorakis, G. Stylianakis, "Supporting Personalized Learning Experiences within the LOGOS Cross-Media Learning Platform", In the proceedings of the Workshop on Cross-Media and Personalized Learning Applications on top of Digital Libraries (LADL2007) in conj. with ECDL2007 Conference, September 2007, Budapest, Hungary.

○ Published

- N. Pappas, F. G. Kazasis, G. Anestis, N. Gioldasis, **S. Christodoulakis**, "*A Knowledge Management Platform for Supporting Digital Business Ecosystems based on P2P and SOA technologies*", IEEE International Conference on Digital Ecosystems and Technologies, Feb. 2007 Cairns Australia.
- N. Gioldasis, Th. Dakanalis, G. Anestis, N. Pappas, F. G. Kazasis, **S. Christodoulakis**, "*SSLE: A Language and an Interactive Editor for the Semantic Description of Services in MOF Architectures*", IEEE International Conference on Digital Ecosystems and Technologies, Feb. 2007 Cairns Australia.
- G. Kotopoulos, F. G. Kazasis, **S. Christodoulakis**, "*Querying MOF Repositories: The Design and Implementation of the Query Metamodel Language (QML)*", IEEE International Conference on Digital Ecosystems and Technologies, Conference on Digital Ecosystems and Technologies, Feb. 2007 Cairns Australia
- A. Karanastasi, **S. Christodoulakis**, "Ontology-Driven Semantic Ranking for Natural Language Disambiguation in the OntoNL Framework", in the Proceedings of the 4th European Semantic Web Conference (ESWC), 3-7 June 2007, Innsbruck, Austria

- P. Arapi, N. Moumoutzis, M. Mylonakis, G. Theodorakis, **S. Christodoulakis**, "*A Pedagogy-driven Personalization Framework to Support Automatic Construction of Adaptive Learning Experiences*", In the proceedings of the 6th International Conference on Web-based Learning (ICWL 2007), August 2007, Edinburgh, United Kingdom.
- P. Arapi, N. Moumoutzis, M. Mylonakis, **S. Christodoulakis**, "*A Pedagogy-driven Personalization Framework to Support Adaptive Learning Experiences*", In the proceedings of 7th IEEE International Conference on Advanced Learning Technologies (ICALT 2007), July 2007, Niigata, Japan.
- C. Tsinaraki, **S. Christodoulakis**, "*A User Preference Model and a Query Language that allow Semantic Retrieval and Filtering of Multimedia Content*", In the proceedings of the Semantic Media Adaptation and Personalization Workshop (SMAP 2006), December 2006, Athens, Greece.
- H. Eidenberger, S. Boll, **S. Christodoulakis**, D. Divotkey, K. Leopold, A. Martin, A. Perego, A. Scherp, C. Tsinaraki: "Towards Integrated Authoring, Annotation, Retrieval, Adaptation, Personalization and Delivery of Multimedia Content", DELOS Conference, Tirrenia, Italy, March 2007
- C. Tsinaraki, **S. Christodoulakis**, "*XS2OWL: A Formal Model and a System for enabling XML Schema Applications to interoperate with OWL-DL Domain Knowledge and Semantic Web Tools*", DELOS Conference, Tirrenia, Italy, March 2007.
- A. Jacobs, G.T. Ioannidis, **S. Christodoulakis**, N. Moumoutzis, S. Georgoulakis, Y. Papachristoudis, "*Automatic, Context-of-Capture Based, Categorization, Structure Detection and Segmentation of News Telecasts*", DELOS Conference on Digital Libraries, 13-14 February 2007, Pisa, Italy.
- P. Arapi, N. Moumoutzis, M. Mylonakis, **S. Christodoulakis**, "*A Framework and an Architecture for Supporting Interoperability between Digital Libraries and eLearning Applications*", In the proceedings of the DELOS Conference on Digital Libraries, February 2007, Tirrenia, Pisa, Italy
- A. Karanastasi, A. Zwtos, **S. Christodoulakis**, "*The OntoNL Framework for Natural Language Interface Generation and aDomain-Specific Application*", in the Proceedings of the DELOS Conference on Digital Libraries 2007, 13-14 February 2007, Tirrenia, Pisa, Italy

- A. Jacobs, G.T. Ioannidis, M. Larson, **S. Christodoulakis**, N. Moumoutzis, "*Automatic, Context-of-Capture Based, Categorization, Structure Detection and Segmentation of News Telecasts*", Poster on the 10th European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2006), September 2006, Alicante, Spain.
- **S. Christodoulakis**, P. Arapi, N. Moumoutzis, M. Mylonakis, M. Patel, S. Kapidakis, C. Papatheodorou, A. Arahova, B. Vagiati, H. Konsolaki, "*Interoperability of eLearning Applications with Digital Libraries*", Poster on the 10th European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2006), September 2006, Alicante, Spain.

- **Books and edited book chapters**

To Appear:

- C. Tsinaraki, **S. Christodoulakis**, "*XS2OWL: A Formal Model and a System for enabling XML Schema Applications to interoperate with OWL-DL Domain Knowledge and Semantic Web Tools*", LNCS Series, Springer.
- P. Arapi, N. Moumoutzis, M. Mylonakis, **S. Christodoulakis**, "*A Framework and an Architecture for Supporting Interoperability between Digital Libraries and eLearning Applications*", LNCS Series, Springer
- A. Karanastasi, A. Zwtos, **S. Christodoulakis**, "*The OntoNL Framework for Natural Language Interface Generation and a Domain-Specific Application*", LNCS Series, Springer
- C. Tsinaraki, **S. Christodoulakis**, "Semantic Multimedia Content Retrieval and Filtering", Chapter of the Encyclopedia of Data Warehousing and Mining (Second Edition), Idea Group, 2007
- P. Arapi, N. Moumoutzis, M. Mylonakis, G. Theodorakis, **S. Christodoulakis**, "*A Pedagogy-driven Personalization Framework to Support Automatic Construction of Adaptive Learning Experiences*", In the proceedings of the 6th International Conference on Web-based Learning (ICWL 2007), LNCS Series, Springer

- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Delos Excellence Network in Digital Libraries, (EU 6th Framework program).
 - LOGOS Knowledge on Demand for Ubiquitous Learning (EU, STREP, 6th Framework Program)
 - CHIRON (EU, Leonardo, 6th Framework program).
 - Design, development, and deployment of fixed wireless Internet infrastructure to serve the University community in the Akrotiri area. Regional Pole of Innovation for the region of Crete (Περιφερειακός Πόλος Καινοτομίας Κρήτης). PI: N.D. Sidiropoulos; co-PI's M. Paterakis, S. Christodoulakis. Period: 11/2006-10/2008. Funding level: 37K €.
 - National Administration Center's Learning Digital Library (subcontract)
 - EPEAEK in Informatics for Undergraduate Studies (for the Department of HMMY)
 - EPEAEK in Informatics for Graduate Studies (for the Department of HMMY)
 - EPEAEK Equipment Grant (for the Department of HMMY)

E – Professional service

- Conference Steering Board:
 - ECDL, DBTE
- Conference Technical Program Committee service:
 - VLDB, ACM CIKM, several others
- Conference Organization (specify role):
 - Program Chair: Workshop on personalized and educational applications on digital libraries

F – Service to the Department and the School

- Departmental responsibilities
 - Director of the MUSIC Lab, Director of the Software Engineering lab.
- School-level responsibilities
 - Member of the Governing Committee, S
 - Associate Director and Member of the Board, Telecommunication Systems Institute, Technical University of Crete.

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Chrisa Tsinaraki (PhD)
 - Giorgos Kotopoulos (MSc)
 - Yannis Kotopoulos(MSc)
 - Xenia Arapi (MSc)
 - Michalis Foukarakis (MSc)
 - PhD. And M.Sc. degrees awarded
 - Anastasia Karanastasi (MSc)
 - Panagiotis Polydoros (MSc)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Mylonakis
 - Papachristoudis
 - Theodorakis
 - Christoulakis
 - Stylianakis
 - Ntousias
 - Zotos
 - Sytzanaki
 - Panteli
 - Diploma theses completed (supervisor)
 - Kromidas
 - Alatzidis

Electronics and Computer Architecture Division

Faculty members:

- Apostolos Dollas, Professor
- Costantinos Balas, Associate Professor
- Mathias Bucher, Assistant Professor
- Kostas Kalaitzakis, Professor
- Ioannis Papaefstathiou, Visiting Associate Professor
- Dionisis Pnevmatikatos, Associate Professor
- Georgios Stavrakakis , Professor



Annual Activity Report

For the period: September 1, 2006 to August 31, 2007

Name: Apostolos Dollas

Rank: Professor

Years in rank: 6

Full-time or part-time: Full Time

Division: Electronics and Computer Architecture (HRY)

Lab affiliation: Microprocessor and Hardware Laboratory (Director)

A – Teaching

- Undergraduate courses taught
 - HRY 401 – Embedded Microprocessor Systems
 - HRY 501 – VLSI and ASIC Design
 - HRY 312 - Computer Organization
- Graduate courses taught
 - HRY 631 – Special Topics on Reconfigurable Computing
- Labs taught
 - Supervision of labs and projects (including the development of all individual project specifications) of HRY 401 and HRY 501
 - Supervision of the labs of HRY 312
- Curriculum & course development
 - Lecture notes / slides developed: Continued on the development of the new HRY 401 (Embedded Microprocessor Systems) and HRY 412 class notes and slides, under the EPEAEK program.
 - Authored textbooks: Continued work on “The Art of Microelectronic Systems”, under contract with the publisher A. K. Peters.

B – Publications

- Publications in refereed journals
 - Submitted
 - G. Chrysos, **A. Dollas**, N. Bourbakis, Architecture and Design of an Embeddable System for SCAN-Based Compression, Encryption and Information Hiding, *Journal of Real Time Image Processing*, Springer.
 - Accepted
 - E. Sotiriades, **A. Dollas**, A General Reconfigurable Architecture for the BLAST algorithm, *The Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology*, Special Issue on Computing Architectures and Acceleration for Bioinformatics Algorithms, Kluwer Academic Publishers (accepted, to appear).
 - Published
 - K. Papademetriou, S. Sotiropoulos, **A. Dollas**, Low Cost Real- Time 2D Motion Detection based on Reconfigurable Computing, *IEEE Transactions on Instrumentation and Measurement*, vol. 55, No. 6, pp. 2234-2243, December, 2006.
- Publications in refereed conferences
 - Accepted
 - E. Sotiriades, **A. Dollas** "A General Reconfigurable Architecture for the BLAST algorithm", 1st Hellenic Bioinformatics & Medical Informatics Meeting (HBMIM), Foundation Biological Research Academy of Athens (FBRAA), Athens (accepted for presentation).
 - Published (all papers fully refereed)
 - G. Chrysos, **A. Dollas**, N. Bourbakis, S. Mertoguno, An Integrated Video Compression, Encryption and Information Hiding Architecture based on the SCAN Algorithm and the STRETCH Technology, *Proceedings of the 15th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2007)*, pp. 327-330, Napa Valley, April, 2007.
 - E. Sotiriades, **A. Dollas**, "Design Space Exploration for the BLAST Algorithm Implementation," *Proceedings of the 15th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM 2007)*, pp. 323-326, Napa Valley, April, 2007.
 - K. Papadimitriou, **A. Dollas**, A. Anyfantis, Methodology and Experimental Setup for the Determination of System-level Dynamic Reconfiguration Overhead, *Proceedings of the 15th IEEE International Symposium on Field Programmable Custom Computing Machines (FCCM '07)*, pp. 335-336, Napa CA, USA, April 2007.

- Books and edited book chapters
 - A. Dollas, The Art of Microelectronic Systems (under preparation), A. K Peters.
- Patents
 - S. Sotiropoulos, **A. Dollas**, K. Papademetriou, “Digital Signal Processing Methods, Systems, and Computer Program Products that Identify Threshold Positions and Values” USA Patent filed May 20, 2005, pending.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Scientific Equipment for the Departments of the Technical University of Crete”, Total Budget 500,000 Euros, and it includes the project “Acquisition of a GRID computer for the Technical University of Crete”, 150,000 funded under the PEP Program of Crete, Apostolos Dollas, PI.
 - GSRT “IRAKLEITOS: Research Scholarships for TUC”, Program. TUC Budget 398,778 Euros. Under it is the sub-program “Structures for Reconfigurable Computing”, (PhD Thesis support for E. Sotiriades), Apostolos Dollas, PI, 32,229 Euros (all budget is in TUC)
 - GSRT PENED 2003, Apostolos Dollas, PI, Manolis Antonidakis, Spyros Blionas, Co-PI’s, “Methodology and Technology for the Development of Multiprocessor Wireless Communication Systems and Reconfigurable Computing Circuits”, Total budget: 151,200Euros, (TUC Budget roughly 1/3 of the total budget plus overhead for the entire project). Project awarded in 2005.

E – Professional service

- Conference Technical Program Committee service
 - Program Committee Member 15th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM), Napa Valley, USA, April, 2007.
 - Program Committee Member 18th IEEE International Workshop on Rapid System Prototyping (RSP), Porto Allegre, Brazil, June 2007.
 - Technical Program Committee, 20th SBCCI 2007 (SYMPOSIUM ON INTEGRATED CIRCUITS AND SYSTEMS DESIGN), Rio de Janeiro, Brazil, Sep. 3-6, 2007.

- Program Committee Member, 5th IEEE International Conference on Field-Programmable Technology (FPT 2007), Kitakyushu, Japan, Dec. 10-12, 2007.
 - Program Committee Member, Workshop on Application-Specific Processors (WASP 2007), Salzburg, Austria, Oct. 4-5, 2007.
 - Invited as Program Committee Member of several 2008 conferences, including FCCM, FPL, FPT, WASP.
- PhD Committee member of Maria Kozyri, University of Thessaly (defended July, 2007)
 - PhD Committee member of Christoforos Kachris, University of Delft, Netherlands (to defend December, 2007)
 - Faculty election committee member at the University of Ioannina, the University of Thessaly, and the University of Peloponese.
 - Participation in 3-member recommendation committees for faculty elections at the University of Thessaly, University of Peloponese (two committees).

In all the program committees in which I participated, I contributed with reviews of papers (as many as 13 full paper reviews in a single conference), the selection process, organizational issues, and when possible, attendance of the PC meeting. Because my field is rapidly changing, international conferences reflect the state of the art much more than archival journals and I have deliberately given the weight of my reviewing and committee activity on such conferences.

- Reviewing activities
 - Several international conferences, including all in which I participate in the program committee, and journals including the Journal of Real-Time Image Processing

F – Service to the Department and the School

- Departmental responsibilities
 - Director, Microprocessor and Hardware Laboratory
 - Member, Undergraduate Studies Committee
 - Member, Graduate Studies Committee
 - Member of faculty recommendation committees in two faculty elections.
 - Faculty advisor to the 9th Semester students
- Responsibility for Department-wide projects (e.g., ΕΠΕΑΕΚ, practical training, ...)
 - Coordinator on behalf of the ECE Dept. of the TUC-wide GRID computer proposal, under appointment by the Departmental General Assembly, developing the specifications and overseeing the acquisition process (which ranges from the international bidding competition to coordinating

its installation in the TUC NOC data center which is also under development).

- School-level responsibilities
 - Faculty advisor, TUC Students' Radio Station group

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Papademetriou, Kyprianos (PhD)
 - Sotiriades, Euripides (PhD)
 - Chrysos, Grigorios (PhD)
 - Dionissios Efstathiou (PhD)
 - Ph.D. And M.Sc. degrees awarded (committee member)
 - Ermis, Ioannis (MS)
 - Dimopoulos, Vasileios (MS)
 - PhD and M.Sc. Degrees (committee member)
 - Mavroidis, Ioannis (PhD)
 - Mavroidis, Iakovos (PhD)
 - Kornaros, G (PhD)
 - Meidanis, D. (PhD)
 - G. Dimitrios (MS)
 - Nikitakis, A. (MS)
- Undergraduate students supervised
 - Diploma theses in progress
 - Zampetakis, Michael
 - Kouinis, Konstantinos (inactive)
 - Diploma theses completed (supervisor)
 - Anyfantis, Antonios
 - Diploma theses in progress (committee member)
 - Sartzetakis, I.
 - Klatsias, K.
 - Papadopoulos, K.
 - Mplemenos, G.
 - Diploma theses completed (committee member)
 - Christou, Panagiotis
 - Kyriakoulakos, Konstantinos
 - Lasithiotakis, Antonis

- Platsis, Michael
Siskos, George-Alexander



Annual Activity Report

For the period: Sep.1, 2006 to Aug. 31, 2007

Name: Costas Balas

Rank: Associate Professor

Years in rank: 5.5 yrs

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture Division

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - **Electronics I**
 - **Optoelectronics**
- Graduate courses taught
 - **Special Topics on Optoelectronics & Biomedical Engineering**
- Labs taught
 - **Electronics I**
 - **Optoelectronics**
- Curriculum & course development
 - New courses / labs developed
 - 1. Optoelectronics course**
 - 2. Optoelectronics Lab**
 - Lecture notes / slides developed
 - **Electronics I: 150 pages notes, 250 slides**
 - **Optoelectronics: 350 slides**
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - **C. Balas**, G. Papoutsoglou, and A. Potirakis, “*In vivo* Molecular Imaging of Cervical Neoplasia using Acetic Acid as Biomarker”, *Department of Electronic and Computer Engineering, Technical University of Crete, Chania, Greece, IEEE- Journal of Selected Topics in Quantum Electronics-special issue on biophotonics*
 - Published
- Publications in refereed conferences
 - Submitted
 - G. Papoutsoglou, A. Potirakis, **C. Balas**, “*Modeling of epithelia transport phenomena related with the acetowhitening optical characteristics: potential for the in vivo diagnosis of cervical neoplasia*”, *Department of Electronic and Computer Engineering, Technical University of Crete, Chania, Greece, SPIE-Photonics EURO-2008*
 - Published
- Books and edited book chapters

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - **ENTER** “Development of a novel optical imaging system for quantitative measurement of skin histological parameters” GSRT, 04EP72, 10/2006-10/2008, PI, total budget € 78.000,00, PI’s budget € 78.000,00
- Project proposals submitted:

E – Professional service

- Associate Editor duties
- Society Technical Committee duties

- Conference Technical Program Committee service:
- Conference Organization (specify role)
- Reviewing activities: **IEEE-Transactions on Biomedical Engineering, Journal of Applied Optics-Optical Society of America**
- Participation in National Committees (e.g., EΔET)
- Other

F – Service to the Department and the School

- Departmental responsibilities
 - Chair, Vice-Chair, Lab Director, NOC director, ...
 - Responsibility for Department-wide projects (e.g., EIIIEAEK, practical training, ...)
- School-level responsibilities

G – Advising

Active Graduate Students Supervised

Ph.D. Students Supervised

- Tsapras Thanasis

M Sc. Students Supervised

- Terzakis Manos
- Papoutsoglou George
- Georgiou Nikolaos

M Sc Degrees Awarded

Undergraduate Students Supervised

Diploma Thesis Supervised

- Sgouros Antonis

Diploma Thesis Completed (supervisor)

- Adamos Thanasis
- Georgiou Nikolaos
- Tsolaki Euaggelia

Diploma Thesis Completed (committee member)

- Chatzimarkakis Emanuel
- Makris Nikolaos
- Sounapoglou Thomas
- Margariti Vanessa-Vaia
- Vassoulos Gerasimos



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Matthias Bucher

Rank: Assistant Professor

Years in rank: 3+1/2

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - ECE 111 – Digital Design (Spring 2007)
 - ECE 506 – Design of CMOS Analog Integrated Circuits & Physics of MOSFETs (Fall 2006)
- Graduate courses taught
 - ECE 604 – Special Themes of Analog IC Design (Fall 2006)
- Labs taught
 - ECE 111 – Digital Design Lab (Spring 2007)

B – Publications

- Publications in refereed journals
 - Submitted: those accepted (see below), plus
 - A. Bazigos, **M. Bucher**, J. Assenmacher, S. Decker, W. Grabinski, Y. Papananos, “An Adjusted Constant-Current Method to Determine Saturated and Linear Mode Threshold Voltage of MOSFETs”, *IEEE Trans. on Electron Devices*.

- Accepted
 - **M. Bucher**, A. Bazigos, “An Efficient Channel Segmentation Approach for a Large-Signal NQS Model”, *Solid-State Electronics*, 2007.
 - **M. Bucher**, A. Bazigos, S. Yoshitomi, N. Itoh, „A Scalable Advanced RF IC Design-Oriented MOSFET Model”, *Int. Journal of RF and Microwave Computer Aided Engineering*, 2007.
- Publications in refereed conferences
 - Submitted-Accepted:
 - A. Bazigos, **M. Bucher**, P. Sakalas, M. Schroter, W. Kraus, „High-frequency compact modelling of Si-RF CMOS“, accepted for oral presentation, *3rd Int. Conf. on Micro-Nanoelectronics, Nanotechnology and MEMS (Micro&Nano2007)*, NCSR Demokritos, Athens, Greece, November 18-21, 2007.
 - Submitted-Accepted-Published:
 - S. Yoshitomi, A. Bazigos, **M. Bucher**, „The EKV3 Model Parameter Extraction and Characterization of 90nm RF-CMOS Technology”, *Proc. 14th Int. Conf. on Mixed Design of Integrated Circuits and Systems (MIXDES'2007)*, pp. 74-79, Ciechocinek, Poland, June 21-23, 2007.
 - **M. Bucher**, A. Bazigos, W. Grabinski, “Determining MOSFET Parameters in Moderate Inversion”, *10th IEEE Int. Workshop on Design and Diagnostics of Electronic Circuits and Systems (DDECS 2007)*, pp. 349-352, Krakow, Poland, April 11-13, 2007.
 - W. Grabinski, T. Grasser, G. Gildenblat, G.-J. Smit, **M. Bucher**, A. Aarts, A. Tajic, Y. S. Chauhan, A. Napieralski, T.-A. Fjeldly, B. Iñiguez, G. Iannacone, M. Kayal, W. Posch, G. Wachutka, F. Prégaldiny, C. Lallement, L. Lemaître, „MOS-AK: Open Compact Modeling Forum“, *Proc. 4th Int. Workshop on Compact Modeling*, pp. 1-11, Yokohama, Japan, January 23, 2007.
 - Published
 - N. Mavredakis, **M. Bucher**, “Inversion-Level Based Design of an RF CMOS Low-Noise Amplifier”, *Proc. 13th IEEE Int. Conf. on Electronics, Circuits & Systems (ICECS 2006)*, pp. 74-77, Nice, France, December 10-13, 2006.
- International Workshop Presentations:

1. **M. Bucher**, “Design-Oriented Characterization and Parameter Extraction Methodologies for the EKV3 MOSFET Model”, *Workshop on Compact Models -- 10th Int. Conf. on Modeling and Simulation of Microsystems, NSTI Nanotech 2007*, Santa Clara, California, USA, May 20-24, 2007.
2. A. Bazigos, **M. Bucher**, F. Krummenacher, “The EKV3 MOS Transistor Model”, *European Solid-State Circuit/Device Research Conference (ESSCIRC/ESSDERC 2006) Workshop, MOS-AK Meeting*, Montreux, Switzerland, September 19-22, 2006.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Investigation of the Compact Modeling of Toshiba’s RF-CMOS Technology”, Sponsor: Toshiba Semiconductor Company, Tokyo, Japan. Duration: April to December 2007, PI: M. Bucher. Budget: 30K €.
 - “Investigation and Modelling of Noise in MOS Transistors”, Basic Research Project, Special Fund for Research, TUC, 2007, Budget: 5K €.
 - “Investigation of Nonlinearities in RF-CMOS”, Basic Research Project, ECE Dept./Special Fund for Research, TUC, 2006, Budget: 2.5K €.
 - AKMON-108, General Secretariat for Research and Technology. Duration: October 2006 to March 2008. Institute of Telecommunication Systems, PI Prof. V. Digalakis. Total budget: 164K €, Funding level for M. Bucher, 61K €.
 - “MOSFET Model Evaluation for Telecommunication RFIC Design”, Sponsor: Atmel Semiconductor/GWT-TUD GmbH, Dresden, Germany, in cooperation with Technical University Dresden. Duration: March 2006 to March 2007, PI: M. Bucher. Budget: 30K €.
 - PENED03 - 354, General Secretariat for Research and Technology. Duration: 2006 - 2008.
 - IST NoE TARGET, Duration: 2004 to 2007.
- Project proposals submitted:
 - the three topmost Current projects (above), plus:

- Participated in FP7-PEOPLE-2007-3-1-IAPP, Marie Curie Industry Academia Partnership & Pathways proposal “COMpact MOdelling Network (COMON)”, [Proposal ID: 218255](#). 2007.
- “MOS varactor model for RF integrated circuit design”, Basic research proposal, Special Fund for Research, TUC, 2007 (not funded).
- Development of Laboratory Infrastructure:
 - Automation equipment for semi-automatic probe station: Prober Control Software, I/O cards, Microcontrollers etc., 1 PC workstation, Programmable Power supply, Budget 10 K € (AKMON).
 - Software VEE Pro, IC-CAP, ADS, Budget 5 K € (Electronics Labs & AKMON).
 - Upgrade (from software only) to Full membership of Europractice services: TUC/ECE Dept. gains full access to Europractice Design kits and Foundry services.

E – Professional service

- Reviewing activities
 - Regular reviewer for:
 - IEEE Trans. on Electron Devices*
 - IEEE Trans. on CAD of Int. Circuits and Systems*
 - Solid-State Electronics*
 - Int. J. on Low-Power Electronics*

F – Service to the Department and the School

- Departmental responsibilities
 - Deputy Member of the Committees for Undergraduate and Graduate Studies.

G – Advising

- Active graduate students supervised
 - Ph.D. students co-supervised (member of the advisory committee):

- Antonios Bazigos (Ph.D.), NTUA. Enrollment: 2004.
 - M.Sc. students supervised
 - Nikos Makris (M.Sc.), Enrollment: 2006.
 - Nikos Mavredakis (M.Sc.), Enrollment: 2006.
 - Angelos Antonopoulos (M.Sc.), Enrollment: 2005.
 - George Rozakis (M.Sc.), Enrollment: 2005.
 - M.Sc. degrees awarded
 - George Konstantopoulos (M.Sc.). Enrollment: 2005.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Dimitris Diamantakos, EKV3 MOSFET Model Validation and Parameter Extraction from 1 μ m to 90nm CMOS.
 - Michael Karefylakis, Modelling of High-Voltage MOSFETs.
 - Dionysios Stefanakis, Design of a CMOS image sensor.
 - Alexandros Kyriakos, Development of a Java and Matlab based CAD tool for the EKV3 MOSFET model.
 - Kyriakos Lathourakis, Study of Matching in 0.35 μ m CMOS.
 - George Smaragdous, Design of a Current-Mode OPAMP.
 - Alexandros Petsios, Design of a CMOS charge-sensitive amplifier
 - Apostolos Tsivitis, Study of 1/f noise in MOS transistors.
 - Diploma theses completed (committee member)
 - Emmanuel Doumas (6/2007)
 - Dimitrios Papadopoulos (2/2007)
 - Nikos Makris (10/2006)



Annual Activity Report

For the period: September, 1, 2006 to August, 31, 2007

Name: *Kostas Kalaitzakis*

Rank: *Professor*

Years in rank: *5*

Full-time or part-time: *Full-time*

Division: *Electronics & Computer Architecture*

Lab affiliation: *Electric Circuits & Renewable Energy Sources Lab.*

A – Teaching

- Undergraduate courses taught
 - **HRY 402 - Electronic Measurements and Sensors (7th semester)**
 - **HRY 212 – Analysis of Electric Circuits (4th semester)**
- Graduate courses taught
 - **HRY 602 – Special topics on Electronics Measurements and Sensors**
- Labs taught
 - **Electronic Measurements and Sensors (7th semester)**
 - **Electric Circuits Analysis (4th semester)**
- Curriculum & course development
 - New courses / labs developed:
 - Lecture notes / slides developed:
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted:
 1. Koutroulis E. Kalaitzakis K. Tzitzilonis V. “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, submitted to Microelectronics Journal..
 - Accepted:
 - Published
 2. Saridakis G. Dalamagidis K. Kolokotsa D. Stavrakakis G. S. Koutroulis E. Kalaitzakis K. Antonidakis K. Chatzakis J. Kaliakatsos I. “Development of a Greenhouse Model with an Intelligent Indoor Environment and Energy Management System for Greenhouses”, WSEAS Trans. on Environment and Development, Vol. 2, Issue 5, May 2006, pp. 690-697.
 3. Koutroulis E. Kalaitzakis K. Dollas A. “High-Frequency Pulse Width Modulation Implementation Using FPGA and CPLD ICs”, J. of Systems Architecture, Vol. 52, Issue 6, June 2006, pp. 332–344.
 4. Kafetzis G. Patelis P. Tripolitakis E.J. Stavrakakis G.S. Kolokotsa D. Kalaitzakis K. “PID Controller Tuning and Implementation Aspects for Building Thermal Control”, WSEAS Trans. on Circuits and Systems, Issue 7, Vol. 5, July 2006, pp. 1016-1021.
 5. Koutroulis E. Kolokotsa D. Potirakis A. Kalaitzakis K. “Methodology for Optimal Sizing of Stand-Alone Photovoltaic/Wind-Generator Systems Using Genetic Algorithms”, Solar Energy, Vol. 80, Issue 9, Sep. 2006, pp. 1072–1088.
 6. Dalamagidis K. Kolokotsa D. Stavrakakis G.S. Kalaitzakis K. “Reinforcement Learning for Energy Conservation and Comfort in Buildings”, Building and Environment, Vol. 42, July 2007, pp. 2686–2698.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 7. Kafetzis G. Patelis P. Tripolitakis E.J. Stavrakakis G.S. Kolokotsa D. Kalaitzakis K. “PID Controller Tuning and Implementation Aspects for Building Thermal Control”, 10th WSEAS CSCC Multiconference. Vouliagmeni, Athens, Greece, July 13 -15 2006.
 8. Koutroulis E. Kalaitzakis K. Tzitzilonis V. “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic

Modules”, 17th IEEE Int. Workshop on Rapid System Prototyping, 14-16 June 2006, pp. 200-208.

- Books and edited book chapters
- Patents

C – Awards & Distinctions

- Other
 - Koutroulis E. Kalaitzakis K. “Design of a Maximum Power Tracking System for Wind-Energy-Conversion Applications”, IEEE Trans. on Industrial Electronics, Vol. 53, Issue 2, April 2006, pp. 486- 494. This paper has the 5th rank in the “Most frequently downloaded TIE papers from Xplore in 2006” of IEEE (<http://tie.ieee-ies.org/tie/2006downloads.htm>).

D – Funded Projects

- Current projects:
- Project proposals submitted:

E – Professional service

- Reviewing activities:
 - IEEE Trans. on Power Electronics
 - IEEE Trans. on Circuits and Systems II
 - IEEE Trans. on Industrial Electronics
 - IEE Proceedings – Electric Power Applications
 - IEE-Electronics Letters
 - Renewable Energy
 - Energy

F – Service to the Department and the School

- Departmental responsibilities
 - Lab Director, Electric Circuits & Renewable Energy Sources Lab.
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - K. Papadakis (M.Sc.). Year of initial enrollment in M.Sc. program: 2004.
 - V. Tzitzilonis (M.Sc.). Year of initial enrollment in M.Sc. program: 2005.
 - J. Kantaris (M.Sc.). Year of initial enrollment in M.Sc. program: 2005.
 - A. Siskos (M.Sc.), Year of initial enrollment in M.Sc. program: 2006.
 - Ph.D. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - A. Chatziioannou, “Design Optimization of Hybrid Photovoltaic/Wind-Generator Systems Used to Power Supply Desalination Plants”.
 - Diploma theses completed (supervisor)
 - N. Loykas, “Development of a Microcontroller-Based System for Photovoltaic Maximum Power Point Tracking Under Partial Shadowing Conditions”.
 - N. Tsitsopoulos, “DC/AC Inverter Harmonics Minimization Using Genetic algorithms”.
 - A. Chatziioannou, “Optimal Design of Hybrid PV and WG System Supplying a Desalination Process”.
 - E. Doumas, “Calibration of Oceanographic Instruments and Development of Software Application for Their Management”.
 - P. Lamprou, “Development of an Autonomous Data Acquisition System Based on Microprocessor Interconnected to the Internet”



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Ioannis Papaefstathiou

Rank: Assistant Professor

Years in rank: 1/2

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture

Lab affiliation: Microprocessor and Hardware laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 201 – Digital Computers (Fall 2006)
 - HPY 411 – Computer Architecture (Spring 2007)
- Graduate courses taught
- Labs taught
 - HRY 201 – Digital Computers (Fall 2006)
 - HPY 411 – Computer Architecture (Spring 2007)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 1. Computer Architecture
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted

- Accepted
 - D. Simos, **I. Papaefstathiou**, M. Katevenis, “*Towards Fabric-On-a-chip(FoC) : A 400Gbps 32×32 Variable-Packet-Size Buffered Crossbar (CICQ) Single-Chip Switch Core*”, IEEE Design & Test (D&T), accepted for publication
- Published
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - I. Mavroidis, **I. Papaefstathiou**, “*Efficient Real-Time Full Chip Observability and Controllability for Circuit Emulations*”, IEEE Design Automation & Test in Europe 2008 (DATE 2008), March 2008, Munich, Germany
 - Accepted: same as published (see below) plus
 - D. Meidanis, **I. Papaefstathiou**, “*An efficient FPGA-based implementation of Pollard's (rho-1) factorization algorithm*”, IEEE International Conference on Field Programmable Technology 2007 (FPT'07), December 12th - 14th, 2007, Kitakyushu, Japan
 - G. Kornaros, D. Meidanis, **Y. Papaefstathiou**, S. Chantzandroulis, S. Blionas, “*Architecture of a Consumer Lab-on-Chip for Pharmacogenomics*”, IEEE International Conference on Consumer Electronics (ICCE'08), Jan 11-13, 2008, Las Vegas.
 - Published
 - **I. Papaefstathiou**, G. Kornaros, N. Chrysos, “*Using Buffered Crossbars for Chip Interconnection*”, ACM/IEEE Great Lakes Symposium on VLSI 2007 (GLSVLSI 2007), March 11-14, Stresa, Italy (Ποσοστό αποδοχής εκτενών εργασιών 21%) .
 - I. Mavroidis, **I. Papaefstathiou**, “*Efficient Testbench Code Synthesis for a Hardware Emulator System*”, IEEE Design Automation & Test in Europe 2007 (DATE 2007), April 16-20 Nice, France (Ποσοστό αποδοχής εκτενών εργασιών 22%).
 - G. Kornaros, **I. Papaefstathiou**, D. Pnevmatikatos, “*Dynamic Software-Assisted Monitoring of On-Chip Interconnects*”, Workshop on Diagnostic Services in Network-on-Chips, IEEE Design Automation & Test in Europe 2007 (DATE 2007), April 16-20, Nice, France (Ποσοστό αποδοχής εκτενών εργασιών στο workshop 18%).
 - I. Mavroidis, D. Pnevmatikatos, **I. Papaefstathiou**, “*FPGA-Based Implementation of Symmetrical 2-Opt Moves for the Traveling Salesman Problem*”, IEEE Symposium on Field-Programmable Custom Computing Machines 2007 (FCCM'07), April 23-25, 2007, Napa Valley, California, U.S.A (Ποσοστό αποδοχής εργασιών 21%).

- **I. Papaefstathiou**, V. Papaefstathiou, “*Memory-Efficient 5D Packet Classification at 40Gbps*”, IEEE INFOCOM 2007, May 6- 12, Anchorage, Alaska, U.S.A (Ποσοστό αποδοχής εργασιών 18%).
- Th.Orphanoudakis, G. Kornaros, I Mavroidis , A.Nikologiannis , **I Papaefstathiou** “*An Embedded Networking SoC for purely Ethernet MANs/WANs*”, IEEE Symposium on Computers and Communications (ISCC'07), July 1-4, Aveiro, Portugal

- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - VPLANET, Greek Secretariat for Research and Technology, **Project PI:** I. Papaefstathiou. Award Period: October 2006 –March 2008. Funding level: 250K € (92K € for TUC) .
 - Micro2DNA, Industrial Contract with Intracom Telecom, TUC PI: I. Papaefstathiou. Award Period: October 2006 – February 2009. TUC Funding level: 50K € .
 - NETNET, Greek Secretariat for Research and Technology, **Project PI:** I. Papaefstathiou. Award Period: July 2007 –July 2008. Funding level: 160K € (22K € for TUC) .
 - BTAP, Industrial Contract with MobileMedia, TUC PI: I. Papaefstathiou. Award Period: December 2006 – March 2007. TUC Funding level: 12K €
- Project proposals submitted:
 - Organizer of “NEFERTITI”, FP7-STREP proposal, grade 11/15 (ranked 14th, 10 Proposals were funded)
 - Organizer of “OSMOSIS”, FP7-STREP proposal, grade 10/15
 - Organizer of “POCAHONTAS”, FP7-CAPACITIES proposal, results awaited
 - Participated in “AWISSENET”, FP7-STREP proposal, grade 12/15 **will be funded from 1/1/08** (ranked 12th, 24 Proposals were funded), TUC funding 250K €

E – Professional service

- Associate Editor duties

- Society Technical Committee duties
- Conference Technical Program Committee service
 - IEEE DATE 2007
 - IEEE FPL 2007
 - IEEE SAMOS 2007
 - Several other smaller workshops
- Conference Organization (specify role)
- Reviewing activities
 - Regular reviewer for *IEEE Communication Letters*, *IEEE Design & Test*

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Dimitris Meintanis (Ph.D). Year of initial enrollment in Ph.D. program: 2005.
 - Iakovos Mavroidis (Ph.D). Year of initial enrollment in Ph.D. program: 2005.
 - Antonis Nikitakis (M.Sc.). Year of initial enrollment in program: 2004.
 - Panagiotis Christou, (M.Sc.). Year of initial enrollment in program: 2006.
 - Ph.D. and M.Sc. students co-supervised
 - Ioannis Mavroidis (Ph.D). Year of initial enrollment in Ph.D. program: 2005.
 - George Kornaros (Ph.D). Year of initial enrollment in Ph.D. program: 2005.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - K. Klatsias
 - N. Kassis.
 - N. Spanos
 - K. Papadopoulos
 - G. Mplemenos
 - A. Plikaditi

- A. Kontomanou
- M. Vavouras
- M. Chalkiadaki
- K. Kassis
- K. Theoharoulis

- Diploma theses completed (supervisor)
 - M. Platsis



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007.

Name: Dionisis Pnevmatikatos

Rank: Associate Professor

Years in rank: 5

Full-time or part-time: Full-time

Division: Electronic & Computer Architecture

Lab affiliation: Microprocessor & Hardware Laboratory

A – Teaching

- Undergraduate courses taught
 - High-Performance Computer Architecture
 - Advanced Logic Design
- Graduate courses taught
 - Special Topics in Computer System Design
- Labs taught
 - High-Performance Computer Architecture
 - Advanced Logic Design

B – Publications

- Publications in refereed journals
 - Kyriakos Vlachos, Theofanis Orphanoudakis, Yannis Papaefstathiou, Nikos A. Nikolaou, **Dionisios N. Pnevmatikatos**, George E. Konstantoulakis, Jorge-A. Sanchez-P.: Design and performance evaluation of a Programmable Packet Processing Engine (PPE) suitable for high-speed network processors units. 188-199, Microprocessors and Microsystems, Volume 31, Number 3, May 2007

- Publications in refereed conferences
 - Vassilis Dimopoulos, Ioannis Papaefstathiou and **Dionysis Pnevmatikatos**: “A Memory-Efficient Reconfigurable Aho-Corasick FSM Implementation for Intrusion Detection Systems”, IC-SAMOS VII: International Symposium on Systems, Architectures, MOdeling and Simulation, July 16-19, 2007
 - Vassilis Papaefstathiou, **Dionisios Pnevmatikatos**, Manolis Marazakis, Giorgos Kalokairinos, Aggelos Ioannou, Michael Papamichael, Stamatis Kavadias, Giorgos Mihelogiannakis and Manolis Katevenis: “Prototyping Efficient Interprocessor Communication Mechanisms”, IC-SAMOS VII: International Symposium on Systems, Architectures, MOdeling and Simulation, July 16-19, 2007
 - George Michelogiannakis, **Dionisios N. Pnevmatikatos**, Manolis Katevenis: Approaching Ideal NoC Latency with Pre-Configured Routes, First International Symposium on Networks-on-Chips, NOCS 2007, May 2007
 - Ioannis Mavroidis, Ioannis Papaefstathiou, **Dionisios Pnevmatikatos**: “A Hardware Implementation of 2-Opt Local Search Algorithm for the Traveling Salesman Problem”, 18th IEEE/IFIP International Workshop on Rapid System Prototyping, Brazil, May 28-30, 2007
 - Ioannis Mavroidis, Ioannis Papaefstathiou, **Dionisios Pnevmatikatos**: “FPGA-Based Implementation of Symmetrical 2-Opt Moves for the TravelingSalesman Problem”, IEEE Symposium on Field-Programmable Custom Computing Machines April 23 - April 25, 2007
 - G. Kornaros, Y. Papaefstathiou, **D. Pnevmatikatos**: "Dynamic Software-Assisted Monitoring of On-Chip Interconnects", DATE 2007 Workshop on Diagnostic Services in Network-on-Chips, April 20, 2007
 - Sourdis, V. Dimopoulos, **D. Pnevmatikatos**, S. Vassiliadis: "Packet Pre-filtering for Network Intrusion Detection", ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS'06), Dec. 2006, San Jose, CA USA.
- Books and edited book chapters.
 - Koen De Bosschere, Wayne Luk, Xavier Martorell, Nacho Navarro, Mike O’Boyle, **Dionisios Pnevmatikatos**, Alex Ramirez, Pascal Sainrat, André Sez nec, Per Stenström and Olivier Temam, High-Performance Embedded

C – Awards & Distinctions

D – Funded Projects

- VPLANET, Greek Secretariat for Research and Technology, TUC PI: D. Pnevmatikatos. Award Period: October 2006 –March 2008. Funding level: 250K € (92K € for TUC).
- Tele-education Action #98, P.I. for TUC
- Student Practical Training Program, Departmental P.I.

E – Professional service

- *General Co-Chair* RSP 2007
- DATE 2008, Co-Chair, Architecture & Microarchitecture Track
- DATE2007 (Program Committee)
- RSP2007 (Program Committee)
- FPL 2007 (Program Committee)
- CF 2007 (Program Committee)
- ICCD 2007 (Program Committee)
- SAMOS 2007 (Program Committee)
- Reviewer:
 - Journals: IEEE-Network, IEEE-TC, TOADES, ACM-TECS, IEEE-TIFS
 - Conferences: ICS, IPDPS, ISCAS, MICRO, NTMS (International Conference on New Technologies, Mobility and Security)
- External evaluator for promotion process, University of Texas, San Antonio

F – Service to the Department and the School

- Departmental responsibilities
 - Undergraduate Program Committee
 - Responsible for the Department-wide practical training project
- School-level responsibilities
 - NOC director
 - Committee for Computing Center and Networks
 - Lecture Notes Committee

G – Advising

- Active graduate students supervised
 - Ph.D.
 - Kornaros George
 - Ioannis Mavroidis
 - Iakovos Mavroidis (co-supervise)
 - Meidanis Dimitris (co-supervise)
 - M.Sc. students supervised
 - Kiriakoulakos Kostas
 - Fytraki Sotiria
 - Nikitakis Antonis (co-supervise)
 - M.Sc. degrees awarded
 - Dimopoulos Vasilis
 - Ermis Ioannis
- Undergraduate students supervised
 - Diploma theses completed (supervisor)
 - Diploma theses completed (co-supervisor)
 - Diploma theses in progress (supervisor)
 - Ανδρονικίδης Γεώργιος
 - Diploma theses in progress (committee member)
 - K. Klatsias
 - N. Kassis
 - N. Spanos
 - K. Papadopoulos
 - G. Mplemenos
 - A. Plikaditi
 - A. Kontomanou
 - M. Vavouras
 - M. Chalkiadaki
 - K. Kassis
 - K. Theoharoulis
 - Diploma theses completed (committee member)
 - Platsis Mixahl
 - Anifantis Antwnios



Annual Activity Report

For the period: Sep.1, 2006 to Aug. 31, 2007

Name: George Stavrakakis

Rank: Professor

Years in rank: 12

Full-time or part-time: Full-time

Division: Electronic and Computer Architecture

Lab affiliation: Electric Circuits and Renewable Energy Sources

A – Teaching

- Undergraduate courses taught
 - Basic Circuit Theory (HRY 202)
 - Renewable Energy Sources (HRY 416)
- Graduate courses taught
 - Advanced topics in Optimal Control (SYS 603)
- Labs taught
 - Basic Circuit Theory (HRY 202)
 - Renewable Energy Sources (HRY 416)
- Curriculum & course development
 - New courses / labs developed : Renewable Energy Sources (HRY 416)
 - Lecture notes / slides developed : Renewable Energy Sources (HRY 416)
 - Authored textbooks : None

B – Publications

- Publications in refereed journals

- Submitted : 4
- Accepted : 3
- Published : 2 (see bellow)

- D. Kolokotsa, A. Pouliezos, **G. Stavrakakis**. “Sensor fault detection in building energy management systems, Dynamics of continuous discrete and impulsive systems-Series B-Applications & Algorithms 13”, Suppl. S, 13, pp. 221-225, 2006.
- G. Sutherland, D. Kolokotsa, **G. Stavrakakis**, S. Karatassou, M. Santamouris. “A Matrix Tool for Assessing the Performance of Intelligent Buildings, Management of Environmental Quality”, An International Journal, 18, 1, pp. 36-49, 2007.

- Publications in refereed conferences
 - Submitted : 4
 - Accepted : 4
 - Published :4 (see bellow)

 - Eleftheria S. Sergaki ,**George S. Stavrakakis**, “Optimal speed trajectory tracking of an AC motor drive system with simultaneous minimization of its electromagnetic losses and fuzzy logic efficiency optimization in steady and transient states”,XVII International Conference on Electrical Machines-ICEM 2006, Chania, Crete island, Greece, September 2-5, 2006.

 - Zacharias Gketsis, **George Stavrakakis** and Michalis Zervakis, “Detection of winding faults in windmill generators using the wavelet transform analysis method”, XVII International Conference on Electrical Machines-ICEM 2006, Chania, Crete island, Greece, September 2-5,2006.

 - Zacharias Gketsis, Michalis Zervakis and **George Stavrakakis**, “Early Detection of winding faults in windmill generators using wavelet transform and ANN classification .Proceedings Artificial Neural Networks”, ICANN2006,September 2006,Athens,Greece,Part II pp 746

 - Dimitrios Tzagas, Zacharias E.Getsis, **George Stavrakakis** , Michalis E.Zervakis and Petros Hatzilias, “Simulation model of robotic arm for laparoscopic surgery”, Proceedings of the European Control Conference 2007(ECC 07), pp3132-3138, Kos, Greece, July 2-5,2007.

- Books and edited book chapters : none

- Patents : one in the national level (see bellow)

Έξυπνη μέθοδος και ολοκληρωμένη ηλεκτρονική διάταξη διαχείρισης πληροφοριών σε συστήματα εξασφάλισης εσωτερικής άνεσης με ταυτόχρονη ενεργειακή διαχείριση κτιρίων. (OBI2004010045)

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Project 1, e-MANAGEMENT FOR INDOOR ENVIRONMENT AND ENERGY SAVINGS IN BUILDINGS. General Secretary of Research and Technology (GSRT) Concerted Program “Renewable Energy Sources and Energy Saving”. September 2003 – September 2006. Coordinator.(Total 1000000Euro , TUC/TSI part 255115Euro)
- Project proposals submitted:

E – Professional service

- Associate Editor duties : none
- Society Technical Committee duties : one (International Committee of Electrical Machines- ICEM)
- Conference Technical Program Committee service : none
- Conference Organization (specify role) : none
- Reviewing activities : In three international Journals
 - Permanent invited Reviewer of “Zentralblatt fur Mathematik und ihre Grenzgebiete”, (Mathematics Abstracts) edited by Springer-Verlag International publ.
 - Permanent invited Reviewer of the Journal of Intelligent and Robotic Systems.
 - Permanent invited Reviewer of the IEEE Transactions on Energy Conversion.
- Participation in National Committees (e.g., EΔET) : one

Permanent Committee of the Prefecture of Crete for the Energy Problem of Crete
- Other

F – Service to the Department and the School

- Departmental responsibilities

- School-level responsibilities
 - Other : member of the Technical Council of TUC

G – Advising

- Active graduate students supervised
 - Ph.D students supervised
 - Tripolitakis Evangelos
 - Nikolaou Triantafylia
 - Sergaki Eleftheria
 - M.Sc Students supervised
 - Afentakis Nikolaos
 - Kafetzis Georgios
 - Patelis Petros
 - Tabitsikas Charalabos
 - M.Sc. degrees awarded (none)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor): 10
 - Diploma theses completed (supervisor) : 5
 - Diploma theses in progress (committee member): 5
 - Diploma theses completed (committee member): 3

Systems Division

Faculty members:

- Petros Stavroulakis, Professor
- Manolis Christodoulou, Professor



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Peter Stavroulakis

Rank: Professor

Years in rank: 17

Full-time or part-time: Full-time

Division: Systems

Lab affiliation: Automation

A – Teaching

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - “Tracking of Maneuvering and Ballistic Targets with a Transmitter-Independent Receiver Network (TIRN) Using Time Difference of Arrival and a Second Order Recurrent Artificial Neural Network”, *WSEAS Transactions on Communications*, June 2006
 - “On Line Tracking Moving Targets via Angle of Arrival and Doppler Measurements Taken by a TIRN Using First Order Recurrent Linear Neural Networks”, *WSEAS Transactions on Communications*, June 2006
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Technological and Legal aspects of Communications and Information Security, to be presented at the Second International

Conference on Legal, and Privacy Issues in IT(LSPI), Beijing
China Dec. 4-6 2007

- Anti-Jamming Transmitter Independent Radar Networks, to be presented at the IEEE conference on Signal Processing and Communications Networks, Madras India, Jan. 4-6/2008

○ Published

- “On Line Tracking of Maneuvering Targets via Angle of Arrival and Doppler Measurements”, *WSEAS Communications Conference*, Athens July 2006
- “Novel Channel Assignment Scheme in Providing TETRA”, *Specialized Services IEEE Global Mobile Congress*, Beijing, China, 2006
- “On the QoS Optimization in Satellite-Aided Cellular Systems”, 9th WSEAS International Conference on Communications, July 14-16, Athens, Greece, 2006
- “On the Improvement of the Performance of Video Transmission over Intergrated Hybrid 3G-WLAN Networks”, Global Mobile Congress, Beijing – China, 9-11 October 2006.
- “On the QoS Assessment of Video Sessions in Heterogeneous 3G-WLAN Networks with Seamless and Secure Mobility Support”, China Communications Journal – Special Issue on Communications and Information Security, Vol.4, No.1, February 2007
- Operability Aspects of A Transmitter Independent Receiver Networkk. IEEE EMC/2007 Saint Petresbutg , Russia., June 2007

• Book chapters in Books

- "Modern Security Requirements in Private Mobile Communications Systems", "Terrestrial Trunked Radio -Tetra, A Global Security Tool, Publisher Springer Berlin Heidelberg", DOI 10.1007/3-540-71192-9, ISBN 978-3-540-71190-2, May 20 2007
- "Channel Assignment and Multiple Access in Trunking Radio Systems [1]", "Terrestrial Trunked Radio - Tetra, A Global Security Tool", Publisher Springer Berlin Heidelberg, DOI 10.1007/3-540-71192-9, ISBN 978-3-540-71190-2, May 20 2007, Copyright 2007

• Books

- TERrestrial Trunking Radio (TETRA) – A Global Security Tool, Springer 2007
- Books Accepted:
 - A Book Proposal for a HANDBOOK ON COMMUNICATION AND INFORMATION SECURITY has been accepted by SPRINGER .

C – Awards & Distinctions

- Invited Plenary Lectures: IEEE Global Mobile Congress/2006(Distinguished Lecturer)

D – Funded Projects

E – Professional service

- Associate Editor duties
 - International Journal on Communication and information Security, published by John Wiley
 - Founding Editor for CHINA COMMUNICATION JOURNAL
 - Guest Editor for a special issue for the CHINA COMMUNICATIONS JOURNAL on COMMUNICATIONS AND INFORMATION SECURITY
- Society Technical Committee duties
 - Founding Member of the IEEE Technical Committee on communication and information Security
- Conference Technical Program Committee IEEE
 - Member of Technical Program Committee, *IEEE GMC/2006*
 - Member of Technical program Committee, IEEE WCNC/2006
- Conference Organization (specify role)
 - Symposium Chairman on Communication and Information security for CHINACOM/2007 conference sponsored by IEEE
 -
 - Presented a Tutorial in *IASTED International Conference on Antenna and Propagation*, Montreal, Canada June/2007
- Reviewing activities
 - Reviewer of *IEEE* (4 papers)
 - Electronic Letters (5 papers)

- International Journal of Communication Systems (6 papers)
- Communications Journal for the old IEE now IET (3 papers)
- CHINA COMMUNICATIONS JOURNAL (20 papers)
- Other
 - Invited speeches/seminars on the general subject of Information Security, Tsinghua University(The MIT of CHINA), Beijing China June 2006
 - Computer Emergency Response Team (CERT) WUXI, China , October 2006 (I was the only NON-CHINESE invitee)
 - IEEE Consumer Communication and Networking Conference (CCNC), January 2007

F – Service to the Department and the School

G – Advising

One of my Ph.D. graduates was recently elected as an assistant Professor at the University of LAMIA. Three of my Ph.D. graduates have been elected Assistant Professors at the TEI KRITIS



Annual Activity Report

For the period: Sep. 1, 2006 to Aug. 31, 2007

Name: Manolis A. Christodoulou

Rank: Professor

Years in rank: 15

Full-time or part-time: Full-time

Division: Systems

Lab affiliation: Automation

A – Teaching

- Undergraduate courses taught
 - Neural Networks
 - Linear Systems
- Graduate courses taught
 - Adaptive Control
 - Special Topics in Control (Non-linear Adaptive Control)
- Labs taught
 - Neural networks
 - Linear Systems
- Curriculum & course development
 - New labs in Neural Networks
 - Electronic web slides developed for Linear Systems
 - Authored textbook: “Adaptive Control with Recurrent High Order Neural Networks: Theory and Industrial Applications”, Springer, ISBN 1-85233-6234

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - **M.A.Christodoulou** and S.G. Kodaxakis, “Automatic Commercial Aircraft Collision Avoidance in Free Flight: The Three Dimensional Problem”, *IEEE, Transactions on Intelligent Transportation Systems*, vol.7, No.2, pp. 242-249, 2006.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below)
 - Accepted: those published (see below)
 - Published
 - **M.A.Christodoulou**, and D.Zarkogianni, “Recurrent High Order Neural Networks for Identification of the EGFR Signaling Pathway”, *Proceedings of the 14th Mediterranean Conference on Control and Automation*, paper TM2-1, June 28-30, 2006, Ancona, Italy.
 - **M.A.Christodoulou**, and T.N.Iliopoulos, “Neural Network Models for Prediction of Steady-State and Dynamic Behavior of MAPK Cascade”, *Proceedings of the 14th Mediterranean Conference on Control and Automation*, paper TM2-2, June 28-30, 2006, Ancona, Italy.
 - K.Vamvoudakis and **M.A.Christodoulou**, “Backstepping, Interlaced and Mixed Interlaced Adaptive Nonlinear Control for Biological Models”, *Intelligent Systems and Computing: Theory and Applications Conference (ISYC 06)*, pp. 196-219, July 6-7, 2006, Ayia Napa, Cyprus.
 - **M.A.Christodoulou**, and T.N.Iliopoulos, “Use of RHONNS to Predict Dynamics and Steady State for MAPK Cascade in Cells “, *Intelligent Systems and Computing: Theory and Applications Conference (ISYC 06)*, pp. 231-242, July 6-7, 2006, Ayia Napa, Cyprus.
 - E.Skounakis and **M.A.Christodoulou**, “Selective Biomedical Image Compression via Intelligent Identification of Objects”, *IASTED International Conference on Signal and Image Processing (SIP 2006)*, August 14-16, 2006, Honolulu, Hawaii, USA.
 - N.K.Louvros and **M.A.Christodoulou**, “Simulation of the Cell Cycle using a Pathway of the G1Phase and Cell's Behavior Research”, *28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, August 30 - September 3, 2006, New York, New York, USA.
 - **M.A. Christodoulou** and A.C.Kalpakas, “Use of artificial neural networks in sequential models of membrane proteins of the SWISS-PROT database for the detection of transmembrane segments”, *15th*

Mediterranean Conference on Control and Automation MED07 (Med 07), June 27-29, 2007, Athens, Greece.

- K.G. Vamvoudakis and **M.A. Christodoulou**, “Adaptive Backstepping Control for MAPK Cascade Models Using RBF Neural Networks”, *15th Mediterranean Conference on Control and Automation MED07 (Med 07)*, June 27-29, 2007, Athens, Greece.
 - **M.A.Christodoulou** and G.M.Vassalos, “Adaptive Control in Cellular Signaling Sub-Systems using Backstepping Techniques and Recurrent high Order Neural Networks”, *Workshop on Networked Distributed Systems for Intelligent Sensing and Control*, pp. 71-81, Kalamata - Greece, 2007.
 - **M.A.Christodoulou**, D.C.Theodoridis and Y.S. Boutalis “Building Optimal Fuzzy Dynamical Systems Description Based on Recurrent Neural Network Approximation”, *Workshop on Networked Distributed Systems for Intelligent Sensing and Control*, pp. 82-93, Kalamata - Greece, 2007.
- Books and edited book chapters
 - G.A. Rovithakis, S.E. Perrakis and **M.A.Christodoulou**, “Artificial Neural Networks in Manufacturing: Scheduling,” *Artificial Neural Networks in Finance and Manufacturing*, Ruhul A. Sarker Editor, Idea Group Publishing, Inc., pp. 236-261, 2006.
 - Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
- Project proposals submitted

E – Professional service

- Mediterranean Control Association, Member of the Board of Governors
- Conference Technical Program Committee service
 - International Program Committee, Member *Workshop on Networked Distributed Systems for Intelligent Sensing and Control*, Kalamata, Greece June 30, 2007.
 - Chairman, Neural Networks II session FrM-3, *15th Mediterranean Conference on Control and Automation*, Athens, Greece, June 27-29, 2007.

- International Program Committee, Member, *15th Mediterranean Conference on Control and Automation*, Athens, Greece, June 27-29, 2007.
- International Program Committee, Member 14th Mediterranean Conference on Control and Automation, Ancona, Italy, June 28-30, 2006.
- International Program Committee, Member “International Conference on Intelligent Systems and Computing: Theory And Applications, Ayia Napa, Cyprus, July 5-7, 2006.
- Conference Organization (specify role)
 - Chairman and Conference Organizer, *Workshop on Networked Distributed Systems for Intelligent Sensing and Control*, Kalamata, Greece, June 30, 2007.
- Reviewing activities
 - Reviewer for various *IEEE Transactions and IEEE Conferences*.

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Iosif Kodaxakis
 - Panagiotis Voulgarellis
 - Vouros Efstratios
 - Thanassis Iliopoulos
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
Several diploma theses are in process and/or completed.