



Technical University of Crete
Department of
Electronic and
Computer Engineering



Annual Activity Report

For the period Sep. 1, 2007 - Aug. 31, 2008

Chania, Crete, Nov. 21, 2008



Kouretes is our Department's robotic soccer team, led by Assistant Professor Michael Lagoudakis (ECE), with contributions by Assistant Professor N. Vlassis (DPEM).

Kouretes came back from RoboCup 2008 in Suzhou, China with two trophies!

1st place in the SPL-MSRS league and **3rd** place in the SPL-Nao league.

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 22 (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, Europe and the rest of the world.

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 performance is good in all these metrics, there is always room for improvement. A very useful tool towards this end is the Annual Activity Report (AAR), a process instituted in our department in 2005. This is the Department's fourth AAR, covering the period from Sep. 1, 2007 to Aug. 31, 2008. It is our hope that the Annual Activity Reports document the results from our research efforts, and help improve the quality of our Department. Your feedback is most welcome.

Dionisios Pneumatikatos
pnevmati@ece.tuc.gr

Sep. 2007 – August 2008 Awards and Honors

(See <http://www.ece.tuc.gr/Controller?actionClass=loadFirstPage&action=loadFirstPage> for full list and recent updates)

Outreach – popularizing science & engineering



Kouretes made headlines at **Robocup 2007**, Atlanta, GA, U.S.A. (Kouretes ranked 2nd in the Microsoft Simulation Challenge) and **Robocup 2008**, Suzhou, China: (Kouretes ranked 1st in the SPL-MSRS, and 3rd in the SPL-Nao). Kouretes made headlines in the national media this year, with special articles ([To Vima](#), [Kathimerini](#)) and live TV coverage ([NET - the Greek public TV network](#), and [MEGA channel](#)). Kouretes is led by Assistant Professor Michail Lagoudakis. Such publicity does wonders in exciting present and prospective students. More information @

<http://www.intelligence.tuc.gr/kouretes/index.html>

Paper Awards

Best Paper Award during the 1st World Summit on the Knowledge Society
"Spatial Information Retrieval from Images using Ontologies and Semantic Maps", **Stavros Christodoulakis**, Michail Foukarakis, and Lemonia Ragia, 1st World Summit on the Knowledge Society. 24-28 September 2008, Athens, Greece 2008

2008 IEEE Marconi Prize Paper Award in Wireless Communications
"Cooperative Communications with Outage-Optimal Opportunistic Relaying"
Aggelos Bletsas, Hyundong Shin, Moe Z. Win, IEEE Transactions on Wireless Communications, Volume 6, Issue 9, pp. 3450-3460, Sept 2007. Aggelos will soon join us as Assistant Professor.

2007 IEEE Signal Processing Society Best Paper Award
"On Downlink Beamforming with Greedy User Selection: Performance Analysis and a Simple New Algorithm", G. Dimic, **N.D. Sidiropoulos**
IEEE Transactions on Signal Processing, Volume 53, Issue 10, pp. 3857-3868, Oct. 2005.

New Grants

Research Grant Capacities Programme (Research for the benefit of SMEs)

to Yiannis Papaefstathiou

Title: Open Source MOdelling and hardware Software codesIgn of embedded Systems (OSMOSIS)

December 2007

Marie Curie Research Grant - Industry Academia Partnership and Pathways (IAPP) to Matthias Bucher

Title: COmpact MOdelling Network (COMON)

October 2007

STREP Research Grant (Call 1, FP7) to Yiannis Papaefstathiou

Title: Ad-hoc PAN & WIreless Sensor SEcure NETwork (AWISSENET)

October 2007

European Research Grant iQTOOL Lifelong Learning Programme 2007-2013

to Stavros Christodoulakis

Title: Innovative eLearning Tool for Quality Training Material in VET

December 2007

Recent Alumni Awards

European Young Investigator Award (EURYI) to Alumnus Anastasia Ailamaki

Title: Efficient data management for scientific applications

September 2007

Recent Honorary Awards

Appointment of Nikos Sidiropoulos to the National Council for Research and Technology, Member of the Division of Computer Science, Telecommunications, Systems, March 2008

IEEE Signal Processing Society Distinguished Lecturer 2008-2009 to Nikos Sidiropoulos. Lectures program by distinguished member to various chapters around the world, October 2007

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



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2007 to August 31, 2008

Name: Vassilis Digalakis

Rank: Professor

Years in rank: 8

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
 - Submitted
 - *P. Papadopoulos, V. Digalakis and V. Diakouloukas, “Maximum Likelihood Estimation of Identifiable Linear Dynamical Systems with an application to Speech Recognition”.*
- Publications in refereed conferences
 - Published
 - *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*

C – Awards & Distinctions

D – Funded Projects

- Current projects: (PI)
 - «Ανάπτυξη υποδομής και τεχνογνωσίας για Παροχή Υπηρεσιών σε Δίκτυα Επικοινωνίας», ΑΚΜΩΝ, ΙΤΕΤ, 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, Σύνθεση Και Αναγνώριση Φωνής Με Υπολογιστική Αεροδυναμική Ανάλυση Του Ανθρώπινου Ηχητικού Σωληνα, ΠΕΝΕΔ, Co-PI, PI's Budget € 180.000.
 - Muscle, Ευρωπαϊκή Επιτροπή (IST NoE), 3/2004-2/2008, Co-PI, PI's Budget € 160.000.
- Project proposals submitted:
 - MINAIS, Cognitive Multimodal Interface for Naturally Interacting System, IP Proposal, FP7.

E – Professional service

- Reviewer in several journals.
- ICASSP 2008 Reviewer
- Interspeech 2008 Reviewer
- Conference Organization (specify role)
 - Co-Chair for ACM-IEEE ICMI 2008 workshop

F – Service to the Department and the School

- Departmental responsibilities
 - Director, Information and Computer Networks Lab
 - Member, Undergraduate studies committee
- School-level responsibilities
 - Director, Telecommunication Systems Institute
 - Vice President and Board Member, Company for Management and Exploitation of TUC's property

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - *Costas Charizakis, PhD, 2003*
 - *Chris Vosnidis, PhD, 2004*
 - *Dimitris Oikonomidis, PhD, 2003*
 - *Orfeas Tsergoulas, MSc, 2007*
 - *Kostas Athanasoglou, MSc, 2007*
 - *George Stylianakis, MSc, 2008*
- Undergraduate students supervised
 - *Chris. Boubousis*



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept 1, 2007 to Aug. 31, 2008

Name: Michalis Zervakis

Rank: Professor

Years in rank: 9

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
 - Computer Vision
- Graduate courses taught
 - Pattern Recognition
- Labs taught
 - Digital Signal Processing
 - Digital Image Processing
 - Computer Vision
- 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

1. 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.
2. 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", Lacona VII Conference, Madrid, September 2007.
3. 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.
4. 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, pp. 488-493.
5. M. E. Blazadonakis and M. Zervakis, "Revealing Significant Biological Knowledge via Gene Ontologies and Pathways", 2008 International Conference in Biomedical Engineering and Informatics (BMEI 2008), Sanya, Hainan , China, May 2008, pp 169-172.
6. T.Cassar, K.P. Camilleri, S.G. Fabri, M. Zervakis, S. Micheloyannis, "ARMA modelling for the diagnosis of controlled epileptic activity in young children", accepted at 3rd International Symposium on Communications, Control and Signal Processing, ISCCSP March 2008.
7. T.Cassar, K.P. Camilleri, S.G. Fabri, M. Zervakis, S. Micheloyannis, "Window size analysis in ARMA-modelled spectral biomarkers for epileptic children", accepted at 6th IASTED International conf. on Biomedical Engineering, BioMed08, February 2008.
8. V. Sakkalis, V. Tsirias, K. Michalopoulos, and M. Zervakis, "Assessment of neural dynamic coupling and causal interactions between independent EEG components from cognitive tasks using linear and nonlinear methods", [30th IEEE-EMBS](#), Engineering in Medicine and Biology Society (EMBC 2008), Vancouver, Canada, August 20-24, 2008.
9. Kounelakis G. M., Zervakis E. M., Blazadonakis E. M., Postma G. G., Buydens M. C. L., Heerschap A. and Kotsiakakis X., "Identification of significant Metabolic Markers from MRSI data for Brain Cancer Classification", 8th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2008), 2008. (Published)
10. G. Tsagkatakis, M. Zervakis, A. Savakis, "Multiple description based image transmission with low density parity check codes", ICIP 2008, San Antonio, TX, USA.
11. P. Kapsalas, P. Maravelaki-Kalaitzaki, M. Zervakis, E.T Delegou, A. Moropoulou, "Towards Enriching the Estimation of Stone Degradation Through Computer Vision

Analysis", *11th International Congress on Deterioration and Conservation of Stone*, 15-20 September 2008, Torun, Poland.

12. P. Kapsalas, P. Maravelaki-Kalaitzaki, M. Zervakis, E. T. Delegou, A. Moropoulou, "Non-Destructive Analysis of Decay on StoneWork Based on a Multi-Monitoring Scheme", *Accepted for publication in the International Workshop in In Situ Monitoring of Monumental Surfaces, Florence- Italy, 27-29 of October 2008*.
13. N. Dimou and M. Zervakis, "Support Vector Machines versus Decision Templates in Biomedical Decision Fusion ", *accepted to the 7th International Conference of Machine Learning and Applications (ICMLA 2008), 11-13 Dec. 2008, San Diego, California*.
14. M. Zervakis, and M. E. Blazadonakis, A. Banti, D. Kafetzopoulos, V. Danilatou, and M. Tsiknakis, "Performance Validation of Microarray Analysis Methods", *8th IEEE International Conference on Bioinformatics and Biomedical Engineering (BIBE 2008), 8-10 Oct. 2008, Athens*.
15. Kounelakis G. M., Blazadonakis E. M., Zervakis E. M., Postma G. G., Buydens M. C. L., Heerschap A. and Kotsiakos X., Feature selection for brain tumor classification using ratios of metabolites' peak areas from (MRSI) data 6th European Symposium on Biomedical Engineering, IFMBE, Chania, 2008.

Journal Papers

1. M. E. Blazadonakis and M.Zervakis, "The Linear Neuron as Marker Selector and Clinical Predictor". *Computer Methods and Programs in Biomedicine*, Elsevier, Vol 91/1 (2008) pp 22-35
2. M. E. Blazadonakis and M.Zervakis, "Wrapper Filtering Criteria via Linear Neuron and Kernel Approaches". *Computers in Biology and Medicine*, Elsevier, Vol38/8 (2008) pp. 894-912.
3. P. Kapsalas, P. Maravelaki-Kalaitzaki, M. Zervakis, E. T. Delegou, A. Moropoulou, "[A morphological fusion algorithm for optical detection and quantification of decay patterns on stone surfaces](#)", *Construction and Building Materials*, Volume 22, Issue 3, March 2008, Pages 228-238.
4. V. Sakkalis, T. Cassar, M. Zervakis, K.P. Camilleri, S.G. Fabri, C. Bigan, E. Karakonstantaki and S. Micheloyannis, "Time-Frequency Analysis and Modelling of EEGs for the evaluation of EEG activity in Young Children with controlled epilepsy", *Computational Intelligence & Neuroscience CIN* (in press, DOI:10.1155/CIN).
5. V. Sakkalis, C.D. Giurcăneanu, P. Xanthopoulos, M. Zervakis, V. Tsiaras, Y. Yang, and S. Micheloyannis, "Assessment of linear and nonlinear synchronization measures for analyzing EEG in a mild epileptic paradigm", *IEEE Trans. Inf. Tech.* (in press, available online: DOI: 10.1109/TITB.2008.923141).
6. R. Grech, T. Cassar, J. Muscat, K.P. Camilleri, S.G. Fabri, M. Zervakis, P. Xanthopoulos, V. Sakkalis and B. Vanrumste, "Review on solving the inverse problem in EEG source analysis", *Journal of Neuroengineering and Rehabilitation* (accepted, to appear).

7. S. K. Goumas, I. N. Dimou, M. E. Zervakis, “Combination of Multiple Classifiers for Post Placement Quality Inspection of Components: A Comparative Study”, *Journal of Information Fusion*, Elsevier (accepted, to appear).

Book Chapters

1. Ioannis Barbounakis, Michael Zervakis, "GRIDS in community settings", a book chapter in *Communities, new media and social practices*, IGI Global Inc. D. Akoumianakis (Editor), expected in 2009.
2. V. Sakkalis and M. Zervakis, "Methodological Framework for EEG Feature Selection based on spectral and temporal profiles", a book chapter in *Optimization and Its Applications* series, Springer New York/Vienna, expected in 2008.
3. Manikis C. G., Kounelakis G. M., Zervakis E. M., Starita A., “Pattern Recognition Methods for Acute Myeloid Leukemia (AML) Induction- Treatment Analysis”, a book chapter in *Computational Intelligence and Bioengineering*, IOS Press, expected in 2009

Submitted Papers- Under Review

1. V. Sakkalis, T. Cassar, M. Zervakis, C. D. Giurcăneanu, C. Bigan, S. Micheloyannis, K. P. Camilleri, S. G. Fabri, V. Tsiaras, E. Karakonstantaki and K. Michalopoulos, "A Decision Support Framework for the Diagnosis of Children with Mild Epilepsy based on EEG Analysis", *Int. J. Biomed. Eng. Tech. IJBET* (under 2nd review).
2. S. Sfakianakis, M. Blazantonakis, I. Dimou, M. Zervakis, M. Tsiknakis, G. Potamias, D. Kafetzopoulos and D. Lowe, "Decision Support Based on Genomics: Integration of Data and Knowledge Driven Reasoning", *Int. J. Biomed. Eng. Tech. IJBET* (under 2nd review).
3. M. Zervakis, M. E. Blazadonakis, Vasiliki Danilatou, Georgia Tsiliki, Manolis Tsiknakis, Dimitris Kafetzopoulos, “Outcome Prediction Based on Microarray Analysis: A Critical Perspective on Methods”, submitted for publication in *BMC-Bioinformatics*, under major revision.
4. Dimou, B. Van Calster, S. Van Huffel, D. Timmerman, M. Zervakis, “Evaluation of Imputation Methods In Ovarian Tumor Diagnostic Models Using Generalized Linear Models and Support Vector Machines”, *Intl. Journal of Medical Decision Making*, (provisional acceptance).
5. Ardoino I., Ambrogi F., Iacobelli S., Boracchi P., Manikis G., Kounelakis M., Zervakis M., Lisboa P. J. G., Vignetti M., Starita A. and Biganzoli E., “Evaluation of Short and Long Term Response to Treatment in GIMEMA Protocol for Acute Myeloid Leukemia”, *IJTM*, submitted Aug. 2008, under review
6. Ioannis Barbounakis, Nicola Pavlov, Michael Zervakis, and Demosthenes Akoumianakis, “Maximizing GridFTP Throughput through Mathematical & Statistical Modeling”, submitted for publication in *Future Generation Computer Systems*, Elsevier, under revision.

- Patents: none

C – Awards & Distinctions

D – Funded Projects

2004-2008	<i>Principal investigator for TUC</i> , 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
2006-2008	Getting Cretan Businesses On-Line and Doing E-Business (eKONES) <i>Principal investigator for TUC</i> Funding Agency: Ministry of Development, General Secretariat for Research and Technology. TUC budget 30.000 Euro
2006-2008	Meta-Genomic Methods and Technologies for Diagnosis and Therapy Selection: Analysis of Genotype and Molecular Markers (GONOTYPOS) <i>Principal investigator for TUC</i> Funding Agency: Ministry of Development, General Secretariat for Research and Technology. Total budget 871.000 euros, TUC budget 100.000 Euro
2006-2008	Integrated Inspection System supported by Automated Motion Detection <i>Co-Principal investigator for TUC</i> , (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
2006-2008	2006 District Technology Platform for Wideband Health Services <i>Principal investigator for TUC</i> Funding Agency: District of Crete under the Programme “Poles of Innovation”

- Project proposals submitted:
 - During the 3rd Call of ICT participated in the submission of three STREPs

E – Professional service

- Associate Editor duties
- Society Technical Committee duties

- Session Chair CIMED-07
- Session Chair: 8th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2008).
- Conference Technical Program Committee service
 - Programme Committee Member: CIMED-07 (European Symposium on Artificial Neural networks).
 - Co-Organizer: 6th European Symposium on Biomedical Engineering, IFMBE, Chania, 2008
- Conference Organization (specify role)
- 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.
- Participation in National Committees (e.g., EΔET)
- Other
 - External reviewer for one PhD thesis from University of Ioannina

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
 - Stefanos Goumas, PhD, Dept. ECE, TUC, June 2008.
 - Michalis Blazantonakis, PhD, Dept. ECE, TUC, June 2008.
- Active graduate students supervised
 - Ioannis Dimou PhD student
 - Michalis Kounelakis, PhD student
 - George Manikis MSc student (completed degree)
 - Kostantina Moirogiorgou MSc student
 - George Livanos MSc student
 - Kostas Michalopoulos MSc student
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)

- Over 10
- Diploma theses completed (supervisor):
 - I don't remember
- Diploma theses in progress (committee member):
 - I don't remember
- Diploma theses completed (committee member)
 - I don't remember



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept. 1, 2007 to Aug. 31, 2008

Name: *George Karystinos*

Rank: Assistant Professor

Years in rank: 2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 201 – Signals and Systems (Fall 2007)
 - TEL 412 – Information Theory and Coding (Spring 2008)
- Graduate courses taught
 - TEL 601 – Probability and Random Processes (Fall 2007)
- Labs taught
 - TEL 201 – Signals and Systems Lab (Fall 2007)
 - TEL 412 – Information Theory and Coding Lab (Spring 2008)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - TEL 201 – Signals and Systems (Fall 2007)
 - TEL 412 – Information Theory and Coding (Spring 2008)
 - TEL 601 – Probability and Random Processes (Fall 2007)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - **G. N. Karystinos** and A. P. Liavas, “Efficient computation of the binary vector that maximizes a rank-deficient quadratic form,” *IEEE Transactions on Information Theory*, submitted June 2008.
 - Accepted
 - Published
 - **G. N. Karystinos** and D. A. Pados, “Rank-2-optimal adaptive design of binary spreading codes,” *IEEE Transactions on Information Theory*, vol. 53, pp. 3075-3080, Sept. 2007.
- Publications in refereed conferences
 - Submitted: those accepted or published (see below)
 - Accepted: those published (see below), plus
 - D. S. Papailiopoulos and **G. N. Karystinos**, “Efficient maximum-likelihood noncoherent orthogonal STBC detection,” to appear in *Proc. 2008 Allerton Conference on Communication, Control, and Computing*, Allerton House, Monticello, IL, Sept. 2008, accepted Aug. 2008.
 - M. Gkizeli and **G. N. Karystinos**, “Noncoherent detection in amplify-and-forward relay systems,” to appear in *Proc. IEEE GLOBECOM 2008*, Comm. Theory Symp., New Orleans, LA, Dec. 2008, accepted June 2008.
 - Published
 - D. S. Papailiopoulos and **G. N. Karystinos**, “Near ML detection of nonlinearly distorted OFDM signals,” in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2007, pp. 1756-1760.
 - D. A. Pados, **G. N. Karystinos**, S. N. Batalama, and J. D. Matyjas, “Auxiliary-vector RADAR on MCARM data,” (invited paper) in *Proc. 2007 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2007, pp. 2028-2032.
 - D. S. Papailiopoulos and **G. N. Karystinos**, “Efficient computation of the M-phase vector that maximizes a rank-deficient quadratic form,” in *Proc. 2008 Conf. on Inform. Sc. and Syst. (CISS 2008)*, Princeton University, Princeton, NJ, Mar. 2008, pp. 1086-1090.
 - D. S. Papailiopoulos and **G. N. Karystinos**, “Polynomial-complexity maximum-likelihood block noncoherent MPSK detection,” in *Proc. IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc.*, Las Vegas, NV, Apr. 2008, pp. 2681-2684.
 - **G. N. Karystinos** and A. P. Liavas, “Outage capacity of a cooperative scheme with binary input and a simple relay,” in *Proc.*

IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc., Las Vegas, NV, Apr. 2008, pp. 3221-3224.

- **G. N. Karystinos** and A. P. Liavas, “Efficient computation of the binary vector that maximizes a rank-deficient quadratic form,” in *Proc. IEEE ICASSP 2008 - Intern. Conf. Acoust., Speech and Signal Proc.*, Las Vegas, NV, Apr. 2008, pp. 3577-3580.
- A. P. Liavas and **G. N. Karystinos**, “Outage capacity of a noncoherent cooperative scheme with binary input and a simple relay,” in *Proc. IEEE ISWPC 2008 - Intern. Symp. Wireless Pervasive Computing*, Santorini, Greece, May 2008, pp. 661-664.
- **G. N. Karystinos**, D. A. Pados, S. N. Batalama, and J. D. Matyjas, “Auxiliary-vector detection on measured radar data,” in *Proc. 2008 IEEE Radar Conference*, Rome, Italy, May 2008, pp. 1134-1138.
- **G. N. Karystinos** and A. P. Liavas, “Quadratic form maximization over the binary field with polynomial complexity,” in *Proc. IEEE ISIT 2008 - Intern. Symp. Inform. Theory*, Toronto, ON, July 2008, pp. 2449-2453.

- 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
- Conference Organization (specify role)

- Reviewing activities
 - Reviewer for journals
 - *IEEE Trans. on Information Theory*
 - *IEEE Trans. on Communications*
 - *IEEE Trans. on Wireless Communications*
 - *IEEE Trans. on Signal Processing*
 - *IEEE Transactions on Vehicular Technology*
 - *IEEE Signal Processing Letters*
 - *Wireless Communications and Mobile Computing*
 - Reviewer for conferences
 - *IEEE GLOBECOM 2008 - Global Communications Conference*
 - *IEEE ICC 2008 - International Conference on Communications*
 - *IEEE VTC 2008 (Spring) – Vehicular Technology Conference*

F – Service to the Department and the School

- Departmental responsibilities
 - Organized the 2007-2008 Telecommunications Division Seminar Series, Department of Electronic and Computer engineering, Technical University of Crete.
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Dimitris Papailiopoulos, “Maximum-likelihood noncoherent orthogonal STBC detection is polynomially solvable.”
 - Georgina Abou-Elkheir, “Finite-feedback beamforming under uniform transmit antenna power requirements with polynomial complexity.”
 - Stamatis Andrianakis, “Software-defined-radio implementation of signal design and processing techniques in wireless systems.”
- Undergraduate students supervised
 - Diploma theses completed (supervisor)
 - Dimitris Papailiopoulos, “Efficient maximum-likelihood block noncoherent MPSK detection in SIMO wireless systems.”



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Athanasios P. Liavas

Rank: Associate Professor

Years in rank: 4+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 2007)
 - TEL 311 – Telecommunication Systems II (Spring 2008)
- Graduate courses taught
 - TEL 609 – Information Theory (Fall 2007)
 - TEL 610 - Special Topics in Data Networks (Wireless and multiuser wireless systems) (Spring 2008)
- Labs taught
 - TEL 311 – Telecommunication Systems II Lab (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Operation and code development for wireless software defined radio platform USRP
 - Lecture notes / slides developed
 - Wireless Communications (in Greek)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - G. N. Karystinos and **A. P. Liavas**, “Efficient computation of a binary vector that maximizes a rank-deficient quadratic form,” submitted to *IEEE Transactions on Information Theory*, July 2008.
 - Accepted
 - Published
 - D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the transmit Wiener filter with respect to channel and noise second-order statistics inaccuracies,” *IEEE Transactions on Signal Processing*, vol. 56, no. 2, pp. 832-838, February 2008.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Accepted: those published (see below), plus
 - Published
 - G. N. Karystinos and **A. P. Liavas**, “Efficient computation of the binary vector that maximizes a rank-deficient quadratic form,” *IEEE ICASSP 2008*.
 - G. N. Karystinos and **A. P. Liavas**, “Outage capacity of a cooperative scheme with binary input and a simple relay,” *IEEE ICASSP 2008*.
 - **A. P. Liavas** and G. N. Karystinos, “Outage capacity of a noncoherent cooperative scheme with binary input and a simple relay,” *International Symposium on Wireless Pervasive Computing, ISWPC 2008*.
 - G. N. Karystinos and **A. P. Liavas**, “Quadratic form maximization over the binary field with polynomial complexity,” *International Symposium on Information Theory, ISIT 2008*.
 - H. Sneesens, L. Vandendorpe, G.N. Karystinos and **A. P. Liavas**, “On cooperative protocols with binary input,” *ICT Mobile Summit 2008*.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

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

- TUC 2-year research project: “Dynamic spectrum allocation” (with Emmanouil Matigakis)
- Project proposals submitted:
 - FET-Open short proposal COOPWIN: “*Cognition and Cooperation in Wireless Networks*,” Proposal Coordinator, Sept. 2009.

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing*
- Society Technical Committee duties
 - Member, *Signal Processing for Communications and Networking Technical Committee (IEEE SPCOM TC)*, *IEEE Signal Processing Society*.
- Conference Technical Program Committee service
 - *SPAWC 2008*
- Conference Organization
 - *ISWPC 2008* (Special session organizer: “Cooperative and opportunistic communications”).
- Reviewing activities
 - Reviewer for *IEEE Trans. on Signal Processing*, *IEEE Trans. on Wireless Communications*, *IEEE Journal on Selected Areas in Communications*.

F – Service to the Department and the School

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

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Despoina Tsiouridou (PhD), Year of initial enrollment in PhD program: 2006.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Aleksandros Balatsoukas
 - Despoina Georgiadou
 - Diploma theses completed (supervisor)
 - Emmanouil Matigakis
 - Ioannis Kardaras



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2007 to August 31, 2008

Name: Michael Paterakis

Rank: Professor

Years in rank: 9

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

T. Chiras, P. Koutsakis and M. Paterakis, “On Providing Efficient Medium Access Control for Broadband Powerline Communication Networks”, submitted to the Computer Communications Journal (Elsevier Publ.).

- Accepted

T. Drivas, P. Koutsakis and M. Paterakis, “Performance Evaluation of the Enhanced MI-MAC Protocol for Multimedia Integration over Wireless Cellular Networks”, accepted for publication in the Wireless Personal Communications Journal (Springer Publ.).

- Published
 - 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, Vol. 7, No.1, pp. 95 – 112, January 2008.
 - A. Lazaris, P. Koutsakis and M. Paterakis, “A New Model for Video Traffic Originating from Multiplexed MPEG-4 Videoconference Streams”, Performance Evaluation Journal, Vol. 65, No. 1, 2008, pp. 51-70.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published

S. Chatziperis, P. Koutsakis and M. Paterakis, “Highly Efficient Call Admission Control for Wireless Multimedia Traffic”, in Proc. of the 7th International Conference on Networking (ICN) 2008, Cancun, Mexico, April 2008.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Technical Consultant 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 are built in six municipalities). Funded for the period 1/10/2004 – 31/12/2008, by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 450K €.
 -

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
- School-level responsibilities
 - September 2005 – August 2012. Vice-Rector of Academic Affairs and Personnel, Technical University of Crete.
 - Associate Chairman of the Board, Company for the Management and Exploitation of the Property and for the Development, Management and Exploitation of the Technology Park of the Technical University of Crete.
 - Member of the 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

Aggelos Lazaris, M.Sc., ECE Dept., Tech. Univ. of Crete, Completion Time: Fall 2008, co-supervision with Assistant Prof. P. Koutsakis, ECE Dept. McMasters Univ, Canada.
M.Sc. Thesis: Modeling and Call Admission Control for Wireless Videoconference Traffic.
 - M.Sc. students supervised
 - Sotiris Bouros.
 - Moisis Vafiadis, co-supervision with Assistant Prof. P. Koutsakis.
- Undergraduate students supervised



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Alexandros Potamianos*

Rank: Associate Professor

Years in rank: 5+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
 - Updated presentations for TEL 411
 - Created presentations for TEL 611

B – Publications

- Publications in refereed journals
 - Submitted
 - M. Perakakis and **A. Potamianos**, " Synergy and Modality Efficiency in Multimodal Dialogue Systems ," *IEEE Transactions on Audio, Speech and Language Processing*, submitted, 2008.

- E. Sanchez-Soto, **A. Potamianos**, and K. Daoudi, " Unsupervised stream weight computation in classification and detection tasks," *IEEE Transactions on Audio, Speech and Language Processing*, submitted, 2008.
 - D. Nion, N. Sidiropoulos, and **A. Potamianos**, "Batch and Adaptive PARAFAC-Based Blind Separation of Convolutional Speech Mixtures", *IEEE Transactions on Audio, Speech and Language Processing*, submitted, 2008.
 - D. Dimitriadis, **A. Potamianos**, and P. Maragos, "A Comparison of the Quadrature and Teager-Kaiser Operators for Short-Time Energy Estimation in Noise", *IEEE Transactions on Signal Processing*, submitted, 2008.
 - Accepted
 - Published
 - 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*, July 2008.
- Publications in refereed conferences
 - Submitted/Accepted/Published
 - K. Mokios, **A. Potamianos**, and N. Sidiropoulos, "On the Effectiveness of PARAFAC-Based Estimation in Blind Speech Separation", in Proc. *Intl. Conf. on Acoustics, Speech and Signal Processing (ICASSP-2008)*, Las Vegas, Nevada, Apr. 2008.
 - M. Maragakis and **A. Potamianos**, "Region-Based Vocal Tract Length Normalization for ASR", in Proc. *Interspeech*, Brisbane, Australia, Sept. 2008.
 - A. Tegos, V. Karkaletsis, and **A. Potamianos**, "Learning of Semantic Relations Between Ontology Concepts Using Statistical Techniques", in Proc. *HLIE Workshop*, Antwerp, Belgium, Sept. 2008.
 - G. Evangelopoulos, K. Rapantzikos, **A. Potamianos**, P. Maragos, A. Zlatintsi and Y. Avrithis, "Movie Summarization Based On Audio-Visual Saliency Detection", in Proc. *Int'l Conference on Image Processing (ICIP-2008)*, San Diego, California, Oct. 2008.
 - M. Perakakis and **A. Potamianos**, " Multimodal System Evaluation using Modality Efficiency and Synergy Metrics", in Proc. *Int'l Conf. on Multimodal Interfaces (ICMI-2008)*, Chania, Greece, Oct. 2008.
 - V. Farantouri, **A. Potamianos**, and S. Narayanan, "Linguistic Analysis of Spontaneous Children Speech", in Proc. *Workshop of Child, Computer and Interaction (WOCCI-2008)*, Chania, Greece, Oct. 2008.
- Books

- P. Maragos, **A. Potamianos** and P. Gros (eds), *Multimodal Processing and Interaction: Audio, Video, Text*, Springer-Verlag, 2008.
- Edited book chapters
 - **A. Potamianos** and M. Perakakis, " Human-Computer Interfaces to Multimedia Content: A Review ," in *Multimodal Processing and Interaction: Audio, Video, Text*, Springer-Verlag, 2008.
 - **A. Potamianos** and M. Perakakis, " Design Principles for Multimodal Spoken Dialogue Systems ," in *Multimodal Processing and Interaction: Audio, Video, Text*, Springer-Verlag, 2008.
 - G. Evangelopoulos, K. Rapatzikos, P. Maragos, Y. Avrithis, **A. Potamianos**, "Audiovisual Attention Modeling and Salient Event Detection", in *Multimodal Processing and Interaction: Audio, Video, Text*, Springer-Verlag, 2008.
- 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 €.
 - 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: 120K €.
- Current projects (collaborator):
 - PENED: Multimodal platforms for mobile devices, GRST, PI: V. Digalakis
- Project proposals submitted:
 - ME-KNOW, "Content Creation for Children", EU-IST FP7
 - C-MUSCLE, "Cognitive Multimedia Understanding", EU-IST FP7

E – Professional service

- Conference Reviewer Committee
 - ICASSP 2008
- Conference Organization
 - General Co-Chair for ACM *ICMI 2008* conference
 - General Co-Chair for *WOCCI 2008* workshop
- 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

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-
 - Ioannis Klasinas (Ph.D.) (co-supervised with Dr. Daoudi), IRIT-France, 2008-
 - Thanasis Tegos, (M. Sc.) (co-supervised with Dr. Karkaletsis, Demokritos Research Center), 2005-
 - Theofanis Kanetis (M.Sc.), 2006-
 - Spyros Dimopoulos (M.Sc.), 2007-
 - Anthi Markaki (M.Sc.), 2008-
 - M.Sc. degrees awarded
 - Michalis Toutoudakis (M. Sc. degree awarded), 2007.
 - Ioannis Klasinas (M. Sc. degree awarded) 2008.
 - Michail Maragkakis (M. Sc. degree awarded) 2008.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Vasso Farantouri
 - Alkis Bakaros
 - Georgia Tsakogianni
 - Theodosios Moschopoulos

- Nikos Georgantonis
- Isidoros Rodomagoulakis
- Spyros Meliopoulos
- Vaios Bakirtzoglou
- Vasiliki Kouloumenta
- Giorgos Skoumas
- Afroditi Maragouli
- Diploma theses completed (supervisor)
 - Spyros Dimopoulos
 - Nikos Malandrakis
 - Anthi Markaki



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: Nikos Sidiropoulos

Rank: Professor

Years in rank: 6+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 2007)
 - TEL 502 – Statistical Signal Processing for Communications (Spring 2008)
- Graduate courses taught
 - TEL 60x – Convex Optimization (Spring 2008)
- Labs taught
 - TEL 301 – Telecommunication Systems I Lab (Fall 2007)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted

- V. Ntranos, **N.D. Sidiropoulos**, L. Tassiulas, ``On Multicast Beamforming for Minimum Outage'', submitted to *IEEE Trans. on Wireless Communications*, June 27, 2008.
- D. Nion, K. Mokios, **N.D. Sidiropoulos**, A. Potamianos, ``Batch and Adaptive PARAFAC-Based Blind Separation of Convolutional Speech Mixtures'', submitted to *IEEE Trans. on Audio, Speech and Language Processing*, June 24, 2008.
- E. Matskani, **N.D. Sidiropoulos**, Z.-Q. Luo, L. Tassiulas, ``Efficient Batch and Adaptive Approximation Algorithms for Joint Multicast Beamforming and Admission Control'', submitted to *IEEE Trans. on Signal Processing*, June 27, 2008.
- K.T. Phan, S.A. Vorobyov, **N.D. Sidiropoulos**, and C. Tellambura, ``Spectrum Sharing in Wireless Networks via QoS-Aware Secondary Multicast Beamforming'', submitted to *IEEE Trans. on Signal Processing*, May 14, 2008.
- E. Sayag, A. Leshem, **N.D. Sidiropoulos**, ``Finite Word Length Effects on Transmission Rate in Zero Forcing Linear Precoding for Multichannel DSL'', submitted to *IEEE Trans. on Signal Processing*, Nov. 27, 2007, accepted.

○ Accepted

- E. Sayag, A. Leshem, **N.D. Sidiropoulos**, ``Finite Word Length Effects on Transmission Rate in Zero Forcing Linear Precoding for Multichannel DSL'', *IEEE Trans. on Signal Processing*, to appear.
- E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, ``Optimal Particle Filters for Tracking a Time-Varying Harmonic or Chirp Signal'', *IEEE Trans. on Signal Processing*, to appear.
- A. Ribeiro, **N.D. Sidiropoulos**, G.B. Giannakis, ``Optimal Distributed Stochastic Routing Algorithms for Wireless Multihop Networks'', *IEEE Trans. on Wireless Communications*, to appear.

○ Published

- 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*, 7(7):2682-2693, July 2008.
- 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*, 56(3):1268-1279, Mar. 2008.
- E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. Luo, ``Far-field Multicast Beamforming for Uniform Linear Antenna Arrays'', *IEEE Trans. on Signal Processing*, 55(10):4916-4927, Oct. 2007.
- G. Latsoudas, **N.D. Sidiropoulos**, ``A Fast and Effective Multidimensional Scaling Approach for Node Localization in

Wireless Sensor Networks'', *IEEE Trans. on Signal Processing*, 55(10): 5121 – 5127, Oct. 2007.

- Publications in refereed conferences
 - Submitted: same as published (see below), except for the two CAMSAP 2007 papers, which were submitted in the previous reporting period.
 - Accepted: same as published (see below)
 - Published
 - I. Mitliagkas, **N.D. Sidiropoulos**, and A. Swami, "Convex Approximation-based Joint Power and Admission Control for Cognitive Underlay Networks", in *Proc. IEEE IWCMC 2008*, Limin Hersonissou, Crete, Greece, August 6-8, 2008.
 - E. Karipidis, **N.D. Sidiropoulos**, and L. Tassiulas, "Joint QoS Multicast Power / Admission Control and Base Station Assignment: A Geometric Programming Approach", in *Proc. IEEE SAM 2008*, July 21-23, 2008, Darmstadt, Germany.
 - K.T. Phan, S.A. Vorobyov, **N.D. Sidiropoulos**, and C. Tellambura, "Spectrum Sharing in Wireless Networks: A QoS-Aware Secondary Multicast Approach with Worst User Performance Optimization", in *Proc. IEEE SAM 2008*, July 21-23, 2008, Darmstadt, Germany.
 - E. Manskani, **N.D. Sidiropoulos**, and L. Tassiulas, "On Multicast Beamforming and Admission Control for UMTS-LTE", in *Proc. IEEE ICASSP 2008*, Mar. 30 - Apr. 4, 2008, Las Vegas, Nevada.
 - A. Leshem, E. Sayag, **N.D. Sidiropoulos**, "Fixed Point Error Analysis of Linear Multichannel Precoding for VDSL", in *Proc. IEEE ICASSP 2008*, Mar. 30 - Apr. 4, 2008, Las Vegas, Nevada.
 - K. Mokios, A. Potamianos, **N.D. Sidiropoulos**, "On the effectiveness of PARAFAC- based estimation in blind speech separation", in *Proc. IEEE ICASSP 2008*, Mar. 30 - Apr. 4, 2008, Las Vegas, Nevada.
 - E. Manskani, **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.
 - 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.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

- Awarded *IEEE Signal Processing Society 2007 best paper award*, for the paper “On Downlink Beamforming with Greedy User Selection: Performance Analysis and a Simple New Algorithm”, by G. Dimic, and N.D. Sidiropoulos, published in IEEE Trans. on Signal Processing, Oct. 2005.
- *Distinguished Lecturer* of the IEEE Signal Processing Society for 2008-2009.
- Appointed member of the Greek National Research and Technology Council (ΕΣΕΤ), 2008-

D – Funded Projects

- Current projects:
 - Joint Transceiver Optimization and Scheduling / Admission Control in Wireless Networks, ERO, PI: N.D. Sidiropoulos. Period: Sep. 2006 – Mar. 2008 (extended). 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 (ended). 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 €.
 - Participant in FP6 projects COOPCOM (PI: A. Liavas); WIP (PI: L. Tassioulas)

E – Professional service

- 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 2008
 - IEEE SPAWC 2008
 - 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 Communications*, *IEEE Trans. on Wireless Communications*.

F – Service to the Department and the School

- Departmental responsibilities
 - 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.
 - Dimitris Evaggelinakis (M.Sc.). Year of initial enrollment in program: 2007.
 - PhD. And M.Sc. degrees awarded
 - Eleftherios Karipidis (Ph.D). Year of initial enrollment in Ph.D. program: 2004. Since Oct 1, 2008, a post-doctoral researcher with Prof. Erik Larsson, Linköping University, Sweden.
 - Alexandros Valyrakis (M.Sc.). Year of initial enrollment in program: 2004.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - V. Ntranos, “Multicast beamforming for minimum outage”.
 - Ioannis Mitliagas, “Joint Admission and Power Control in Wireless Networks”.
 - 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”.
- Diploma theses completed (supervisor)
 - Ioannis Mitliagas, “Joint Admission and Power Control in Wireless Networks”.
 - 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”.

Computer Engineering Division

Faculty members:

- Antonis Deligianakis, Assistant Professor
- 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: 16/04/2008 to 31/08/2008

Name: *Antonios Deligiannakis*

Rank: Assistant Professor

Years in rank: 1

Full-time or part-time: Full-time

Division: Computer Science

Lab affiliation: Software Technology and Network Applications
Laboratory

A – Teaching

- Undergraduate courses taught
 - COMP 111: “Structured Programming”
 - K23: “System Programming” (University of Athens – Department of Informatics & Telecommunications)
- Graduate courses taught
 - NONE
- Labs taught
 - NONE
- Curriculum & course development
 - Developed course COMP 506: “Data Management and Processing in Sensor Networks”
 - Developed slides for the courses COMP 111: “Structured Programming” and Comp 506: “Data Management and Processing in Sensor Networks”

B – Publications

- Publications in refereed journals
 - Dimitris Sacharidis, Antonios Deligiannakis and Timos Sellis. Hierarchically Compressed Wavelet Synopses. Accepted for publication at the VLDB Journal (available online at: <http://www.springerlink.com/content/b45211151j0u7117/>)
 - A. Deligiannakis, Y. Kotidis, N. Roussopoulos. Bandwidth Constrained Queries in Sensor Networks. The VLDB Journal, Volume 17(3), pages 443-467, May 2008.
- Publications in refereed conferences
 - Antonios Deligiannakis, Yannis Kotidis, Vasilis Vassalos, Vassilis Stoumpos and Alex Delis. “Another Outlier Bites the Dust: Computing Meaningful Aggregates in Sensor Networks”. Accepted for publication at the International Conference on Data Engineering (ICDE), to take place March 29-April 4, 2009 at Shanghai, China.
 - Mihaela Bornea, Vasilis Vassalos, Yannis Kotidis and Antonios Deligiannakis. “Double Index Nested-loop Reactive Join for Result Rate Optimization”. Accepted for publication at the International Conference on Data Engineering (ICDE), to take place March 29-April 4, 2009 at Shanghai, China.
 - A. Deligiannakis, V. Stoumpos, Y. Kotidis, V. Vassalos, A. Delis. Outlier-Aware Data Aggregation in Sensor Networks. In Proc. of the 24th International Conference on Data Engineering (ICDE) 2008 (3 page poster paper).
 - V. Stoumpos, A. Deligiannakis, Y. Kotidis, A. Delis. Processing Event-Monitoring Queries in Sensor Networks. In Proc. of the 24th International Conference on Data Engineering (ICDE) 2008 (3 page poster paper).
- Books and edited book chapters
 - A. Deligiannakis, Y. Kotidis. Exploiting Spatio-Temporal Correlations for Data Processing in Sensor Networks. *Advances in Geosensor Networks*, pages 45-65, ISBN 978-3-540-79995-5, August 2008.

C – Awards & Distinctions

D – Funded Projects

E – Professional service

- Member of PC Committee of ACM International Workshop on Data Warehousing and OLAP (DOLAP), IEEE ICDE 2009 Demo Program.

- Reviewer for IEEE TKDE, ACM TODS, IEEE Transactions on Parallel and Distributed Systems, Distributed Computing

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Researcher Fellow at the Digital Curation Unit, Athena Research Center

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Co-supervisor of Vassilis Stoumpos, 2003, University of Athens
- Undergraduate students supervised



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: Michail G. Lagoudakis

Rank: Assistant Professor

Years in rank: 3

Full-time or part-time: Full-time

Division: Computer Science

Lab affiliation: Intelligent Systems Laboratory

A – Teaching

- Undergraduate courses taught
 - COMP 401 – Theory of Computation (Fall 2007)
 - COMP 405 – Artificial Intelligence (Fall 2007)
 - COMP 503 – Autonomous Agents (Spring 2008)
- Graduate courses taught
 - COMP 625 – Autonomous Agents/Computational Perception (Spring 2008)
co-taught with Euripides Petrakis
- Labs taught
 - COMP 503 – Autonomous Agents Laboratory (Spring 2008)
- Curriculum & course development
 - New courses / labs developed
 - Laboratory exercises for Autonomous Agents (undergraduate)
 - Lecture notes / slides developed
 - Updated lecture slides for Theory of Computation
 - Updated lecture slides for Artificial Intelligence
 - Updated lecture slides for Autonomous Agents (undergraduate)
 - Lecture slides for Autonomous Agents (graduate level)

B – Publications

- Publications in refereed journals
 - Published
 - 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”, *International Journal of Artificial Intelligence in Medicine (AIIM)*, 42, 2008, pp. 247-259.
 - Christos Dimitrakakis and **Michail G. Lagoudakis**, “Rollout Sampling Approximate Policy Iteration” *Machine Learning*, 72 (3), 2008, pp. 157-171.
- Publications in refereed conferences
 - Accepted
 - Souzana Volioti and **Michail G. Lagoudakis**: Histogram-Based Visual Object Recognition for the 2007 Four-Legged RoboCup League, to appear in the Proceedings of the 5th Hellenic Conference on Artificial Intelligence (SETN08), Syros, Greece, October 2008, pp. 313-326.
 - Alejandro Mosteo, Luis Montano, and **Michail G. Lagoudakis**: Guaranteed-Performance Multi-Robot Routing under Limited Communication Range, to appear in the Proceedings of the 9th International Symposium on Distributed Autonomous Robotic Systems 2008 (DARS2008), Tsukuba, Ibaraki, Japan, November 2008.
 - Ioannis Rexakis and **Michail G. Lagoudakis**: Classifier-Based Policy Representation, to appear in the Proceedings of the 2008 International Conference on Machine Learning and Applications (ICMLA'08), San Diego, CA, USA, December 2008.
 - Published
 - Georgios Kontes and **Michail G. Lagoudakis**, “Coordinated Team Play in the RoboCup Four-Legged League”, *Proceedings of the 19th IEEE International Conference on Tools with Artificial Intelligence (ICTAI-07)*, Patras, Greece, October 2007, pp. 109-116.
 - Konstantinos Karakasiliotis, Leonidas Kagkarakis, and **Michail G. Lagoudakis**, “Chlorochlamys Loop-like Locomotion: Combining Crawling and Climbing Robotics”, *Proceedings of the IEEE International Conference on Robotics and Biomimetics (RoBio 2007)*, Sanya, China, December 2007, pp. 978-983.
 - Alejandro Mosteo, Luis Montano, and **Michail G. Lagoudakis**: Multi-Robot Routing under Limited Communication Range, *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA 2008)*, San Francisco, May 2008, pp. 1531-1536.

- Eleni Mylona, Zoi Dailiana, Xavier Trepas, and **Michail G. Lagoudakis**: Substrate Rigidity Dictates Phenotype, Survival, and Mechanics of Primary Human Osteosarcoma Cells, *Proceedings of the 6th European Symposium on Biomedical Engineering (ESBME 2008)*, Chania, Greece, June 2008.
- Christos Dimitrakakis and **Michail G. Lagoudakis**: Algorithms and Bounds for Rollout Sampling Approximate Policy Iteration, *Proceedings of the 8th European Symposium on Reinforcement Learning (EWRL'08)*, Lille, France, June 2008.

C – Awards & Distinctions

- RoboCup 2008 Competition in Suzhou, China:
 - Team Kouretes ranked 3rd in the Nao Standard Platform League
 - Team Kouretes ranked 1st in the Nao MSRS Simulation League
 - Team Kouretes one of the top 8 teams in the Nao Webots Simulation League
- IEEE Robotics and Automation Society
 - Member of the Technical Committee on Robot Learning

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, Total/PI’s Budget: 80,000 €.
 - “Experimental Evaluation of Auction-Based Robot Coordination”, *TUC Junior Faculty Grant 226*, PI: M. G. Lagoudakis, Jan. 2007 – Dec. 2007, Total/PI’s Budget: 5,000 €.
- Project proposals submitted
 - Proposal to European Committee for a “Network of Excellence (NOE)”
 - Proposal to European Committee for a “Cooperation in the field of Scientific and Technical Research (COST)”
 - Proposal to the TUC Research Office, Call for basic research grants

E – Professional service

- Conference Technical Program Committee service
 - 23rd AAAI Conference on Artificial Intelligence (AAAI-08)
 - 5th Hellenic Conference on Artificial Intelligence (SETN 08)
 - 25th International Conference on Machine Learning (ICML 2008)
 - 2008 European Workshop on Reinforcement Learning (EWRL'08)
 - Conference on Learning and Intelligent Optimization 2008 (LION 2008)
- Conference Organization (specify role)

- *Session Chair, 2008 European Workshop on Reinforcement Learning (EWRL'08), Lille, France, June 2008*
- Reviewing activities
 - *Automatica*
 - *IEEE International Conference on Robotics and Automation (ICRA-08)*
 - *IEEE Transactions on Systems, Man, and Cybernetics - Part B: Cybernetics*
 - *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*
 - *International Journal on Artificial Intelligence Tools (IJAIT)*
 - *Neural Information Processing Systems 2008 (NIPS-2008)*
 - *Neurocomputing*
 - *23rd AAAI Conference on Artificial Intelligence (AAAI-08)*
 - *5th Hellenic Conference on Artificial Intelligence (SETN 08)*
 - *25th International Conference on Machine Learning (ICML 2008)*
 - *2008 European Workshop on Reinforcement Learning (EWRL'08)*
 - *Conference on Learning and Intelligent Optimization 2008 (LION 2008)*

F – Service to the Department and the School

- Departmental responsibilities
 - Editor of the Undergraduate Program Guide
 - Web mastering and maintenance of www.ece.tuc.gr
 - Faculty search visit coordinator (Computer Science Division)
- School-level responsibilities
 - Member of the University Senate
 - 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
 - Konstantinos Karakasiliotis (M.Sc. program), “Crawling and Climbing Robot Mechanisms”, Enrollment: 2008
 - Ph.D and M.Sc. theses completed (committee member)
 - Chrysa Tsinaraki (Ph.D.), “A Semantic Based Framework for Multimedia Management and Interoperability”, July 2008
 - Rena Peraki (M.Sc.), “Requirements Analysis for Medical Information System Design”, April 2008
 - Ph.D and M.Sc. theses in progress (committee member)
 - Alejandro Mosteo (Ph.D. program), University of Zaragoza, Spain
Visiting student at TUC

- Diomides Katzourakis (M.Sc. Program), “Scaled Testbed for Automotive Experiments: Evaluation of Electronic Stability Control Schemes”
- Undergraduate students
 - Diploma theses completed (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, “Human Face Recognition and Active Tracking with the Four-Legged AIBO Robots”
 - Suzanna Volioti, “Histogram-Based Visual Object Recognition for the 2007 Four-Legged Robocup League”
 - Diploma theses in progress (supervisor)
 - Georgios Pierris, “An Interactive Tool for Designing Complex Robot Motion Patterns”
 - Alexandros Paraschos, “Bipedal Robot Walk using Programmable Central Pattern Generators”
 - Andreas Panakos, “Robust Color Segmentation for RoboCup Images”
 - Dimitrios Katsaitis, “Estimation of 3D Camera Ego-Motion and Depth from Sequences of Images”
 - Emmanouel Vardakis, “Path Planning and Motion Control for a Non-Holonomic Vehicle”
 - Vassileios Vasilikos, “Reinforcement Learning for Recursive Algorithm Selection in Heuristic Search”
 - Vlassis Dimitriades, “Learning to Play Strategic Games”
 - Stylianos Tsigdinos, “Learning to Play Backgammon using Reinforcement Learning”
 - Ioannis Skoulakis, “Learning to Play the Game Neighbors”
 - Konstantinos Haldezos, “Interactive Robot Gaming”
 - Iasonas Pazis, “Learning Continuous-Action Control Policies”
 - Ioannis Vassileiou, “Development of a Calorimeter Application for Mobile Phones”
 - Nikolaos Papoulias, “High-Level Debuggers, Facilities, and Interfaces”
 - Lefteris Tsalas, “GeoRSS Firefox Plugin”
 - Diploma theses completed (committee member)
 - Alexandros Ntousias, “A System for Semantic Interoperability Between Cultural and Multimedia Applications”, May 2008
 - Stergios Taris, “Programming, analysis and simulation of operation of programmable logic controller in the Komotini station of public gas enterprise”, May 2008
 - Savvas Petrou, “Efficient Browsing In Medical Databases”, July 2008
 - Dimitrios Siskos, “Ontology - Based Information Retrieval in Medical Document Collections”, July 2008

- Student team projects
 - Founder and co-leader of the robotic soccer team Kouretes (www.kouretes.gr), the first Greek team participating in the RoboCup competition. Kouretes 2008 consisted of 3 undergraduate ECE students working on their diploma thesis.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Katerina Mania*

Rank: Assistant Professor

Years in rank: 2 years, 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 2008)
 - PLH 101 – Introduction to Computers and Computer Science (C programming)
- Graduate courses taught
 - PLH 612 – Visualization and Virtual Reality (Spring 2008)
- Curriculum & course development
 - New course developed: PLH 612 Visualization and Virtual Reality
 - Lecture notes/slides updated: PLH 101 (C programming).

B – Publications

- Publications in refereed journals
 - Submitted
 - Mourkoussis, N., Rivera, F., Troscianko, T., **Mania, K.**, Hawkes, R., Watten, P. (submitted 2007). Quantifying Fidelity for Virtual

Environment simulations employing memory schema assumptions, submitted to *ACM Transactions on Applied Perception* (MIT Press).

- Mourkoussis, N., Rivera, F., Troscianko, T., Dixon, T., Hawkes, R., **Mania, K.** (submitted 2008). Slant Perception based on Gait in Real and Virtual Environments, submitted to *Human Computer Studies*, Elsevier.
- Mourkoussis, N., Rivera, F., Troscianko, T., Dixon, T., Hawkes, R., **Mania, K.** (submitted 2008). Action-based Slant Perception based on Gait, submitted to *Perception*.
- Sylaiou, S., **Mania, K.**, Karoulis, A., White, M. (revised 2008). Presence-centred Usability Evaluation of a Virtual Museum: Exploring the Relationship between Presence Previous User Experience and Enjoyment, submitted to *Human Computer Studies*, Elsevier.

- Accepted

- **Mania, K.**, Badariah, H., Coxon, M. (to appear 2009). Cognitive Transfer of Training from Immersive Virtual Environments to Reality, accepted for publication, *ACM Transactions on Applied Perception*.

- Publications in refereed conferences

- Submitted

- Accepted: those published (see below), plus

- **Mania, K.**, Mourkoussis, N., Zotos, A. (to appear 2008). Selective Rendering based on Perceptual Importance of Scene Regions. *IEEE conference on Systems, Man and Cybernetics 2008*, Singapore.

- Published

- **Mania, K.**, Reinhard, E. (2008). Perceptually-Motivated Graphics. Half-day tutorial presented at *Eurographics 2008*, Crete, Greece.
- Sifniotis, M., White, M., Watten, P., **Mania, K.** (2007). Influencing factors on the visualization of archaeological uncertainty. In D. Arnold; F. Niccolucci & A. Chalmers, ed., *VAST07: The 8th International Symposium on Virtual Reality, Archaeology and Intelligent Cultural Heritage*, (VAST 2007), Nov. 2007, Brighton, UK, sponsored by Eurographics, pp 79-85.

C – Awards & Distinctions

D – Funded Projects

- Current projects (at the University of Sussex, UK):
 - INTUITION, EU FP6, Network of Excellence on Virtual Reality and Virtual 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 Marie Curie VISUNTY, EU FP7 PERMISSIBLE.

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 2009, sponsored by Eurographics, Canada, May 2009
 - Member of the program committee of the 1st IEEE International Conference in Games and Virtual Worlds for Serious Applications, Coventry, UK, March 2009

- Member of the program committee of the ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2009, Germany, September 2009, Crete, Greece
- Member of the program committee of the ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2008, Germany, August 2008, Los Angeles, USA
- Member of the program committee of the 9th Annual International Workshop on Presence 2008, Italy, October 2008
- 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 2008, Netherlands, July 2008
- Member of the program committee of 12th International conference on Virtual Systems and Multimedia (VSMM) 2008, Cyprus, Oct.2008
- Member of the program committee of the ACM/IEEE conference on Multimodal Interfaces 2008, Crete, October 2008
- Member of the program committee of the Workshop on Hypermedia 3D Internet, France, Oct. 2008
- Conference Organization (specify role)
 - Co-chair of the short papers program: Eurographics 2008, March 2008, Crete, Greece
 - Co-chair of the workshop program, ACM/IEEE conference on Multimodal Interfaces 2008, Crete, Greece
 - General Co-chair of ACM/Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2009, Crete, Greece
- Reviewing activities
 - Reviewer for *Presence, Tele-operators and Virtual Environments, IEEE Transactions on Visualisation and Computer Graphics, IEEE Multimedia, International journal of Human Computer Studies, Winter School of Computer Graphics conference and journal 2008 (WSCG 2008 – sponsored by Eurographics), ACM Siggraph ASIA 2008, IEEE Virtual Reality 2007, etc.*

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 Undergraduate Studies committee of the Dept. of Electronic and Computer Engineering (ECE) since September 2008
 - Regular member of the Graduate Studies committee since September 2007
 - Studies' advisor for the Dept. of Electronic and Computer Engineering

- School-level responsibilities
- Substitute member of the Graduate Studies committee of the Technical University of Crete since September 2007
- Substitute member of the Board of Regents (Siglitos) of the Technical University of Crete since September 2008

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.
 - Andrew Robinson (Ph.D): Year of initial enrollment in Ph.D program: 2003 (continuation in 2008).
 - Graduate students (at the Technical University of Crete)
 - Aleksandros Zotos (M.Sc. candidate, year of enrollment Dec. 2007)
 - Giwrgos Papadakis (M.Sc. candidate, year of enrollment Dec. 2007)
 - Giannis Christodoulou (M.Sc. candidate, year of enrollment Sept. 2008)
- Undergraduate students supervised (in progress)
 - 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)
 - Meletis Stathis (Implementation of a networked 3D game)

In many undergraduate project committees and in a PhD examination committee.



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

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 2007)
 - Data Structures and Algorithms (Autumn 2008)
- Graduate courses taught
 - Multimedia Data Management (Fall 2007)
 - Autonomous Agents (Autumn 2008, with M. Lagoudakis)
- 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
 - N. Hourdakakis, M. Argyriou, E.G.M. Petrakis, E. Milios, "*Hierarchical Clustering and Retrieval in Medical Document Collections using the BIC-Means Method*", July 2008, Submitted to Knowledge and Information Systems Journal
 - A. Hliaoutakis, K. Zervanou, E.G.M. Petrakis, "*The AMTE_x Approach in the Medical Document Indexing and Retrieval Application*", July 2008, Submitted to Data & Knowledge Engineering Journal
 - S. Batsakis, E.G.M. Petrakis, E. Milios, "*Design and Evaluation of Focused Web Crawlers*", May 2008, Data & Knowledge Engineering Journal (under revision)
 - 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), Sept. 2008.
 - Published
- Publications in refereed conferences
 - Submitted:
 - Paraskevi Raftopoulou, Euripides G.M. Petrakis, Christos Tryfonopoulos, "*Rewiring Strategies for Semantic Overlay Networks*", Sept. 2008, Submitted to EDBT'2008 Conf.
 - Accepted:
 - P. Raftopoulou, E. G.M. Petrakis, "*A Measure for Cluster Cohesion in Semantic Overlay Networks*", 6th Workshop on Large-Scale Distributed Systems for Information Retrieval (LSDS-IR'08), Napa Valley, California, October 26-30, 2008
 - P. Raftopoulou, E. G.M. Petrakis, C. Tryfonopoulos and G. Weikum, "*Information Retrieval and Filtering over Self-Organising Digital Libraries*", 12th European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2008), Aarhus, Denmark, September 14 to September 19, 2008.
 - Published
 - E. Drymonas, K. Zervanou, E. G.M. Petrakis, "*The TSRM Approach in the Document Retrieval Application*", 13th International Conference on Applications of Natural Language to Information Systems, June 24-27, 2008, London, UK.
 - P. Raftopoulou, E. G.M. Petrakis, "*iCluster: a Self-Organizing Overlay Network for P2P Information Retrieval*", 30th European Conference on Information Retrieval (ECIR'08), 30th March - 3rd April 2008, Glasgow, Scotland.

- Books and edited book chapters
 - Accepted:
 - Euripides G.M. Petrakis, “*Intelligent Search for Text and Image Information on the Web*”, Cross-Modal Integration/Interaction for Performance Improving in multimedia: State-of-the-Art Review, Petros Maragos (eds), Springer Verlag, 2007
- Patents

C – Awards & Distinctions

- **BEST Student Paper Award:** A. Diplaros, Euripides G.M. Petrakis and E. Milios: "*Shape Matching with Occlusion in Image Databases*", Infotech Oulou Intern. Workshop on Information Retrieval (IR'2001), pp. 142-150, September 19-21, 2001, Oulu Finland, Acceptance rate 35% - 80 submitted articles.

D – Funded Projects

- Current projects (completed projects are not included in this list, for a complete list of current and past projects please refer to <http://www.intelligence.tuc.gr/~petrakis/funding/funding.htm>):
 - 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 669,000 euros, 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 Inovatoin SPA, Citigroup Global Markets Limited. **Project Coordinator & Principal Investigator for TUC: Euripides G.M. Petrakis.** Total Budget 1,375,000 euros, TUC's share: 265,000 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: 220,000 euros
 - BIOPATTERN (2004-2008) 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, data management, 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.

- Project proposals submitted:
 - In addition to the above, several (9) 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/~klusck/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 and Publications Chair of the “2007 International Workshop on Multimedia Signal Processing, Chania, Crete, Greece, October 1-3, 2007 <http://www.mmmsp2007.org>
 - Program committee member of “4th International Symposium on Visual Computing (ISVC08)” Dec. 1-3, 2007 Las Vegas, Nevada, USA <http://www.isvc.net/>
- Conference Organization (specify role)
 - Program committee member and Publications Chair of the “2007 International Workshop on Multimedia Signal Processing, Chania, Crete, Greece, October 1-3, 2007 <http://www.mmmsp2007.org>
- 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 Doc (PhD Univ. of Manchester, UK), Natural Language Processing, Text processing, Information Extraction.
 - Paraskevi Raftopoulou, P2P systems.
 - Sotiris Batsakis, Semantic Web.
 - Angelos Hliaoutakis, Medical Information Systems
 - Efthimios Drymonas, Ontology Construction from Text.
 - PhD. And M.Sc. degrees awarded
 - Peraki R.: Requirements Analysis for Medical Information System Design, Master's thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Greece, April 2008
 - Batsakis S.: Design and Evaluation of Topic Driven Focused Crawlers for the World Wide Web, Master's thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Greece, November 2007
 - Baratis E.: TOQL: Querying temporal information in ontologies, Master's thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Greece, July 2008.
 - Undergraduate students supervised
 - Michalis Argyriou, Dynamic Clustering
 - Diploma theses in progress (supervisor)
 - Πύρρος Κωλέτης, Οντολογίες Εικόνων
 - Νίκος Σεπετάς, Σύστημα Διαχείρισης Χρονικών Οντολογιών
 - Λεωνίδας Πάρτσας, Επέκταση Protege για την διαχείριση χρονικών οντολογιών
 - Νίκος Μαρής, Αιτιασμός (reasoning) σε χρονικές οντολογίες.
 - Χαράλαμπος Πέτσας, Αναζήτηση εικόνας στο WWW

- Diploma theses completed (supervisor)
 - Savvas Petrou «Αποδοτικό ξεφύλλισμα σε ιατρικές βάσεις δεδομένων», Ιούνιος 2008.
 - Dimitris Siskos «Μεθοδολογίες ανάκτησης πληροφορίας με χρήση οντολογιών σε ιατρικές συλλογές κειμένων», Ιούνιος 2008.



Annual Activity Report

For the period: Sept 1 2007 to Aug 31 2008

Name: Vasilis Samoladas

Rank: Assistant Professor (tenured)

Years in rank: 4

Full-time or part-time: full-time

Division: Computer Science

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
- 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
 - Διαφάνειες για το μάθημα “Επεξεργασία Πολυδιάστατων Δεδομένων”
 - Authored textbooks

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

B – Publications

- Publications in refereed journals
 - Submitted
 -
 - Accepted
 - Spyros Blanas, V. Samoladas, Contention-based performance evaluation of Multidimensional Range Search in Peer-to-peer Networks, Future Generation Computer Systems (to appear)
 - Published
- Publications in refereed conferences
 - Submitted
 - M. Argyrioy, V. Samoladas, S. Mplanas, GRaSP: Generalized Range Search in Peer-to-peer Networks, submitted to Infoscail 2008.
 - Michail Zampetakis, Vasilis Samoladas and Apostolos Dollas, A Reconfigurable Accelerator for Quantum Computations, submitted to FPL'08
 - V. Samoladas, Improved BDD Algorithms for the Simulation of Quantum Circuits, submitted to ESA'08
 - Accepted
 - M. Argyrioy, V. Samoladas, S. Mplanas, GRaSP: Generalized Range Search in Peer-to-peer Networks, accepted to Infoscail 2008.
 - Michail Zampetakis, Vasilis Samoladas and Apostolos Dollas, A Reconfigurable Accelerator for Quantum Computations, accepted to FPL'08
 - V. Samoladas, Improved BDD Algorithms for the Simulation of Quantum Circuits, accepted to ESA'08
 - Published
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 -
- Project proposals submitted:
 -

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
 - ESWC (European Semantic Web Conf.) 2008
 - Program Chair, HDMS 2008 (Hellenic Data Management Symposium)
- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for journals: Future Generation Computing Systems (FGCS)
- Participation in National Committees (e.g., ΕΔΕΤ)
- 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., ΕΠΕΑΕΚ, practical training, ...)
- School-level responsibilities
 - Member of board of regents (Σύγκλητος)
 - ΕΛΚΕ
 - Institute
 - Επιτροπή Μηχανογραφικού
 - Διοικητικό συμβούλιο συλλόγου ΔΕΠ ΠΚ.
 - 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), 4th year
 - Stergios Charalambakis (MSc), 3rd year
 - Yiannis Botsis (MSc), 3rd year

- Σπύρος Μπλάνας (Msc), 2nd year
 - PhD. And M.Sc. degrees awarded
 - PhD. And M.Sc. degrees awarded (committee member)
 - Μπατσάκης Σωτήρης (MSc)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Κώστας Κατάκης
 - Μιχάλης Αργυρίου
 - Γιώργος Τσατσανίφος
 - Χρήστος Στεφάνου
 - Δημήτρης Στρεβίνας
 - Κώστας Κουράτορας
 - Διονύσης Χατζημαρκάκης
 - Πάνος Αϊναλής
 - Diploma theses completed (supervisor)
 - Μιχάλης Αργυρίου
 - Γιώργος Τσατσανίφος
 - Χρήστος Στεφάνου
 - Κώστας Κουράτορας
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)
 - Ζαμπετάκης Μιχάλης
 - Θεοδωράκης Γεώργιος
 - Στυλιανάκης Γιώργος
 - Χριστουλάκης Μάριος



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Stavros Christodoulakis*

Rank: Professor

Years in rank: 19

Full-time or part-time: Full-time

Division: Computer Science

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
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- **Publications in refereed journals**
 - Submitted:
 - Accepted (in addition to Published):

- Published:

- C. Tsinaraki, **S. Christodoulakis**, "An MPEG-7 Query Language and a User Preference Model that allow Semantic Retrieval and Filtering of Multimedia Content", in ACM-Springer Multimedia Systems Journal, Special Issue on Semantic Multimedia Adaptation and Personalization, Sept 2007

- **Publications in refereed conferences**

- Submitted:

- Accepted (in addition to published):

- Christodoulakis S., Foukarakis M., Ragia L.: "Spatial Information Retrieval from Images using Ontologies and Semantic Maps", 1st World Summit on the Knowledge Society, 24-28 September 2008, Athens, Greece 2008 (Best Paper Award)
- Christodoulakis S. Foukarakis M. Ragia L. , Hiroaki Uchiyama and Takuya Imai: Geospatial Semantic Context Capturing for Picture Annotation, Retrieval and Visualization in SPIM, Proceedings Terracognita workshop, Oct 2008.
- Christodoulakis S. Foukarakis M., Ragia L., Uchiyama, H., Imai, T.: Semantic Maps and Mobile Context Capturing for Picture Content Visualization and Management of Picture Databases, Proceedings ACM Mobile Ubiquitous Multimedia (ACM MUM), Dec. 2008.

- Published:

- 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. Tsinaraki, 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. Tsinaraki, **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, "The MPEG-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.
- A. Ntousias, N. Gioldasis, C. Tsinaraki, M. Papa, S. Christodoulakis: "Rich Metadata and Context Capturing through CIDOC/CRM and Mpeg-7 Interoperability", Proceedings of the ACM International Conference on Image and Video Retrieval (ACM CIVR), Canada, July 7-9 2008.

- **Books and edited book chapters**

- 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

- C. Tsinaraki, S. **Christodoulakis**: “Semantic Multimedia Content Retrieval and Filtering”, Encyclopedia of Data Warehousing and Mining (Second Edition), Idea Group, 2008.

C – Awards & Distinctions

D – Funded Projects

Current projects:

- IQTOOL: Innovative eLearning Tool for Quality Training Material in VET
- NEMESIS: Networked Multimedia & Mobile Broadcasting
- 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)

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
 - Member of the Board, Telecommunication Systems Institute, Technical University of Crete.
 - Member Department of Architecture Governing Committee, Technical University of Crete

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Giorgos Kotopoulos (MSc)
 - Yannis Kotopoulos(MSc)
 - Xenia Arapi (MSc)
 - Michalis Foukarakis (MSc)
 - Andreas Pitsiladis (MSc)
 - Manolis Mylonakis (MSc)
 - Marios Christoulakis (MSc)
 - PhD. degree awarded
 - Chrisa Tsinaraki
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Papachristoudis
 - Panteli
 - Mpikakis
 - Makris
 - Diploma theses completed (supervisor)
 - Mylonakis
 - Theodorakis
 - Stylianakis
 - Ntousias
 - Zotos
 - Sytzanaki
 - Christoulakis

Electronics and Computer Architecture Division

Faculty members:

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



Technical University of Crete
Department of Electronic & Computer Engineering



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2007 to August 31, 2008

Name: *Apostolos Dollas*
Rank: Professor
Years in rank: 7
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 501 - VLSI and ASIC Design
 - HRY 411 - Computer Architecture
- Graduate courses taught
 - HRY 631 – Introduction to VLSI and ASIC Design
- Labs taught
 - Supervision of labs of HRY 501 (VLSI) and their transition to new tools and exercises.
 - Supervision of the labs of HRY 411.
- 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.
 - Entirely new laboratory exercises for HRY 501 (VLSI), with new material and under a new CAD environment (first time offered in the academic year 2007-2008).

B – Publications

- Publications in refereed journals
 - Submitted
 - G. Chrysos, A. Dollas, N. Bourbakis, “SCAN – SP – Secure Processor and its Crypto Capabilities”, submitted to the IEEE Transactions on Secure and Dependable Computing.
 - E. Sotiriades, G. Mplemenos, P. Afratis, I. Papaefstathiou, D. Pnevmatikatos, A. Dollas “Design Space Exploration of Reconfigurable Acceleration for the BLAST Algorithm”. Submitted to the ACM Transactions on Embedded Computing Systems (TECS) Special Issue on Configurable Computing: Configuring Algorithms, Processes and Architecture.
 - Accepted
 - Published
 - 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*, Special Issue on Field Programmable Technology, Springer, vol. 2, no. 4, December, 2007.
 - 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 Vol. 48 , No. 3, pp. 189 - 208, September, 2007.
- Publications in refereed conferences
 - Accepted
 - S. Ninos, A. Dollas, International Symposium on Field Programmable Logic (FPL) 2008 (accepted as a regular paper).
 - M. Zampetakis, V. Samoladas, A. Dollas, International Symposium on Field Programmable Logic (FPL), 2008 (accepted as a 4-page poster paper and published in the proceedings).
 - Published (all papers fully refereed)
 - R. Kannavara, N. G. Bourbakis, A. Dollas, “SCAN Cryptoprocessor”, Reconfigurable Systems Summer Institute RSSI -08 (organized by the National Center for Supercomputing Applications, the NSF Center for High-Performance Reconfigurable Computing, and OpenFPGA – electronic proceedings, 9 IEEE pages)

- R. Kannavara, N. Bourbakis, A. Dollas, P. Athanas, “SCAN – Secure Processor”, National Aerospace and Electronics Conference (NAECON - 08), Jul. 16-18, Fairborn, OH, USA (conference sponsored by IEEE Aerospace and Electronic Systems Society IEEE AESS, electronic proceedings, 6 IEEE pages).
 - 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.
- 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 16th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM), Monterey, USA, April, 2008.
 - ♦ Program Committee Member 19th IEEE International Workshop on Rapid System Prototyping (RSP), Monterey, USA, June 2008.
 - ♦ Program Committee Member, Field Programmable Logic (FPL), Heidelberg, Germany, Sept. 8-10, 2008.
 - ♦ Program Committee Member, IEEE International Conference on Field Programmable Technology (FPT), Taipei, Taiwan, Dec. 8-10, 2008.
 - ♦ Program Committee Member, IEEE Symposium on Application-Specific Processors (SASP 2008), Salzburg, Austria, Oct. 4-5, 2008.
 - ♦ Program Committee Member, Second Panhellenic Conference of Electrical and Computer Engineering Students, April 18-19, Athens, Greece.
 - ♦ Invited as Program Committee Member of several 2009 conferences, including FCCM, FPL, FPT, SASP (and declined several more due to load).
- PhD Committee member of Christoforos Kachris, University of Delft, Netherlands (December, 2007).
- Member of the recommendation committee and the election committee for a full professor election at the University of Thessaly.
- Member of the recommendation committee and the election committee for an Associate Professor and an Assistant Professor election at the University of Peloponese, participation in the faculty election.
- Member of the election committee and participation in faculty election for Full Professor at the University of Thessaly.
- Member of the election committee and participation in faculty election for Associate Professor at the University of Crete.
- Member of several election committees and recommendation committees and faculty elections at the Dept. of ECE of the Technical University of Crete.
- Participation in faculty election for Assistant Professor at the University of Thessaly.

In all the program committees in which I participated, I contributed with reviews of papers (as many as 8 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, IEEE Transactions on VLSI Systems, IEEE Potentials

F – Service to the Department and the School

- Departmental responsibilities
 - Associate Chairman
 - Director, Microprocessor and Hardware Laboratory
 - Member of the TUC – U. Crete *ad hoc* rector's committee for the development of a bi-institutional graduate program in biomedical engineering
 - Member, Undergraduate Studies Committee
 - Member of faculty recommendation committees in two faculty elections, member of the election committee and participation in the election process of several faculty elections.
 - Faculty advisor to the 9th Semester students
- Responsibility for Department-wide projects (e.g., EPEAEK, practical training, ...)
 - Participation in the EPEAEK II Program with English translation of substantial portions of the ECE Undergraduate and Graduate Studies Guides, and the ECE URL content.
 - 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 and addressing all issues regarding its operation).
- School-level responsibilities
 - TUC-wide coordinator of the TUC Grid computer project, under appointment by the TUC rector (appointed chairman of the *ad hoc* TUC Grid acceptance committee)

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised (advisor, completed)
 - Chrysos, Grigorios (MS)
 - Ph.D. and M.Sc. students supervised (advisor, in progress)
 - Sotiriades, Euripides (PhD)
 - Chrysos, Grigorios (PhD)

- Efstathiou, Dionissios (MS)
 - Ninos, Spyridon (MS)
- PhD. And M.Sc. degrees awarded (committee member)
 - Fytraki, Sotiria (MS)
 - Nikitakis, Antonios (MS)
- PhD and M.Sc. Degrees (committee member)
 - Mavroidis, Ioannis (PhD)
 - Mavroidis, Iakovos (PhD)
 - Kornaros, George (PhD)
 - Meidanis, Dimitrios (PhD)
 - Giakoumis Dimitrios (MS)
- Undergraduate students supervised
 - Diploma theses in progress
 - Kouinis, Konstantinos
 - Sartzetakis, Ippokratis
 - Alachiotis, Nikolaos
 - Diploma theses completed (supervisor)
 - Zampetakis, Michael
 - Diploma theses completed (committee member)
 - Afratis, Panagiotis
 - Athanasiou, George
 - Klatsias, Konstantinos
 - Kontomanou. Aikaterini
 - Mplemenos, George
 - Papadopoulos, Konstantinos
 - Pelekanos, Nektarios
 - Plikaditi, Agoritsa
 - Sotiropoulos, Ioannis
 - Theocharoulis, Konstantinos
 - Vavouras, Michael



Annual Activity Report Template

For the period: 1/9/2007 to 31/8/2008

Name: *Costas Balas*

Rank: Associate Professor

Years in rank: 6.5 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 Optoelectronic Biomedical Technology
- Labs taught
 - **Electronics I**
 - **Optoelectronics**
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Electronics I: new notes, and slides (200)**
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - William P Soutter, Emmanuel Diakomanolis, Deirdre Lyons, Sadaf Ghaem-Maghami, Tosin Ajala, Dimitrios Haidopoulos, Dimitrios Doumplis, Costas Kalpaktsoglou, Gerasimos Sakellaropoulos, Suzan Soliman, Karen Perryman, Vicky Hird, C Hilary Buckley, Kitty Pavlakis, Sofia Markaki, Roberto Dina, Vourneen Healy, **Costas Balas**. “Dynamic Spectral Imaging-Improving Colposcopy” Submitted to Clinical Cancer Research
 - Published
 - C. Balas, G. Papoutsoglou, and A. Potirakis, “In vivo molecular imaging of cervical neoplasia using acetic acid as biomarker,” *IEEE Journal of Selected Topics in Quantum Electronics*, vol. 14, no. 1, pp. 29-42, Jan-Feb, 2008
- Publications in refereed conferences
 - Published
 - Papoutsoglou G., Potirakis A., Balas C., “Modelling of epithelia transport phenomena related with the acetowhitening optical changes: potential for the in vivo diagnosis of cervical neoplasia.”, *presented at “Biophotonics: Photonic Solutions for Better Health Care”*, part of the SPIE Europe, Photonics Europe International Symposium, 7-10 April, Palais de la Musique et des Congrès, Strasbourg, France, 2008
 - Tsapras A., Terzakis E., Makris A., Papadakis E., Papoutsoglou G., Papagiannakis E., Tsatsanis C., Stathopoulos E., Balas C., “Hyperspectral Imaging for Skin Cancer Diagnosis in Mice”, *presented at the 6th European Symposium on Biomedical Engineering*, Chania, Crete, 19-21 June 2008
 - Papoutsoglou G., Tsapras A., Scouter P., Balas C., “Modelling Of Epithelial Transport Phenomena Related With The Acetowhitening Optical Characteristics: Potential For The In-Vivo Diagnosis Of Cervical Neoplasia”, *presented at the 6th European Symposium on Biomedical Engineering*, Chania, Crete, 19-21 June 2008
- Books and edited book chapters

C – Awards & Distinctions

- Invited Plenary Lectures:
 - C. Balas, G. Papoutsoglou, P. Soutter, “Interpretation and modeling of the AW effect enables the in vivo assessment functional and structural characteristics of the abnormal cervical epithelium in DySIS coploscopy.”, *presented at Annual*

Scientific Meeting of the British Society For Colposcopy & Cervical Pathology, 10-11 April, ICC Birmingham, 2008

- C. Balas, “In Vivo Optical Molecular Imaging for Optical Biopsy: Technology Development and Clinical Implementation”, *presented at the 6th European Symposium on Biomedical Engineering*, Chania, Crete, 19-21 June 2008
- C. Balas, “Novel Optical Imaging Technologies for in vivo Diagnosis and Screening”, *presented at the IEEE International Workshop on Imaging Systems and Techniques (IST 2008)*, September 10-11, Chania, Island of Crete, Greece, 2008
- C. Balas, “Hyper-Spectral imaging in detection of precancerous lesions of skin”, presented at the 1st Symposium of Scientific Dermatology, October 10-11, Heraklion, Crete, Greece, 2008
- Other
 - Conference award for the oral presentation given by Prof. Balas at the Annual Scientific Meeting of the British Society For Colposcopy & Cervical Pathology, 10-11 April, ICC Birmingham, 2008

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)

International organizing committee of the 6th European Symposium on Biomedical Engineering, Chania Crete Greece, 2008

Member of the international advisory committee *at the IEEE International Workshop on Imaging Systems and Techniques (IST 2008)*, September 10-11, Chania, Island of Crete, Greece, 2008

- Reviewing activities:

IEEE-Transactions on Biomedical Engineering, Journal of Applied Optics-Optical Society of America, Journal of Biomedical Optics

- 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., ΕΠΕΑΕΚ, practical training, ...)
- School-level responsibilities
 - Member of board of regents (Σύγκλητος)
 - ΕΑΚΕ
 - Institute
 - Other

G – Advising

Ph.D. Students Supervised

- Tsapras Thanasis
- Papoutsoglou George

M Sc. Students Supervised

- Georgiou Nikolaos

M Sc Degrees Awarded

- Papoutsoglou George

Diploma Theses Supervised

- Sgouros Antonis
- Epitropou Georgios
- Anastasopoulou Antigoni
- Kavvadias Vasilis
- Galaras Kostas

- Kontouli Aggeliki
- Kassis Nikos
- Lagga Peggy
- Makridou Georgia

Diploma Thesis Completed (supervisor)

- Arvaniti Efi

Diploma Thesis Completed (committee member)

- Dianantakos Dimitrios
- Lathourakis Kiriakos
- Dougali Evaggelia
- Giannatos Georgios
- Mpanti Maria-Aliki
- Saleh Basel
- Stefanakis Dionisios
- Tsagkatakis Grigorios
- Antonopoulos Aggelos
- Rozakis Georgios



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Matthias Bucher*

Rank: Assistant Professor (tenured)

Years in rank: 4+1/2

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - ECE 506 – Design of CMOS Analog Integrated Circuits (Fall 2007)
 - ECE 311 – Electronics II (Spring 2008)
- Graduate courses taught
 - ECE 604 – Special Themes of Analog IC Design (Fall 2007)
- Labs taught
 - ECE 506 – Design of CMOS Analog Integrated Circuits (Fall 2007)
 - ECE 311 – Electronics II (Spring 2008)
- Curriculum & course development
 - Lecture notes/slides developed, ECE 311 – Electronics II, ECE 506 – Design of CMOS Analog Integrated Circuits

B – Publications

- Publications in refereed journals
 - Submitted:

- P. Martin, M. Cavelier, R. Fascio, G. Ghibaudo, **M. Bucher**, “EKV3 Compact Modeling of MOS Transistors from a 0.18 μm CMOS Technology for Mixed Analog-Digital Circuit Design at Low Temperature”, submitted to Cryogenics.
 - Submitted-Accepted:
 - A. Bazigos, **M. Bucher**, P. Sakalas, M. Schroter, W. Kraus, „High-frequency Compact Modelling of Si-RF CMOS“, accepted for publication, *Phys. Status Solidi (c)*, *Current Topics in Solid State Physics*.
 - Accepted:
 - 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”, recommended for publication, *IEEE Trans. Electron Devices*.
 - Published:
 - **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*, Vol. 18, N° 4, pp. 314-325, 2008.
 - **M. Bucher**, A. Bazigos, “An Efficient Channel Segmentation Approach for a Large-Signal NQS MOSFET Model”, *Solid-State Electronics*, Vol. 52, N° 2, pp. 275-281, February 2008 (DOI: 10.1016/j.sse.2007.08.015).
- Publications in refereed conferences
 - Submitted-Accepted-Published:
 - A. Antonopoulos, N. Mavredakis, N. Makris, **M. Bucher**, „System Level Analysis of a Direct-Conversion WiMAX Receiver at 5.3 GHz and Corresponding Mixer Design”, *Proc. 15th Int. Conf. on Mixed Design of Integrated Circuits and Systems (MIXDES 2008)*, pp. 291-296, Poznan, Poland, June 19-21, 2008.
 - P. Martin, M. Cavelier, R. Fascio, G. Ghibaudo, **M. Bucher**, “EKV3 Compact Modeling of MOS Transistors from a 0.18 μm CMOS Technology for Mixed Analog-Digital Circuit Design at Low Temperature”, *Proc. 8th European Workshop on Low Temperature Electronics (WOLTE 8)*, Jena-Gabelbach, Germany, June 22-25, 2008.
 - Published:
 - A. Bazigos, **M. Bucher**, P. Sakalas, M. Schroter, „High-frequency compact modelling of Si-RF CMOS“, *Proc. 3rd Int. Conf. on Micro-Nanoelectronics, Nanotechnology and MEMS (Micro&Nano2007)*, NCSR Demokritos, Athens, Greece, November 18-21, 2007.

- International Workshop Presentations:
 1. **M. Bucher**, “EKV3 MOSFET model: status, analog/RF capabilities, and ongoing developments”, *EKV3 Model Workshop*, Swiss Center for Electronics and Microtechniques (CSEM), Neuchâtel, Switzerland, June 30, 2008.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Compact MOdelling Network (COMON), FP7-PEOPLE-2007-3-1-IAPP, Grant Nr. 218255, Marie Curie Industry Academia Partnership & Pathways, Total Funding 1'921'436 €, PI: M. Bucher, PI's budget 140'231 €. Duration: [Oct. 2008](#) – [Sept. 2011](#).
 - Power Amplifiers for Wireless Metropolitan Area Networks based on Protocol 802.16, PENED03 - 354, General Secretariat for Research and Technology, Greece. Budget 160K €. Duration: Jan. 2006 – Dec. 2008.
 - AKMON-108, General Secretariat for Research and Technology, Greece. Telecommunication Systems Institute, PI V. Digalakis, Co-PI: M. Bucher. Total budget: 164K €, Co-PI's budget: 75K €. Duration: Oct. 2006 – June 2008.
 - Investigation of the Compact Modeling of Toshiba's RF-CMOS Technology, Sponsor: Toshiba Semiconductor Company, Tokyo, Japan. PI: M. Bucher. Budget: 31K €. Duration: April – Dec. 2007.
 - Top Amplifier Research in a European Team, IST Network of Excellence TARGET, FP6, Contract Nr. 507893. Budget 53.4K €. Duration: Jan. 2004 – Dec. 2007.
 - Investigation and Modelling of Noise in MOS Transistors, Basic Research Project, Research Committee, TUC, 2007, Budget: 5K €.
- Development of Electronics Laboratory infrastructure:
 - 1 GHz Mixed Signal Oscilloscope, Agilent MSO 6104 (4 analog + 16 digital channels), 16K € (AKMON).
 - Precision LCR Meter, Agilent E4980A, 15K € (AKMON).
 - Temptronic TPO3000A System, Controller for hot/cold chuck (–65 °C – 200 °C), Temptronic Air dryer, 12K € (AKMON).
 - Software Agilent IC-CAP, ADS, 3.7K € (AKMON).

- Agilent E3631A 3-channel Power supply, 1.3K € (Electronics Laboratory).
- Development of new Electronics Laboratory website.

E – Professional service

- Conference Technical Programme Committee service
 - *TPC member, IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems (DDECS), 2008.*
- Conference Organization
 - *Session chair: Physical Design, IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems (DDECS), 2008.*
 - *Workshop Chair, European Solid-State Device Research Conference/European Solid-State Circuits Conference, ESSDERC/ESSCIRC 2009, Athens, September 2009.*
- Reviewing activities
 - *IEEE Trans. on Electron Devices*
 - *IEEE Trans. on Computer Aided Design of Integrated Circuits and Systems*
 - *IEEE Electron Device Letters*
 - *Solid-State Electronics*
 - *IEEE DDECS 2008*
 - *Project Reviewer for Swiss National Science Foundation.*

F – Service to the Department and the School

- Departmental responsibilities
 - Organized & accompanied 6th semester's student excursion (June 1 – 7, 2008, 40 participants).
 - Advisor for 6th semester students.
 - Deputy Member of the Committees for Undergraduate and Graduate Studies.
 - Member of the Examinatory Committee for admission of undergraduate students.

G – Advising

- Graduate students supervised
 - Ph.D. degrees awarded (member of the advisory & examinatory committee):
 - Antonios Bazigos, High-frequency compact modelling of MOS transistors, ECE Dept., National Technical University of Athens (NTUA), Athens, Greece. Enrollment: 2004, Completed May 2008.
 - Ph.D. degrees awarded (member of the examinatory committee):
 - Konstantinos Vryssas, Power amplifier for application in wireless metropolitan area networks based on 802.16 protocol (WiMAX), ECE Dept., National Technical University of Athens (NTUA), Athens, Greece. Enrollment: 2004, Completed April 2008.
 - Ph.D. students supervised (supervisor):
 - Angelos Antonopoulos, Design of multi-mode RF CMOS transceivers, Enrollment: June 2008. Phone 28210 37223, 28210 37546. [aanton "at" elci.tuc.gr](mailto:aanton@elci.tuc.gr)
 - Ph.D. students co-supervised (member of the advisory committee):
 - Harris Koliakoudakis, Development of SiC MESFET technology, Dept. of Physics, University of Crete/FORTH, Heraklion, Greece. Enrollment: Jan. 2006.
 - M.Sc. degrees awarded (supervisor):
 - George Rozakis, Non-linear analysis of electronic circuits based on Volterra series, Enrollment: 2005, Completed June 2008.
 - Angelos Antonopoulos, System level analysis of a direct-conversion WiMAX receiver at 5.3 GHz and corresponding mixer design, Enrollment: 2005, Completed April 2008.
 - M.Sc. students supervised (supervisor):
 - Nikos Makris, Design of RF CMOS voltage controlled oscillators, Enrollment: Dec. 2006. Phone 28210 37223, 28210 37546.
 - Nikos Mavredakis, Design of RF CMOS low noise amplifiers, Enrollment: Oct. 2006. Phone 28210 37223, 28210 37546.
- Undergraduate students supervised
 - Diploma theses completed (supervisor):
 - Dionysios Stefanakis, Design of a CMOS image sensor for biomedical application, July 2008.
 - Kyriakos Lathourakis, Study of matching in 0.35um CMOS, Dec. 2007.

- Dimitris Diamantakos, EKV3 MOSFET model validation and parameter extraction from 1 μ m to 90nm CMOS, Sept. 2007.
- Diploma theses completed (committee member):
 - Aris Zavvos, Study of wind-generator fuel-cell ultra-capacitor based system, June 2008.
 - George Dimou, Method of simulation of photovoltaic elements, June 2008.
 - Vassilis Nikolaidis, Optimization of standalone photovoltaic /windgeneration systems, April 2008.
- Diploma students (supervisor):
 - Alexandros Kyriakos, Development of a Java and Matlab based CAD tool for the EKV3 MOSFET model.
 - Maria-Anna Halkiadaki, Small- and large signal RF modelling in 90nm CMOS.
 - Marios Katsis, Characterization and modeling of capacitance-voltage (CV) behaviour of MOSFETs.
 - George Smaragdos, Design of integrated filters based on current-mode OPAMPs.
 - Apostolos Tsivitis, Study of 1/f noise in MOS transistors.
 - Athanasios Dimakos, Design of ultra-low voltage CMOS integrated filters.
 - Prodromos Prodromou, Development of a MOSFET benchmark tool in Cadence.
 - Michael Karefylakis, Compact modelling of high-voltage MOSFETs.



Annual Activity Report

For the period: September, 1, 2007 to August, 31, 2008

Name: *Kostas Kalaitzakis*

Rank: Professor

Years in rank: 6

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 - Electric Measurements and Sensors (7th semester)**
 - **HRY 212 – Electric Circuits Analysis (4th semester)**
- Graduate courses taught
 - **HRY 602 – Special topics on Electric Measurement Systems**
- Labs taught
 - **Electric 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. Kolokotsa D., Diakaki C., Grigoroudis E., Stavrakakis G., Kalaitzakis K., “Decision Support Methodologies on the Energy Efficiency and Energy Management in Buildings”, Submitted to Advances in Building Energy Research
 - Accepted:
 2. Koutroulis E., Kalaitzakis K., Tzitzilonis V., “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, in press to Microelectronics J.
 - Published
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
- Books and edited book chapters
- Patents

C – Awards & Distinctions

- Paper awards
 - 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 **13th rank** in the “Most frequently downloaded TIE papers from Xplore in 2007” of IEEE Transactions on Industrial Electronics and **14th rank** in the “Most cited TIE papers 2006”
- Technical Achievement awards
 - **2nd award** in international competition organized by the Hellenic Institute of Electric Driven Cars in 2008 for the design of the solar car Hephaestus in the framework of the program INTERREG IIIA «SUN LIFE – Greece - Italy» in 2007. This project has also attracted the interest of the national wide and local news press in Greece (Nea, Kathinerini, Ethnos, etc.), technical press (Technika Chronika, National Technical Chamber bulletin, Energy Point, etc.), as well as major TV channels (ET1, MEFA, ANT1, ALPHA, etc)

- **Honorable Mentions** (2nd Award) from the Modialogo Engineering Award Institution for a project entitled “Biodiesel and Power Biomass Valorisation of Palm oil in rural areas: Case study of Mango’s village, Central province Cameroon”. This project inspired the idea implemented in the project entitled “Development of an Autonomous Solar Unit for Biodiesel Production”, funded by the Regional Innovation Pole. This project has also attracted the interest of the national wide and local press in Greece (Kathinerini, Eleftherotypia, etc.) as well as major TV channels (ET1, MEFA, ANT1).
- Professional service awards
- Elevation to senior membership grades in Professional Societies (e.g. IEEE, ACM, ...)
- Fellowships, Visiting Professorships
- Invited Plenary Lectures
- Other

D – Funded Projects

- Current projects:
 - Principal Investigator in a Project Entitled “Development of an Autonomous Solar Unit for Biodiesel Production”, funded by the Regional Innovation Pole of Crete in the Framework of the Program “Unisteplus 2007”.
 - Co-advisor of a team in the Technical University of Crete for the design of the solar car Hephaestus in the framework of the program INTERREG IIIA «SUN LIFE – Greece - Italy» in 2007.
- 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 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

- Participation in National Committees (e.g. ΕΔΕΤ)
- 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. ΕΠΕΑΕΚ, practical training, ...)
- School-level responsibilities
 - Member of board of regents (Σύγκλητος)
 - ΕΛΚΕ
 - Institute
 - Other

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.
 - 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.
 - A. Kornelakis (M.Sc.), year of initial enrollment in M.Sc. program: 2008.
 - PhD. 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)

- P. Lamprou, “Development of an Autonomous Data Acquisition System Based on Microprocessor Interconnected to the Internet”
- A. Kornelakis, “Optimal Design and Evaluation of a Photovoltaic Array for Energy Production, Interconnected to the Power System”
- V. Nikoalidis, “Optimal Design for Autonomous Hybrid Photovoltaic Arrays and Wind Energy Generation”
- G. Dimou, “An Algorithm for the Simulation of Photovoltaic Arrays Parameters”
- S. Zampelis, “Design and Financial Evaluation of a Hybrid Photovoltaic and WECs System Powering Desalination Plants”
- Diploma theses in progress (committee member):
 - K. Sfakianakis, “Development of a Detailed PV Model”
 - M. Desarti, “Application of the Tabu Search method to Bioengineering Subjects”
 - P. Prokopis, “Optimal Design of a Solar-Power Plant”
 - E. Batzelis, “Optimal Design of a PV Plant using the Tabu Search Method”
 - S. Nikolaidis, “Heart Diagnosis Support Device using ECG and Sphygmomanometer Signals”
 - E. Founta, “PWM generator using FPGA”
 - T. Mantzoros, “Optimal Design of a WECS Plant using the Tabu Search Method”
 - P. Doriakis, “Optimal Design of a PV Plant using the Particle Swarm Method”
 - P. Kalodimas, “Cultivation Automation and Supervising using Remote Monitoring and GSM Technology”
 - T. Dafoulis, “ECG Signal Classification using the Ant Colony approach”
- Diploma theses completed (committee member):
 - More than 10



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: Ioannis Papaefstathiou

Rank: Assistant Professor

Years in rank: 1.3

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture

Lab affiliation: Microprocessor and Hardware laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 401 – Embedded Systems Design (Fall 2008)
 - HPY 312 – Computer Organization (Spring 2008)
- Graduate courses taught
 - HRY 625 – Communication and Network Processors' Architecture (Spring 2008)
- Labs taught
 - HRY 401 – Embedded Systems Design (Fall 2008)
 - HPY 312 – Computer Organization (Spring 2008)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Communication and Network Processors' Architecture
 - Computer Organization
 - Computer Architecture
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - I. Mavroidis, I. Mavroidis, I. Papaefstathiou, “*Accelerating Emulation and Providing Full Chip Observability and Controllability at Run-Time*” submitted to IEEE Design & Test
 - K. Papadopoulos, I. Papaefstathiou, “*Titan-R: A Reconfigurable hardware implementation of a high-speed compressor/decompressor*” submitted to ACM Transactions on Reconfigurable Computing
 - Accepted
 - Published
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - D. Meidanis, **I. Papaefstathiou**, “*A Modular, Partial Reconfigurable System for Factorizing Large Numbers Over $GF(2)$* ”, submitted to ACM/SIGDA International Symposium on Field-Programmable Gate Arrays 2009 (FPGA 2009), February 22-24, Monterey, CA, USA
 - M. Vavouras, K. Papadimitriou, **I. Papaefstathiou**, “*Implementation of a Genetic Algorithm on a Virtex-II Pro FPGA*”, submitted to ACM/SIGDA International Symposium on Field-Programmable Gate Arrays 2009 (FPGA 2009), February 22-24, Monterey, CA, USA
 - K. Theocharoulis, **I. Papaefstathiou**, “*High-End Reconfigurable Systems for fast Password Cracking*”, submitted to IEEE Design Automation and Test in Europe (DATE 2009), April 20-24, Nice, France
 - Accepted: same as published (see below) plus
 - I. Mavroidis, **I. Papaefstathiou**, “*Accelerating Hardware Simulation: Testbench Code Emulation*”, IEEE International Conference on Field Programmable Technology 2008 (FPT’08), December 7th -10th Taipei, Taiwan
 - D. Meidanis, **I. Papaefstathiou**, “*On the Power Consumption of security algorithms employed in wireless networks*”, 6th Annual IEEE Consumer Communications & Networking Conference (CCNC 2009) 10 - 13 January 2009 in Las Vegas, Nevada
 - Dimitris Theodoropoulos, **Ioannis Papaefstathiou**, Dionisios Pnevmatikatos, “*CCproc: An Efficient Cryptographic*

Coprocessor”, 16th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SOC 2008), October 13-15, 2008 Rhodes Island, Greece

- Published
 - A. Nikitakis, **I. Papaefstathiou**, “*A memory-efficient FPGA-based classification engine*”, IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM), 2008, April 13-15, Palo Alto USA
 - K. Papadopoulos, **I. Papaefstathiou**, “*Titan-R: A Reconfigurable hardware implementation of a high-speed compressor*”, IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM), 2008, April 13-15, Palo Alto, USA
 - G. Mplemenos, **I. Papaefstathiou**, “*MPLEM: An FPGA Based Multiprocessor System for BLAST Algorithm*”, IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM), 2008, April 13-15, Palo Alto, USA
 - A. Nikitakis, **I. Papaefstathiou**, “*A Multi Gigabit FPGA-based 5-tuple classification system*”, IEEE International Conference on Communications 2008, ICC-2008, May 19-23, Beijing, China
 - D. Meintanis, **I. Papaefstathiou**, “*An efficient FPGA-based implementation of Pollard's (rho-1) factorization algorithm*”, International Conference on Field-Programmable Technology 2007 (ICFPT'07), December 12-14, 2007 Kokurakita, Kitakyushu, Japan.

I. Books and edited book chapters

- a. G.Kornaros, D.Pnevmatikatos, and **I.Papaefstathiou**, Monitoring Services for Networks-on-Chip", Book Chapter 8, in "Networks-on-Chips: Theory and Practice" Editors: Fayez Gebali, Haytham Elmiligi, and M. Watheq El-Kharashi, CRC Press, in print.

J. Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - AWISSENET, FP7-STREP, Award Period January 2008 – March 2010, Funding Level 2.2M € (300K € for TUC)

- VPLANET, Greek Secretariat for Research and Technology, **Project PI:** I. Papaefstathiou. Award Period: October 2006 –March 2008. Budget (Algosystems): 318K €.
- 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) .
- Project proposals submitted:
 - Organizer, of “OSMOSIS”, FP7-CAPACITIES proposal, grade 24/30 **will be funded** from 1/10/08
 - Organizer of “SMART”, FP7-ARTEMIS proposal, results awaited.
 - Organizer of “POCAHONTAS”, FP7-CAPACITIES proposal

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
 - IEEE DATE 2008 and 2009
 - IEEE FPL 2008
 - IEEE SAMOS 2008
 - Several other smaller workshops
- Conference Organization (specify role)
- Reviewing activities
 - Regular reviewer for *IEEE Communications, IEEE Design & Test, ECAD magazines*
 - Regular reviewer for *IEEE Samos, IEEE VLSI-SoC*

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Member of board of regents

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.
 - Panagiotis Christou, (M.Sc.), Year of initial enrollment in program: 2006.
 - Georgios Mplemenos (M.Sc.), Year of initial enrollment in program: 2008
 - Konstantinos Papadopoulos (M.Sc.), Year of initial enrollment in program: 2008
 - Antonis Nikitakis (M.Sc.), Year of initial enrollment in program: 2004 (completed)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - N. Kassis.
 - A. Katsoulas
 - I. Kartsonakis
 - E. Ntortou
 - K. Tsakonas
 - Diploma theses completed (supervisor)
 - K. Klatsias
 - N. Spanos
 - K. Papadopoulos
 - G. Mplemenos
 - A. Plikaditi
 - A. Kontomanou
 - M. Vavouras
 - K. Theoharoulis
 - N. Pelekanos
 - I. Sotiropoulos



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Dionisis Pnevmatikatos*

Rank: Associate Professor

Years in rank: 6

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 2008)
 - HPY 211 – Advanced Logic Design (Spring 2008)
- Graduate courses taught
 - HRY 621 – Advanced Computer Architecture (Fall 2008)
- Labs taught
 - HRY 201 – Digital Computers (Fall 2008)
 - HPY 211 – Advanced Logic Design (Spring 2008)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Digital Computers (Update)
 - Advanced Logic Design (Update)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - Ioannis Sourdis, **Dionisios N. Pnevmatikatos**, Stamatis Vassiliadis, ``Scalable multigigabit pattern matching for packet inspection'', *IEEE Transactions on Very Large Scale Integration (T-VLSI) Systems*, Volume 16, Issue 2 (February 2008).
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Sotiria Fytrakh, **Dionisios Pnevmatikatos**, "ReSim, a Trace-Driven, Reconfigurable ILP Processor Simulator", submitted to *IEEE Design Automation and Test in Europe (DATE 2009)*, April 20-24, Nice, France.
 - Panagiotis Afratis, Constantinos Galanakis, Euripides Sotiriades, Georgios-Grigorios Mplemenos, Grigorios Chrysos, Yiannis Papaefstathiou, **Dionisios Pnevmatikatos**, "Design and Implementation of a Database Filter for BLAST Acceleration", submitted to *IEEE Design Automation and Test in Europe (DATE 2009)*, April 20-24, Nice, France.
 - Accepted:
 - Dimitris Theodoropoulos, Ioannis Papaefstathiou, **Dionisios Pnevmatikatos**, "CCproc: An Efficient Cryptographic Coprocessor", 16th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SOC 2008), October 13-15, 2008 Rhodes Island, Greece.
 - Published
 - Ioannis Papaefstathiou, Dimitrios Mprachos, Christodoulos Yannakou, Nikos Zervos, **Dionisios Pnevmatikatos**, *Rapid System Prototyping of Networking Embedded Systems Using System-C*, CSN 2008.
 - A Rate-based Prefiltering Approach to BLAST Acceleration, International Symposium on Field Programmable Logic (FPL), August 2008
- Books and edited book chapters
 - G.Kornaros, **D.Pnevmatikatos**, and I.Papaefstathiou, Monitoring Services for Networks-on-Chip", Book Chapter 8, in "Networks-

on-Chips: Theory and Practice" Editors: Fayez Gebali, Haytham Elmiligi, and M. Watheq El-Kharashi, CRC Press, in print.

- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - VPLANET, Greek Secretariat for Research and Technology, **Project PI for TUC**: D. Pnevmatikatos. Award Period: October 2006 –March 2008. TUC Funding 92K €.
- Project proposals submitted:

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service

Program Chair:

Design And Test Europe (DATE) 2009, Architecture and Microarchitecture Track.

Program Co-Chair:

Design And Test Europe (DATE) 2008, Architecture and Microarchitecture Track.

General Co-Chair:

Panhellenic Conference on Informatics (PCI) 2008, RSP 2007, 2008.

Technical Committee Member:

RSP 2007, 2008,
VLSI-Soc 2008,
FPL 2007, 2008,
ICCD 2007, 2008,
IC-SAMOS 2006, 2007, 2008

Workshop TPC:

HIPEAC-RC 2007, 2008,

HIPEAC-INA-OCMC 2007, 2008

- Conference Organization (specify role)
- Reviewing activities
 - Journal Reviewer:
 - ACM Transactions on Reconfigurable Technology and Systems,
 - ACM Transactions on Embedded Systems,
 - COMNET,
 - Journal of HiPEAC,
 - ACM Computer Architecture Letters
 - Conference Reviewer:
 - HPCA 2008
- External Ph.D. Committee member of Ioannis Sourdis, Delft University of Technology, Netherlands (December, 2007).

F – Service to the Department and the School

- Departmental responsibilities
 - Department Chair
 - Undergraduate Program Committee
 - Graduate Program Committee
 - Responsible for the Department-wide practical training project
- School-level responsibilities
 - Lecture Notes Committee
 - Member of board of regents

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
 - Kiodis Sifis
 - M.Sc. degrees awarded
 - Fytraki Sotiria

- Undergraduate students supervised
 - Diploma theses completed (supervisor)
 - P. Afratis
 - Diploma theses completed (co-supervisor)
 - Diploma theses in progress (supervisor)
 - G. Tsiligianis
 - K. Galanakis
 - G. Andronikidis
 - K. Pappas
 - P. Spyropoulos
 - A. Katsantonh
 - Diploma theses in progress (committee member)
 - N. Kassis
 - M. Chalkiadaki
 - K. Kassis
 - Diploma theses completed (committee member)
 - Platsis Mixahl
 - Anifantis Antwnios
 - K. Klatsias
 - N. Spanos
 - K. Papadopoulos
 - G. Mplemenos
 - A. Plikaditi
 - A. Kontomanou
 - M. Vavouras
 - K. Theoharoulis
 - N. Pelekanos
 - I. Sotiropoulos



Annual Activity Report

For the period: 1-9-2007 to 31-8-2008

Name: *George Stavrakakis*

Rank: Professor

Years in rank: 13

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 : 3
 - Accepted : 2
 - Published : 1(see bellow)

K. Dalamagidis, D. Kolokotsa, K. Kalaitzakis, G.S. Stavrakakis.
Reinforcement learning for energy conservation and comfort in buildings.
Building and Environment, 42, 7, pp. 2686-2698, 2007.

- Publications in refereed conferences
 - Submitted : 3
 - Accepted : 3
 - Published :3 (see bellow)

Kafetzis G., Patelis P., Kolokotsa D., Stavrakakis G.S. “Java Software Platform for Energy and Environmental Buildings Management”, 6th International Conference on Electrical Engineering ICEENG 2008, May 27-29, 2008, Cairo, Egypt.

D. Kolokotsa, M. Papaglastra, E. Mouriki, M. Santamouris, G. Mihalakakou, D. Matthopoulos, I.Deligiannakis, V. Tsezos, E. Doulka, A.Papadopoulos, E. Giama, A. Aristotelis, G. Stavrakakis, T.Nicolaou, S. Kephelopoulos, A. Katsoyiannis, “An innovative training package for indoor environmental quality”, Presented at the Restoration and Protection of the Environment IX., Kefalonia ,Greece 29 June – 3 July 2008.

D. Kolokotsa, G. Stavrakakis, T. Nikolaou, “Comparison of asset and operational rating for office buildings' energy performance - A case study in Athens Greece”. Presented at the Restoration and Protection of the Environment IX, Kefalonia ,Greece 29 June – 3 July 2008.

- 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. (ΟΒΙ2004010045)

C – Awards & Distinctions

D – Funded Projects

Current projects:

“PURE- PROMOTING THE USE OF PHOTOVOLTAIC SYSTEMS IN THE URBAN ENVIRONMENT THROUGH DEMO RELAY NODES.1-1-2006—31-12-2008. Senior Scientific Researcher. www.pure-eie.com.

- Project proposals submitted: 3

E – Professional service

- Associate Editor duties : none
- Society Technical Committee duties : one (International Committee of Electrical Machines- ICEM)
- Conference Technical Program Committee service: XVIII International Conference on Electrical Machines ICEM 2008, 6-9 September 2008, Vilamoura, Portugal
- Conference Organization (specify role) : none
- Reviewing activities : In three international Journals:
 - “Zentralblatt fur Mathematik und ihre Grenzgebiete” (Mathematics Abstracts)
edited by Springer-Verlag International publ.
 - Journal of Intelligent and Robotic Systems.
 - IEEE Transactions on Energy Conversion.
- Participation in National Committees (e.g., ΕΔΕΤ): one
 - Permanent Committee of the Prefecture of Crete for the Energy Problem of Crete

F – Service to the Department and the School

- Departmental responsibilities : none
 - Chair, Vice-Chair, Lab Director, NOC director, ...
 - Responsibility for Department-wide projects (e.g., ΕΠΕΑΕΚ, practical training, ...)

- School-level responsibilities
 - Member of board of regents (Σύγκλητος)
 - EAKE
 - Institute
 - Other : member of the Technical Council of TUC

G – Advising

- Active graduate students supervised
 - Ph.D students supervised
 - 1.Tripolitakis Evangelos
 - 2.Nikolaou Triantafylia
 3. Sergaki Eleftheria
 - M.Sc Students supervised
 1. Afentakis Nikolaos
 - 2.Vassalos Gerasimos
 - 3.Dougali Evaggelia
 - 4.Sytzanaki Athina
 5. Tabitsikas Charalabos
 - M.Sc. degrees awarded : 4
 - 1.Kafetzis Georgios
 - 2.Patelis Petros
 - 3.Lazos Christos
 - 4.Theodoromanolakis Manolis
- Undergraduate students supervised
 - Diploma theses in progress (supervisor): 12
 - Diploma theses completed (supervisor) : 8
 - Diploma theses in progress (committee member): 9
 - Diploma theses completed (committee member): 7

Systems Division

Faculty members:

- Petros Stavroulakis, Professor
- Manolis Christodoulou, Professor



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: *Peter Stavroulakis*

Rank: Professor

Years in rank: 18

Full-time or part-time: Full-time

Division: Systems

Lab affiliation: Automation

A – Teaching

Theory and applications of automatic control (undergraduate)

Optimal control

Neural networks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - 1) Technological and Legal aspects of Communications and Information Security, published in the International Journal of Technology Transfer and commercialization
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Presented
 - 1) Technological and Legal aspects of Communications and Information Security, presented at the Second International Conference on Legal, and Privacy Issues in IT (LSPI), Beijing China Dec. 4-6 2007

2) Transmitter Independent Radar Networks, presented at the IEEE conference on Signal Processing and Communications Networks, Madras India, Jan. 4-6/2008 Published

3) ‘On Line Tracking of Maneuvering Targets via Angle of Arrival and Doppler Measurements, , presented at the IEEE conference on Signal Processing and Communications Networks, Madras India, Jan. 4-6/2008 Published

- Book chapters in Books
- Books published

TERrestrial Trunking Radio (TETRA), Springer Publishing Company 2007

- Book proposals accepted:

A Book Proposal for a HANDBOOK ON COMMUNICATION AND INFORMATION SECURITY has been accepted and a 1200 page book will be published in 2009 by SPRINGER PUBLISHING COMPANY .

- International Patent on Secure Communications using Chaotic signals

C – Awards & Distinctions

D – Funded Projects

E – Professional service

- Associate Editor duties
 - *International Journal on Communication and information Security, published by John Wiley*
 - *Guest Editor for a special issue for the CHINA COMMUNICATIONS JOURNAL on COMMUNICATIONS AND INFORMATION SECURITY, June 2008 in which I have three papers of my own.*
- Society Technical Committee duties
 - Founding Member of the IEEE Technical Committee on communication and information Security
- Conference Organization (specify role)
 - Symposium Chairman on Communication and Information security for CHINACOM/2008 conference sponsored by IEEE
- Reviewing activities
 - Reviewer of *IEEE* (3 papers)
 - Electronic Letters (5 papers)
 - International Journal of Communication Systems (5 papers)

- Communications Journal for the old IEE now IET (3 papers)
 - CHINA COMMUNICATIONS JOURNAL (20 papers)
- Participation in National Committees (e.g., EΔET)
- Other

Invited speeches/seminars on the general subject of Information Security

1) Wseas Conference (Plenary Speaker) July 2008

2) IEEE conference on Signal Processing and Communications Networks,
Madras, India, Jan. 4-6/2008

F – Service to the Department and the School

G – Advising

I have one student working on his diploma thesis who will finish soon



Annual Activity Report

For the period: Sep. 1, 2007 to Aug. 31, 2008

Name: Manolis A. Christodoulou

Rank: Professor

Years in rank: 16

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 1-85233-623-4

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - T.L.Kottas, Y.S.Boutalis and **M.A.Christodoulou**, “Fuzzy cognitive network: A general framework”, *Intelligent Decision Technologies Journal*, vol.1, pp. 183-196, 2007.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Accepted: those published (see below), plus
 - Y.S.Boutalis, M.A.Christodoulou and D.C.Theodoridis “A new Neuro-Fuzzy intelligent method for indirect adaptive control of nonlinear systems via a novel approach of parameter hopping”, *Joint 4th International Conference on Soft Computing and Intelligent Systems and 9th International Symposium on Advanced Intelligent Systems*, pp. 918-923, September 17-21, 2008, Nagoya University, Nagoya, JAPAN.
 - Published
 - 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.
 - M.A.Christodoulou and A. C. Kalpakas, “Optimal Prediction of Transmembrane Helices in Proteins using a Biologically Inspired Neural Network”, *eRA-2 International Conference*, paper B.3.8, September 22-23, 2007, Athens, Greece.
 - M.A.Christodoulou and G.M.Vassalos, “Adaptive Control used as Inhibition Medicine in Cellular Signaling Sub-Systems.”, *Workshop on Distinguished Control Systems*, Automation and Robotics Research Institute, University of Texas at Arlington, USA, Dec. 8, 2007.
 - M.A.Christodoulou and C.Kontogeorgou “Automatic Collision Avoidance in Commercial Aircraft 3-D Flights, using Neural Networks and Non-linear Programming”, *CHAOS 2008, Chaotic*

Modeling and Simulation International Conference, Maich Center, paper SCS8-2, June 3-6 2008, Chania, Crete, Greece.

- D.C.Theodoridis, Y.S.Boutalis and M.A.Christodoulou “A New Indirect Adaptive Neuro-Fuzzy Control Algorithm with Proof of Error Convergence and Stability”, *CHAOS 2008, Chaotic Modeling and Simulation International Conference*, Maich Center, paper SCS8-1, June 3-6, 2008, Chania, Crete, Greece.
- M.A.Christodoulou and C. Kontogeorgou, “A novel algorithm for collision avoidance in commercial aircraft using neural networks and non-linear programming”, *16th Mediterranean Conference on Control and Automation MED08 (Med 08)*, Congress Center, pp.15-22, June 25-27, 2008, Ajaccio, Corsica, France.
- D.C.Theodoridis, Y.S.Boutalis and M.A.Christodoulou, “Indirect Adaptive Neuro-Fuzzy Control based on High-Order Neural Network Function Approximators”, *16th Mediterranean Conference on Control and Automation MED08 (Med 08)*, Congress Center, pp.386-393, June 25-27, 2008, Ajaccio, Corsica, France.

- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Web-based Notes and Course Development", Ministry of Education, 2002-2004.
- Project proposals submitted:

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
 - Mediterranean Control Association, Member of the Board of Governors
- Conference Technical Program Committee service
 - Associate Editor, *16th IEEE Mediterranean Conference on Control and Automation*, Corsica, France, June 25-27, 2008.

- International Program Committee, Member, *16th IEEE Mediterranean Conference on Control and Automation*, Corsica, France, June 25-27, 2008.
- Chairman, Keynote Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- Chairman, Self-organisation/control Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- Chairman, Neural Networks Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- International program committee member, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- 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.
- 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
 - Giotis Thomas
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
Several diploma theses are in process and/or completed.