



Annual Activity Report

For the period Sep. 1, 2005 - Aug. 31, 2006

Chania, Crete, Nov. 30, 2006

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 20 (with 2 more to join us shortly).

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

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

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

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

Nikos Sidiropoulos
nikos@telecom.tuc.gr

Telecommunications Division

Faculty members:

- Vassilios Digalakis, Professor
- Michael Zervakis, Professor
- Georgios Karystinos, Visiting Associate Professor
- Polychronis Koutsakis, Post-Doctoral Researcher – Visiting Lecturer
- Athanasios Liavas, Associate Professor
- Michael Paterakis, Professor
- Alexandros Potamianos, Associate Professor
- Nikolaos Sidiropoulos, Professor
- Sophia Tsakiridou, Visiting Associate Professor



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2005 to August 31, 2006

Name: Vassilis Digalakis

Rank: Full

Years in rank: 6

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Information & Networking

A – Teaching

- Undergraduate courses taught
 - *Introduction to speech processing*
- Graduate courses taught
 - *Advanced topics in speech processing*

B – Publications

- Publications in refereed journals
 - Accepted
 - N. Chatzichrisafis, V. Diakouloukas, **V. Digalakis** and C. Harizakis, “Gaussian Mixture Clustering and Language Adaptation for the Development of a New Language Speech Recognition System”, accepted for publication in the IEEE Transactions on Speech and Audio Processing (accepted July 2006).
 - Published
 - N. Moustroufas and **V. Digalakis**, “Automatic pronunciation evaluation of foreign speakers using unknown text”, accepted for

publication in Computer, Speech and Language, expected publication date January 2007.

- Publications in refereed conferences
 - Submitted
 - G. Tsontzos, V. Diakouloukas, C. Coniaris and **V. Digalakis**, “Estimation of General Identifiable Linear Dynamic Models with an Application in Speech Recognition”, Submitted to ICASSP 2007.
 - Published
 - Nikos Tsourakis, Dimitris Pratsolis, Costas Harizakis and **Vassilis Digalakis**, “An Architecture for Multimodal Applications Over Wireless Data Networks”, International Conference of Intelligent Environments, Athens, Greece, July 2006.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - «Ανάπτυξη υποδομής και τεχνογνωσίας για Παροχή Υπηρεσιών σε Δίκτυα Επικοινωνίας», ΑΚΜΩΝ, ΓΓΕΤ, 9/2006-3/2008, PI, PI's Budget € 164.500.
 - “Angel”, Shalon Ventures, 1/2006-1/2007, PI, PI's Budget € 124.250.
 - “Ανάπτυξη Πολυτροπικής Πλατφόρμας με ενσωματωμένες υπηρεσίες Αναγνώρισης και Σύνθεσης Φωνής για Φορητές Συσκευές”, ΠΕΝΕΔ, PI, PI's Budget € 180.000.
 - Μοντελοποίηση, Σύνθεση Και Αναγνώριση Φωνής Με Υπολογιστική Αεροδυναμική Ανάλυση Του Ανθρωπίνου Ηχητικού Σωλήνα, ΠΕΝΕΔ, Co-PI, PI's Budget € 180.000.
 - Hiwire, Ευρωπαϊκή Επιτροπή (IST STREP), 6/2004-5/2006, Co-PI, PI's Budget € 277.628.
 - Muscle, Ευρωπαϊκή Επιτροπή (IST NoE), 3/2004-2/2007, Co-PI, PI's Budget € 160.000.
- Project proposals submitted:
 - ΠΑΝΟΠΗΤΣ, Εθνικό Ραδιοτηλεοπτικό Συμβούλιο. PI, PI's Budget € 267.750.

E – Professional service

- Reviewer in several conferences and journals.

F – Service to the Department and the School

- Departmental responsibilities
 - Deputy Department Chair
 - Director, Information and Networking Lab
- School-level responsibilities
 - Director, TSI

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
 - Ph.D. And M.Sc. degrees awarded
 - Nikos Tsourakis, MSc, 2006
 - Dimitris Pratsolis, MSc, 2006
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - K. Athanasoglou
 - Z. Malafouris
 - O. Tsergoulas
 - T. Zervopoulos
 - Diploma theses completed (supervisor)
 - T. Gjermani
 - G. Tsontzos
 - C. Mpoumpouka
 - P. Papadopoulos
 - D. Papaioannou



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept 1, 2005 to Sept 1, 2006

Name: Michalis Zervakis

Rank: Professor

Years in rank:

Full-time or part-time: Full-time

Division: Telecommunications

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

A – Teaching

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

B – Publications

Conference Papers

- L. Sun, P. Hu, C. Goh, B. Hamadicharef, M. Hess, E. Ifeachor, I. Barbounakis, **M. Zervakis**, N. Nurminen and A. Varri, “Bioprofiling over Grid for Early Detection of Dementia”, Infoscale 2006, June 6-9, Valencia, Italy.
- Lingfen Sun, P. Hu, C. Goh, B. Hamadicharef, M. Hess, E. Ifeachor, I. Barbounakis, **M. Zervakis**, N. Nurminen and A. Varri, “Bioprofiling over Grid for Early Detection of Dementia” First International Conference on Scalable Information Systems, May29-June 1, 2006, Hong Kong.
- P. Xanthopoulos , S. Golemati , V. Sakkalis , P. Y. Ktonas , **M. Zervakis** and C. R. Soldatos “*Modeling the time-varying microstructure of simulated sleep EEG spindles using time-frequency analysis methods*” accepted to IEEE 2006 International Conference of the Engineering in Medicine and Biology Society EMBC 2006., August 30-Sept. 3, 2006.
- V. Sakkalis, T. Oikonomou, E. Pachou, I. Tollis, S. Micheloyannis, and **M. Zervakis**, "Time-significant Wavelet Coherence for the Evaluation of Schizophrenic Brain Activity using a Graph theory approach", accepted to IEEE 2006 International Conference of the Engineering in Medicine and Biology Society EMBC 2006., August 30-Sept. 3, 2006.
- Z. E. Getsis, D. Tzagkas, P. V. Hatzilias and **M. Zervakis**, " Laparoscopic Image Analysis for Robotic Arm Guidance ", accepted to IEEE 2006 International Conference of the Engineering in Medicine and Biology Society EMBC 2006., August 30-Sept. 3, 2006.
- I. N. Dimou, G. Manikis and **M. Zervakis**, "Applying Classifier Fusion schemes to Diagnostic Cancer Models ", accepted to IEEE 2006 International Conference of the Engineering in Medicine and Biology Society EMBC 2006., August 30-Sept. 3, 2006.
- Blazadonakis **M.**, **Zervakis M.**, Kounelakis M., Beganzoli E. and Lamma N. (2006), Support Vector Machines and Neural Networks as Marker Selectors for Cancer Gene Analysis, accepted to the *3rd IEEE International Conference on Intelligent Systems (IS)*, London 4-6/9/2006.
- Z. Getsis, **M. Zervakis**, G. Stavrakakis, "Early Detection of Winding Faults in Windmill Generators Using Wavelet Transform and ANN Classification", Intl. Conf. On ANN, Athens Sept 10-14, 2006. Also in Lecture Notes in Computer Science, Springer, Volume 4132/2006.
- **M. Zervakis** and M. Tzaphlidou, “Design and Implementation of an Optical Inspection System for Analyzing D-Periods in Collagen Fibril Images” accepted to International special topic conference on Information Technology in biomedicine (ITAB 2006), accepted Aug 25, 2006.
- P. Xanthopoulos, S. Golemati, V. Sakkalis, P. Y. Ktonas, M. D. Ortigueira, **M. Zervakis**, T. Paparrigopoulos, X. Tsekou, and C. R. Soldatos “Comparative analysis of time-frequency methods estimating the time-varying microstructure of sleep EEG spindles”, in *International*

special topic conference on Information Technology in biomedicine (ITAB 2006), Aug 25, 2006.

- Vangelis Sakkalis, Ciprian Doru Giurcăneanu, Petros Xanthopoulos, **Michalis Zervakis** and Sifis Michelogiannis “*Assessment of linear and non-linear EEG synchronization measures for evaluating mild epileptic signal patterns*” accepted to International special topic conference on Information Technology in biomedicine (ITAB 2006) , accepted Aug 25, 2006.
- V. Sakkalis, **M. Zervakis**, C. Bigan, T. Cassar, K.P. Camilleri, S.G. Fabri, and Sifis Micheloyannis, “*Validation of time-frequency and ARMA feature extraction methods in classification of mild epileptic signal patterns*”, accepted to International special topic conference on Information Technology in biomedicine (ITAB 2006) , accepted Aug 25, 2006.
- L. C. Barna, M. Koivuluoma, S. Micheloyannis, M. Zervakis, and A. Värri , “Spectral analysis of the EEG for the differentiation of normal children and children with mild epilepsy”, accepted to International special topic conference on Information Technology in biomedicine (ITAB 2006) , accepted Aug 25, 2006.
- P.Kapsalas, P.Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, A. Moropoulou, “A Computer-Vision Approach for Accurate Segmentation and Quantification of Corrosion Damage”, *International Workshop on 'Science for Cultural Heritage'* October 23-28, 2006 ICTP - Trieste, Italy (accepted Sept 15, 2006)

Journal Papers

- S. Micheloyannis, E. Pachou, C.J. Stam, M. Breakspear, P. Bitsios, M. Vourkas, S. Erimaki, **M. Zervakis**, “Small-world networks and disturbed functional connectivity in schizophrenia”, accepted to *Schizophrenia Research*, June 2006
- V. Sakkalis, **M. Zervakis**, and S. Micheloyannis, "Significant EEG Feature Selection for the Evaluation of Cognitive Task Complexity Functions", *Brain Topography*, accepted Sept 10, 2006.
- P.Kapsalas, P.Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, and A. Moropoulou, “Optical Inspection for Quantification of Decay on Stone Surfaces” *Non-Destructive Testing and Evaluation (NDT-E)*, accepted July 16, 2006
- P.Kapsalas, P.Maravelaki-Kalaitzaki, **M. Zervakis**, E.T Delegou, A. Moropoulou, “A Morphological Fusion Algorithm for Optical Inspection and Quantification of decay Patterns on Stone Surfaces”, *Journal of Construction and Building Materials*, accepted Aug.10, 2006.

Book Chapters

- Kounelakis, **M. Zervakis**, M., Kotsiakis, X. (2006), ‘The impact of Microarray Technology in Brain Cancer ’, in A Taktak & A. C. Fisher (ed): *A Multi-Perspective View on Outcome Prediction in Cancer*, Elsevier Publishing Company, Section 13, to appear.

Submitted Papers- Under Review

- *P.Kapsalas, M. Zervakis, P. Maravelaki-Kalaitzaki*: “Evaluation of Image Segmentation Approaches for Non-Destructive Detection and Quantification of Corrosion Damage on Stonework” *Journal of Corrosion Science* (Under review)
- S. Goumas, J. Dimou and **M. Zervakis**, “Combination of Multiple Classifiers for Post Placement Quality Inspection of Components: A Comparative Study”, submitted to *Journal of Information Fusion*, July 2006.
- S. Goumas and **M. Zervakis**, “Combining Multiple Classifiers using Reduced Dimensionality Distinct Pattern Representations for Post Placement Quality Inspection of Components”, submitted to *IEEE Trans. On SMC-B*, Aug 2006.

- Patents: none

C – Awards & Distinctions

D – Funded Projects

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)

2006	<p>Funding Agency: Ministry of Development, General Secretariat for Research and Technology Total budget 800.000 Euros, TUC Budget 244,402 Euro Semantic Similarity for Knowledge Discovery in Medical Archives (MedSearch) <i>Participant,</i> Funding Agency: BIOPATTERN NoE, Fp6 TUC Budget 40,000 Euro</p>
2006	<p>District Technology Platform for Wideband Health Services <i>Principal investigator for TUC</i> Funding Agency: District of Crete under the Programme “Poles of Innovation”</p>
2005-2007	<p><i>Principal investigator for TUC</i>, project HERPS Center: <i>Training Centre for Health Care, Prophylactic and Rehabilitation Services, LEONARDO DA VINCI</i> Community Vocational Training Action, 2nd phase, PI’s budget 46,538 Euro</p>
2004-2007	<p><i>Principal investigator for TUC</i>, project OPTAG: Improving Airport Security and Passenger Flow by Enhanced Passenger Monitoring, STREP, FP-6. Total budget 2,234,853 euros, PI’s budget, 269,640 euros.</p>
2004-2007	<p><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</p>

- Project proposals submitted:
 - Over 4 from 2005 to Sept 2006

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
 - 2006 Session Chair ICANN-06 (International Conference on Artificial Neural Networks)
- Conference Technical Program Committee service
 - Technical Committee Member: IEEE EMBC 2006 (Engineering in Medicine and Biology Conference).
 - Programme Committee Member: ESANN' 2006 (European Symposium on Artificial Neural networks).

- Organizing Committee Member: MEDSIP 2006 (International Conference on Advances in Medical, Signal and Information Processing)
- Local Organizing Committee: ICANN-06 (International Conference on Artificial Neural Networks)
- 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

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

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Zacharias Getsis MASc student - Graduated
 - Ioannis Dimou PhD student
 - Michalis Kounelakis, PhD student
 - Michalis Blazantonakis PhD student
 - Vaggelis Sakkalis, PhD student
 - Stefanos Goumas PhD student
 - George Manikis MASc student
 - Antonis Tsihlias MASc student
 - Kostantina Moirogiorgou MASc student
 - Nikolas MARKopoulos MASc student
 - George Livanos MASc student
 - Kostas Michalopoulos MASc student
 - PhD. And M.Sc. degrees awarded
- 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: Sep. 1, 2005 to Aug. 31, 2006

Name: George Karystinos

Rank: Assistant Professor

Years in rank: 1 (as Visiting Faculty, PD 407)

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 501 – Mobile Communication Systems and Networks (Fall 2005)
 - TEL 502 – Statistical Signal Processing for Communications (Spring 2006)
- Graduate courses taught
 - TEL 609 – Special Topics on Communication Systems (Fall 2005)
- Labs taught
 - TEL 501 – Mobile Communication Systems and Networks Lab (Fall 2005)
 - TEL 609 – Special Topics on Communication Systems Lab (Fall 2005)
 - TEL 502 – Statistical Signal Processing for Communications Lab (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - TEL 501 – Mobile Communication Systems and Networks (Fall 2005)
 - TEL 609 – Special Topics on Communication Systems (Fall 2005)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - **G. N. Karystinos** and D. A. Pados, “Rank-2-optimal adaptive design of binary spreading codes,” *IEEE Transactions on Information Theory*, submitted Sept. 2005.
 - Accepted
 - **G. N. Karystinos** and D. A. Pados, “Rank-2-optimal adaptive design of binary spreading codes,” *IEEE Transactions on Information Theory*, accepted with revisions Mar. 2006.
 - Published
- Publications in refereed conferences
 - Submitted: those published (see below), plus
 - **G. N. Karystinos** and A. P. Liavas, “Efficient computation of the binary vector that maximizes a rank-3 quadratic form,” *Proc. 2006 Allerton Conference on Communication, Control, and Computing*, submitted July 2006.
 - Accepted: those published (see below)
 - Published
 - **G. N. Karystinos** and D. A. Pados, “Bit-error-rate and maximum-SINR performance of the odd-length minimum-TSC binary signature sets,” in *Proc. IEEE ICT 2006 - Intern. Conf. Telecommunications*, Madeira Island, Portugal, May 2006.
 - **G. N. Karystinos** and D. A. Pados, “On the design of maximum-SINR binary spreading codes,” in *Proc. IEEE ICT 2006 - Intern. Conf. Telecommunications*, Madeira Island, Portugal, May 2006.
 - **G. N. Karystinos** and D. A. Pados, “Code division multiplexing properties of the odd-length minimum-TSC binary signature sets,” in *Proc. 2006 Conf. on Inform. Sc. and Syst. (CISS 2006)*, Princeton University, Princeton, NJ, Mar. 2006, pp. 1540-1545.
 - **G. N. Karystinos** and D. A. Pados, “Rank-2-optimal binary spreading codes,” in *Proc. 2006 Conf. on Inform. Sc. and Syst. (CISS 2006)*, Princeton University, Princeton, NJ, Mar. 2006, pp. 1534-1539.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

- 2005 Web of Science Highly Cited Article (G. N. Karystinos and D. A. Pados, “New bounds on the total squared correlation and optimum design of DS-CDMA binary signature sets,” *IEEE Transactions on Communications*, vol. 51, pp. 48-51, Jan. 2003):
“... in the top 1% within its field according to Essential Science Indicators SM. Your work is highly influential, and is making a significant impact among your colleagues in your field of study.”

D – Funded Projects

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

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
- Conference Organization (specify role)
 - Session Chair, “MIMO and OFDM,” IEEE ICT 2006 - Intern. Conf. Telecommunications, Madeira Island, Portugal, May 2006.
- 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 Communications Letters*
 - *IEEE Signal Processing Letters*
 - Reviewer for conferences
 - *IEEE GLOBECOM 2006 - Global Communications Conference*
 - *IEEE ICC 2005 - International Conference on Communications*

- *IEEE ICASSP 2006 - International Conference on Acoustics, Speech, and Signal Processing*
- *IEEE WCNC 2006 – Wireless Communications and Networking Conference*
- *IEEE PIMRC 2006 – International Symposium on Personal, Indoor and Mobile Radio Communications*
- *IEEE ICT 2006 - International Conference on Telecommunications*

F – Service to the Department and the School

- Departmental responsibilities
 - Organized the Spring 2006 Telecommunications Division Seminar Series, Department of Electronic and Computer engineering, Technical University of Crete.
- School-level responsibilities

G – Advising

- Active graduate students supervised
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Dimitris Papailiopoulos, “Performance evaluation of PAPR reduction methods in OFDM systems that employ nonlinear power amplifiers.”



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Polychronis Koutsakis

Rank: Assistant Professor, McMaster University.

Years in rank: 1st year

Full-time or part-time: Full-time

Division (during the past year in TUC as a postdoctoral researcher):
Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 401 – Computer Networks I (teaching assistant, Fall 2005)
 - TEL 411- Computer Networks II (teaching assistant, Spring 2006)

B – Publications

- Publications in refereed journals
 - Submitted
 - A. Lazaris, **P. Koutsakis** and M. Paterakis, “A New Model for Video Traffic Originating from Multiplexed MPEG-4 Videoconference Streams and its Application in Traffic Policing”, *revised for publication* in the Performance Evaluation Journal (Elsevier Publ).
 - **P. Koutsakis**, “On Improving Channel Throughput by Restricting Data Traffic Access in Multimedia Integration over Wireless Channels”, *revised for publication* in the International Journal of Electronics and Communications (Elsevier Publ.)

- **P. Koutsakis** and M. Paterakis, “A New Traffic Policing Approach Based on Accurate H.263 Videoconference Traffic Modeling”, submitted to the IEEE Transactions on Parallel and Distributed Systems.
- T. Chiras, **P. Koutsakis** and M. Paterakis, “On Providing Efficient Medium Access Control for Broadband Powerline Communication Networks”, submitted to the IEE Proceedings-Communications.
- S. Chatziperis, **P. Koutsakis** and M. Paterakis, “A New Call Admission Control Mechanism for Multimedia Traffic over Next Generation Wireless Cellular Networks”, submitted to the IEEE Transactions on Mobile Computing.
- **P. Koutsakis**, “Satellite Bandwidth Allocation Based on MPEG-4 Videoconference Traffic Prediction”, submitted to the Wireless Personal Communications Journal (Springer Publ.)
- **P. Koutsakis** and M. Vafiadis, “On Integrating Voice, H.264 Video, Mobile Messaging and IP Traffic over Cellular Wireless TDMA Networks with Capture”, submitted to the IEEE Transactions on Wireless Communications.
- T. Drivas, **P. Koutsakis** and M. Paterakis, “Enhancement and Performance Evaluation of the MI-MAC Protocol for Wireless Cellular Networks with per User Varying Channel Conditions”, submitted to the IEEE Transactions on Wireless Communications.
- **P. Koutsakis**, “On the Efficiency of the MI-MAC Protocol for the Integration of H.264 Video, Voice and WAP Traffic over Wireless Cellular Networks”, submitted to the IEE Proceedings-Communications.
- T. Chiras, **P. Koutsakis** and M. Paterakis, “On Improving the Efficiency of the Extended Aloha Protocol for Broadband Powerline Communications”, submitted to the International Journal of Electronics and Communications (Elsevier Publ.)
- **P. Koutsakis**, “On Modeling VBR Videoconferencing Traffic from H.263 Video Coders”, submitted to the International Journal of Electronics and Communications (Elsevier Publ.)
- Accepted
 - **P. Koutsakis**, M. Vafiadis and H. Papadakis, “Prediction-Based Resource Allocation for Multimedia Traffic over High-Speed Wireless Networks”, *accepted for publication in the International Journal of Electronics and Communications (Elsevier Publ.)*
 - **P. Koutsakis** and M. Vafiadis, “Medium Access Control for Integrated Multimedia Wireless Access with the use of a Video Packet Discard Scheme”, *accepted for publication in the Wireless Personal Communications Journal (Springer Publ.)*
 - **P. Koutsakis**, “On Providing Dynamic Resource Allocation Based on Multimedia Traffic Prediction in Satellite Systems”, *accepted for publication in the Computer Communications Journal (Elsevier Publ.)*

- Published
 - **P. Koutsakis**, “A Unified Mechanism for Multimedia Downlink Scheduling and Call Admission Control for Future Error-Prone Wireless Networks”, *Wireless Personal Communications Journal*, Springer Publ., Vol. 34, No. 4, 2005, pp. 395-409.
 - **P. Koutsakis**, S. Psychis and M. Paterakis, “Integrated Wireless Access for Videoconference from MPEG-4 and H.263 Video Coders with Voice, E-mail and Web Traffic over Wireless Networks”, *IEEE Transactions on Vehicular Technology*, Vol. 54, No. 5, 2005, pp. 1863-1874.
 - **P. Koutsakis** and M. Paterakis, “A Bandwidth Reservation Mechanism for Prioritized Multimedia Integrated Access with Very High Channel Throughput in Beyond 3G TDMA-based Wireless Networks”, *Performance Evaluation Journal*, Elsevier Publ., Vol. 63, No. 2, 2006, pp. 61-78.
 - **P. Koutsakis**, “Scheduling and Traffic Policing for Variably Demanding Video Traffic Integrated with Voice and Data Traffic in 4th Generation Wireless Networks”, *Wireless Personal Communications Journal*, Springer Publ., Vol. 36, No. 1, 2006, pp. 69-77.
 - S. Psychis, **P. Koutsakis** and M. Paterakis, “A Flexible MAC Protocol for the Integration of High and Low Quality Video Streams, Voice and Data Traffic over High Speed Packet Switched Wireless Networks”, *International Journal of Electronics and Communications*, Elsevier Publ., Vol. 60, No. 4, 2006, pp. 306-315.
 - **P. Koutsakis** and M. Vafiadis, “A Fully Dynamic Scheduling Mechanism for Multimedia Integration in Next Generation Wireless Networks”, *Computer Communications Journal*, Elsevier Publ., Vol. 29, No. 10, 2006, pp. 1823-1832.
- Publications in refereed conferences
 - Submitted:
 - S. Chatziperis, **P. Koutsakis** and M. Paterakis, “On Achieving Accurate Call Admission Control for Videoconference Traffic Transmission over Wireless Cellular Networks, submitted to the IEEE WCNC 2007.
 - **P. Koutsakis**, “Performance Evaluation of the MI-MAC Protocol for the Integration of H.264, Voice and WAP Traffic over Wireless Cellular Networks”, submitted to the IEEE WCNC 2007.
 - Accepted:
 - **P. Koutsakis**, “A New Model for Multiplexed VBR H.263 Videoconference Traffic”, to appear in Proc. of the 49th IEEE GLOBECOM 2006, November 2006, San Francisco, USA.

- T. Chiras, **P. Koutsakis** and M. Paterakis, “A New MAC Protocol for Broadband Powerline Communications Networks”, to appear in Proc. of the 49th IEEE GLOBECOM 2006, November 2006, San Francisco, USA.
- Published
 - **P. Koutsakis** and H. Papadakis, “On the Development of a Combined Scheduling/Traffic Policing Mechanism for 4th Generation Wireless Networks”, in Proc. of the 4th Asian International Mobile Computing Conference (AMOC 2006), January 2006, Kolkata, India.
 - **P. Koutsakis**, H. Papadakis and M. Vafiadis, “Downlink Scheduling and Call Admission Control for Voice, Video, WAP and SMS Traffic over High Capacity Wireless Picocellular Networks”, in Proc. of the IEEE Consumer Communications and Networking Conference (CCNC) 2006, January 2006, Vol.2, pp. 918-922, Las Vegas, USA.
 - **P. Koutsakis** and H. Papadakis, “Efficient Medium Access Control for Wireless Sensor Networks”, in Proc. of the 1st IEEE International Symposium on Wireless Pervasive Computing (ISWPC 2006), January 2006, Phuket, Thailand.
 - **P. Koutsakis**, “On the Use of Videoconference Traffic Prediction for an Efficient Satellite Bandwidth Allocation Scheme”, to appear in Proc. of the 3rd IEEE/IFIP International Conference on Wireless and Optical Communications Networks (WOCN 2006), April 2006, Bangalore, India.
 - **P. Koutsakis**, “Efficient Wireless Bandwidth Allocation for MPEG-4 Videos Integrated with Web Traffic”, to appear in Proc. of the 5th International Conference on Networking (ICN '06), April 2006, Mauritius.
 - A. Lazaris, **P. Koutsakis** and M. Paterakis, “On Modeling Video Traffic from Multiplexed MPEG-4 Videoconference Streams”, in Proc. of the 6th International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networking (NEW2AN), May 2006, St. Petersburg, Russia, *published in Lecture Notes in Computer Science, Springer-Verlag*, Vol. 4003, 2006, pp.46-57.
 - **P. Koutsakis** and A. Lazaris, “A New MAC Protocol Based on Multimedia Traffic Prediction in Satellite Systems”, in Proc. of the 6th International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networking (NEW2AN), May 2006, St. Petersburg, Russia, *published in Lecture Notes in Computer Science, Springer-Verlag*, Vol. 4003, 2006, pp.58-69.
 - **P. Koutsakis**, “On Increasing Energy Conservation for Wireless Sensor Networks”, to appear in Proc. of the International Conference on Wireless and Mobile Communications (ICWMC 2006), July 2006, Bucharest, Romania.

- **P. Koutsakis**, “A New Efficient Scheme for the Allocation of Satellite Bandwidth Based on Videoconference Traffic Estimation”, to appear in Proc. of the International Conference on Wireless and Mobile Communications (ICWMC 2006), July 2006, Bucharest, Romania.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - March 2004-August 2006 Chief Researcher for the program “Design and Implementation of Multiple Access Protocols for Broadband Mobile Satellite Networks and Wireless Sensor Networks”, funded by Operational Program for Education and Initial Vocational Training (EPEAEK), coordinated by the Greek Ministry of National Education. Budget: 50K €.

E – Professional service

- Conference Technical Program Committee service
 - *Session Chair for the “Resource Optimization in Satellite Systems” Session*, IEEE GLOBECOM 2006 Symposium on Satellite and Space Communications.
 - IEEE Conference on Pervasive Computing and Communications (PerCom)2006,
 - IEEE Conference on Local Computer Networks (LCN) 2006,
 - The First International Symposium on Pervasive Computing and Applications (SPCA 06)
 - The 10th Communications and Networking Simulation Symposium (CNS’07), part of the 2007 Spring Simulation Multiconference,
- Reviewing activities
 - IEEE/ACM Transactions on Networking.
 - IEEE Transactions on Vehicular Technology
 - IEEE Transactions on Mobile Computing
 - IEEE Network
 - IEEE Communications Magazine
 - IEEE Communications Letters
 - Wireless Personal Communications Journal (Springer Publ.)
 - Computer Networks Journal (Elsevier Science Publisher)
 - Computer Communications Journal (Elsevier Science Publisher)

- Pervasive and Mobile Computing (Elsevier Science Publisher)
- International Journal on Computers and Electrical Engineering (Elsevier Publ.)
- EURASIP Journal on Wireless Communications and Networking
- International Journal of Computers and Applications (ACTA Press Publ.)
- European Wireless 2006 Conference

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - M.Sc. students (co-supervised with Prof. M. Paterakis)
 - Theodoros Chiras, year of initial enrollment in program: 2004.
 - Aggelos Lazaris, year of initial enrollment in program: 2006.
- Undergraduate students (co-supervised with Prof. M. Paterakis)
 - Diploma theses completed
 - Aggelos Lazaris, “On Modeling MPEG-4 Videoconference Traffic”, co-supervision with Prof. Michael Paterakis.
 - Vassilis Kypouris, “On the Performance Evaluation of Various contention resolution algorithms in Voice-WAP-SMS-Email Integration over High Capacity Wireless Networks”, co-supervision with Prof. Michael Paterakis.
 - Theodoros Drivas, “On Optimizing Resource Allocation in Wireless Cellular Networks with per User Varying Channel Conditions”.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Athanasios P. Liavas

Rank: Associate Professor

Years in rank: 2+1/2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 201 – Signals and Systems (Fall 2005)
 - TEL 311 – Telecommunication Systems II (Spring 2006)
- Graduate courses taught
 - TEL 608 – Information Theory (Spring 2006)
- Labs taught
 - TEL 311 – Telecommunication Systems II Lab (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - **A. P. Liavas** and D. Tsipouridou, “On the performance of the mismatched MMSE and LS linear equalizers,” submitted to the *IEEE Trans. Signal Processing*, submitted April 2006 (accepted under minor revisions, July 2006).
 - Accepted
 - Published
 - **A. P. Liavas**, “On the sensitivity of a suboptimum precoding scheme for frequency-selective block-based channel with respect to channel inaccuracies,” *IEEE Trans. Info. Theory*, vol. 51, no. 9, pp. 3374-3381, September 2005.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the transmit Wiener filter for broadcast channels with respect to channel uncertainties,” submitted to *ICASSP 2007*.
 - Accepted: those published (see below), plus
 - Published
 - G. Karystinos and **A. P. Liavas**, “Efficient computation of the binary vector that maximizes a rank-3 quadratic form,” *2006 Allerton Conference On Communication, Control and Computing*.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

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

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing*

- Society Technical Committee duties
 - Member, *Signal Processing for Communications Technical Committee, IEEE Signal Processing Society.*
- Conference Technical Program Committee service
- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for *IEEE Trans. on Signal Processing, IEEE Trans. on Communications, IEEE Journal on Selected Areas in Communications.*

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Member, Library Committee
 - Regular Member, University Senate

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Despoina Tsipouridou (MsC),
year of initial enrollment in MSc program: 2004.
 - Efthimios Ambatzis (MsC),
Year of initial enrollment in MSc program: 2004
 - Apollon Maniadakis (MSc),
year of initial enrollment in MSc program: 2004
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Ioannis Lazaridis, “Software implementation of a digital receiver for single carrier telecommunication systems.”
 - Vassilios Vlahodimitropoulos, “Software implementation of a digital receiver for single carrier telecommunication systems.”
 - Diploma theses completed (supervisor)
 - Theodora Zarbou, “Study and implementation of the Minimum Mean Square Error - Decision Feedback Equalizer”.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2005 to August 31, 2006

Name: Michael Paterakis

Rank: Professor

Years in rank: 7

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
 - Lazaris, P. Koutsakis and **M. Paterakis**, “A New Model for Video Traffic Originating from Multiplexed MPEG-4 Videoconference Streams and its Application in Traffic Policing”, *revised for publication* in the Performance Evaluation Journal (Elsevier Publ).
 - P. Koutsakis and **M. Paterakis**, “A New Traffic Policing Approach Based on Accurate H.263 Videoconference Traffic Modeling”, submitted to the IEEE Transactions on Parallel and Distributed Systems.
 - T. Chiras, P. Koutsakis and **M. Paterakis**, “On Providing Efficient Medium Access Control for Broadband Powerline Communication Networks”, submitted to the IEE Proceedings-Communications.
 - S. Chatziperis, P. Koutsakis and **M. Paterakis**, “A New Call Admission Control Mechanism for Multimedia Traffic over Next

Generation Wireless Cellular Networks”, submitted to the IEEE Transactions on Mobile Computing.

- T. Drivas, P. Koutsakis and **M. Paterakis**, “Enhancement and Performance Evaluation of the MI-MAC Protocol for Wireless Cellular Networks with per User Varying Channel Conditions”, submitted to the IEEE Transactions on Wireless Communications.

- Accepted

- Anna Satsiou and **Michael Paterakis**, “Frequency-Based Cache Management Policies for Collaborative and Non-Collaborative Topologies of Segment Based Video Caching Proxies”, ACM Multimedia Systems Journal, Springer Publ., to appear in 2006.

- Published

- P. Koutsakis, S. Psychis and **M. Paterakis**, “Integrated Wireless Access for Videoconference from MPEG-4 and H.263 Video Coders with Voice, E-mail and Web Traffic over Wireless Networks”, IEEE Transactions on Vehicular Technology, Vol. 54, No. 5, 2005, pp. 1863-1874.
- P. Koutsakis and **M. Paterakis**, “A Bandwidth Reservation Mechanism for Prioritized Multimedia Integrated Access with Very High Channel Throughput in Beyond 3G TDMA-based Wireless Networks”, Performance Evaluation Journal, Elsevier Publ., Vol. 63, No. 2, 2006, pp. 61-78.
- S. Psychis, P. Koutsakis and **M. Paterakis**, “A Flexible MAC Protocol for the Integration of High and Low Quality Video Streams, Voice and Data Traffic over High Speed Packet Switched Wireless Networks”, International Journal of Electronics and Communications, Elsevier Publ., Vol. 60, No. 4, 2006, pp. 306-315.

- Publications in refereed conferences

- Submitted

- S. Chatziperis, P. Koutsakis and **M. Paterakis**, “On Achieving Accurate Call Admission Control for Videoconference Traffic Transmission over Wireless Cellular Networks”, submitted to the IEEE WCNC 2007.

- Accepted

- T. Chiras, P. Koutsakis and **M. Paterakis**, “A New MAC Protocol for Broadband Powerline Communications Networks”, to appear in

Proc. of the 49th IEEE GLOBECOM 2006, November 2006, San Francisco, USA.

- A. Satsiou and **M. Paterakis**, "Efficient Caching of Video Content to an Architecture of Proxies according to a Frequency-Based Cache Management Policy", to appear in Proc. of the 2nd Intl. Workshop on Advanced Architectures and Algorithms for Internet Delivery and Applications, Pisa, Italy, October 2006.

- Published

- Gougousis and **M. Paterakis**, "Scheduling with QoS Support for MultiRate Wireless Systems with Variable Channel Conditions", in Proc. of the 12th European Wireless Conference – Enabling Technologies for Wireless Multimedia Communications (European Wireless 2006), April 2006, Athens, Greece.
- Lazaris, P. Koutsakis and **M. Paterakis**, "On Modeling Video Traffic from Multiplexed MPEG-4 Videoconference Streams", in Proc. of the 6th International Conference on Next Generation Teletraffic and Wired/Wireless Advanced Networking (NEW2AN), May 2006, St. Petersburg, Russia, *published in Lecture Notes in Computer Science, Springer-Verlag*, Vol. 4003, 2006, pp.46-57.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - "Multiuser Downlink Beamforming and Scheduling for Broadband Wireless Access Beyond 3G", funded for the period 1/7/2004 – 30/3/2007 by the Greek General Secretariat of Research & Technology (GGET). PI: Prof. N. Sidiropoulos, Co – PIs: Prof. M. Paterakis and Prof. G. Giannakis (UMN – U.S.A.). Budget: 60K €.
 - "Design and Implementation of Multiple Access Protocols for Broadband Mobile Satellite Networks and Wireless Sensor Networks", funded for the period March 2004-August 2006 by the Operational Program for Education and Initial Vocational Training (EPEAEK) of the Third European Union Support Framework for Greece, coordinated by the Greek Ministry of Education. PI: Prof. M. Paterakis. Budget: 50K €.
 - "Technical Adviser of the National Administrative Authority of the Information Society Program for the project: *Design, Development and*

Construction of Broadband Fiber Optic-Based Metropolitan Area Networks (MANs) in the Region of Crete” (MANs will be built in six municipalities). Funded for the period 1/10/2005 – 30/12/2007, by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 450K €.

- “Pilot Application of Encoding/Transcoding and Storage of Video Files Using the National Computer Grid Infrastructures”, funded for the period 1/10/2006 – 30/9/2007 by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 54K €.

E – Professional service

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

F – Service to the Department and the School

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

G – Advising

- Active graduate students supervised
 - Ph.D. students supervised
 - Spyros Psychis
 - M.Sc. degrees awarded
 - Alexandros Gougousis, M.Sc., ECE Dept., Tech. Univ. of Crete, Completion Time: Fall 2005. *M.Sc. Thesis*: “Robust Scheduling for Real-Time and Non-Real-Time Traffic in UMT systems employing

HSDPA”.

- M.Sc. students supervised
 - Theodoros Chiras, email : theras@telecom.tuc.gr, telephone : 2821037235, co-supervision with Prof. P. Koutsakis .
 - Antonis Stephanogiannis, email: ant_stefan@telecom.tuc.gr, telephone: 2821037235.
 - Sotiris Bouros, , email: sotiris@telecom.tuc.gr, 2821037391.
 - Aggelos Lazaris, email: alazaris@telecom.tuc.gr, telephone : 2821037343, co-supervision with Prof. P. Koutsakis.
- Undergraduate students supervised
 - Diploma Theses completed (supervisor)
 - Aggelos Lazaris, “On Modeling MPEG-4 Videoconference Traffic”, co-supervision with Prof. P. Koutsakis.
 - Vassilis Kypouris, “On the Performance Evaluation of Various contention resolution algorithms in Voice-WAP-SMS-Email Integration over High Capacity Wireless Networks”, co-supervision with Prof. P. Koutsakis.
 - Theodoros Drivas, “On Optimizing Resource Allocation in Wireless Cellular Networks with per User Varying Channel Conditions”, co-supervision with Prof. P. Koutsakis.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Alexandros Potamianos

Rank: Associate Professor

Years in rank: 3+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
- Graduate courses taught
 - TEL 611 – Natural Language Processing
- Curriculum & course development

B – Publications

- Publications in refereed journals
 - Submitted
 - K. Mokios, N.D. Sidiropoulos, **A. Potamianos**, “Blind Separation of Multichannel Speech Mixtures Using PARAFAC Analysis and Integer Least Squares”, submitted to *IEEE Trans. on Audio, Speech and Language Processing*, April 2006.
 - Accepted

- E. Ammicht, E. Fosler-Lussier, and **A. Potamianos**, "Information seeking spoken dialogue systems - Part I: Semantics and pragmatics," *IEEE Transactions on Multimedia*, to appear, 2006.
 - **A. Potamianos**, E. Fosler-Lussier, E. Ammicht, and M. Perakakis, "Information seeking spoken dialogue systems - Part II: Multimodal dialogue," *IEEE Transactions on Multimedia*, to appear, 2006.
- Published.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below)
 - Accepted/Published
 - E. Iosif, A. Tegos, A. Pangos, E. Fosler-Lussier, and **A. Potamianos**, "Unsupervised combination of metrics for semantic class induction," in *IEEE/ACM Workshop on Spoken Language Technology*, (Aruba), Dec. 2006.
 - M. Perakakis, M. Toutoudakis, and **A. Potamianos**, "Blending speech and visual input in multimodal dialogue systems," in *IEEE/ACM Workshop on Spoken Language Technology*, (Aruba), Dec. 2006.
 - M. Toutoudakis, M. Perakakis, and **A. Potamianos**, "Mode selection in multimodal dialogue systems," *invited paper to ICYC*, (Agia Napa, Cyprus), July 2006.
 - **A. Potamianos** et al, "Towards speaker and environmental robustness in ASR: the HIWIRE project," in *ITRW Workshop on Speech Recognition and Intrinsic Variation*, (Toulouse, France), May 2006.
 - **A. Potamianos**, E. Sanchez-Soto, and K. Daoudi, "Stream weight computation for multi-stream classifiers," in *Proc. IEEE Internat. Conf. on Acoust., Speech, and Signal Process.*, (Toulouse, France), May 2006.
 - K. Mokios, N. Sidiropoulos, and **A. Potamianos**, "Blind speech separation algorithm using PARAFAC and integer least squares," in *Proc. IEEE Internat. Conf. on Acoust., Speech, and Signal Process.*, (Toulouse, France), May 2006.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

2005 IEEE Signal Processing Society Best Paper Award for the paper:

S. Narayanan and **A. Potamianos**, "Creating conversational interfaces for children," *IEEE Transactions on Speech and Audio Processing*, vol. 10, pp. 65-78, Feb. 2002.

D – Funded Projects

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

E – Professional service

- Conference Reviewer Committee
 - ICASSP 2006
- Conference Organization (specify role)
 - General Co-Chair for IEEE MMSP 2007 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-
 - Kleanthis Mokios (Ph.D.) (co-supervised with Prof. Sidiropoulos), 2006-
 - Pirros Tsiakoulis (Ph.D.) (co-supervised with Prof. Karagiannis), Natl. Tech. Univ. of Athens, 2005-
 - Michalis Toutoudakis (M. Sc.) 2002-
 - Michail Maragkakis (M.Sc.) 2003-
 - Ilias Iosif (M.Sc.), 2004-
 - Ioannis Klasinas, (M. Sc.) 2005-
 - Thanasis Tegos, (M. Sc.) (in collaboration with Demokritos Research Center), 2005-
- PhD. And M.Sc. degrees awarded
 - Apostolis Pangos (M.Sc. degree awarded), 2005.
 - Panagiotis Karagiorgakis (M.Sc. degree awarded), 2005.
 - Christos Koniaris (M.Sc. degree awarded), 2006.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Vasso Farantouri
 - Fotis Garitos
 - Giannis Milogianakis
 - Theofanis Kanetis
 - Zafiris Malafouris (co-supervised with V. Digalakis)
 - Diploma theses completed (supervisor)
 - Andreas Tsiartas
 - Ioannis Klasinas
 - Thanasis Tegos



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Nikos Sidiropoulos

Rank: 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 301 – Telecommunication Systems I (Fall 2005)
- Graduate courses taught
 - TEL 603 – Estimation and Detection (Spring 2006)
- Labs taught
 - TEL 301 – Telecommunication Systems I Lab (Fall 2005)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - G. Latsoudas, **N.D. Sidiropoulos**, ``A Fast and Effective Multidimensional Scaling Approach for Node Localization in

Wireless Sensor Networks'', submitted to *IEEE Trans. on Signal Processing*, Aug. 2006.

- A. Ribeiro, Z.-Q. Luo, **N.D. Sidiropoulos**, G.B. Giannakis, ``A General Optimization Framework for Stochastic Routing in Wireless Multi-hop Networks'', submitted to *IEEE Trans. on Signal Processing*, Aug. 1, 2006.
- E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. Luo, ``Quality of Service and Max-min-fair Transmit Beamforming to Multiple Co-channel Multicast Groups'', submitted to *IEEE Trans. on Signal Processing*, July 2006.
- K. Mokios, **N.D. Sidiropoulos**, A. Potamianos, ``Blind Separation of Multichannel Speech Mixtures Using PARAFAC Analysis and Integer Least Squares'', submitted to *IEEE Trans. on Audio, Speech and Language Processing*, April 2006.
- A. Leshem, E. Sayag, **N.D. Sidiropoulos**, ``Quantization Effects on Linear Precoding for Multichannel DSL Transmission'', submitted to *IEEE Trans. on Signal Processing*, Nov. 2005.
- **N.D. Sidiropoulos**, Z.-Q. Luo, ``A Semidefinite Relaxation Approach to MIMO Detection for High-Order QAM Constellations'', *IEEE Signal Processing Letters*, to appear.
- Z.-Q. Luo, **N.D. Sidiropoulos**, P. Tseng, S. Zhang, ``Approximation Bounds for Quadratic Optimization with Homogeneous Quadratic Constraints'', *SIAM Journal on Optimization*, to appear.
- Accepted
 - **N.D. Sidiropoulos**, Z.-Q. Luo, ``A Semidefinite Relaxation Approach to MIMO Detection for High-Order QAM Constellations'', *IEEE Signal Processing Letters*, to appear.
 - Z.-Q. Luo, **N.D. Sidiropoulos**, P. Tseng, S. Zhang, ``Approximation Bounds for Quadratic Optimization with Homogeneous Quadratic Constraints'', *SIAM Journal on Optimization*, to appear.
 - A. Stegeman, and **N.D. Sidiropoulos**, ``On Kruskal's uniqueness condition for the Candecomp/Parafac decomposition'', *Linear Algebra and its Applications*, to appear.
- Published
 - E. Karipidis, **N.D. Sidiropoulos**, A. Leshem, Li Youming, R. Tarafi, and M. Ouzzif, ``Crosstalk Models for Short VDSL2 Lines from Measured 30 MHz Data'', *EURASIP Journal on Applied Signal Processing*, special issue on DSL, 2006, Article ID 85859.
 - **N.D. Sidiropoulos**, T.N. Davidson, Z-Q (Tom) Luo, ``Transmit Beamforming for Physical Layer Multicasting'', *IEEE Trans. on Signal Processing*, 54(6), Part 1, pp. 2239-2251, June 2006.
 - G. Dimic, **N.D. Sidiropoulos**, ``On Downlink Beamforming with Greedy User Selection: Performance Analysis and a Simple New

Algorithm", *IEEE Trans. on Signal Processing*, 53(10):3857-3868, Oct. 2005.

- X. Liu, **N.D. Sidiropoulos**, and A. Swami, "Joint Hop Timing and Frequency Estimation for Collision Resolution in Frequency-Hopped Networks", *IEEE Trans. on Wireless Communications*, 4(6):3063-3074, Nov. 2005.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Ribeiro, Z.-Q. Luo, **N.D. Sidiropoulos**, G.B. Giannakis, "Modelling and Optimization of Stochastic Routing for Wireless Multi-hop Network", *Proc. IEEE Infocom 2007*, submitted.
 - Accepted: those published (see below), plus
 - A. Ribeiro, Z.-Q. Luo, **N.D. Sidiropoulos**, and G.B. Giannakis, "A General Framework for Stochastic Routing in Wireless Multihop Networks", *Proc. of 2006 Asilomar Conference on Signals, Systems & Computers*, Oct. 29 - Nov. 1, 2006, Asilomar Conference Grounds, Pacific Grove, CA, to appear.
 - E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, "Time-Frequency Analysis Using Particle Filtering: Closed-form Optimal Importance Function and Sampling Procedure for a Single Time-varying Harmonic", in *Proc. Nonlinear Statistical Signal Processing Workshop: Classical, Unscented, and Particle Filtering Methods*, Sep. 13-15, 2006, Corpus Christi College, Cambridge, U.K., to appear.
 - Published
 - **N.D. Sidiropoulos**, A. Swami, A. Valyrakis, "Tracking a Frequency-Hopped Signal Using Particle Filtering", *Proc. IEEE ICASSP 2006*, May 14-19, 2006, Toulouse, France.
 - E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. (Tom) Luo, "Convex Transmit Beamforming for Downlink Multicasting to Multiple Co-channel Groups", *Proc. IEEE ICASSP 2006*, May 14-19, 2006, Toulouse, France.
 - K. Mokios, **N.D. Sidiropoulos**, A. Potamianos, "Blind Speech Separation Using PARAFAC Analysis and Integer Least Squares", *Proc. IEEE ICASSP 2006*, May 14-19, 2006, Toulouse, France.
 - E. Karipidis, **N.D. Sidiropoulos**, Z.-Q. (Tom) Luo, "Transmit Beamforming to Multiple Co-channel Multicast Groups", in *Proc. IEEE CAMSAP 2005*, Dec. 12-14, 2005, Puerto Vallarta, Mexico.
 - G. Latsoudas, **N.D. Sidiropoulos**, "A Two-stage FASTMAP-MDS Approach for Node Localization in Sensor Networks", in *Proc. IEEE CAMSAP 2005*, Dec. 12-14, 2005, Puerto Vallarta, Mexico.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Multiuser Transmit Beamforming for Maximum Sum Capacity in Wireless Multicast Networks", ERO, PI: N.D. Sidiropoulos. Award Period: July 2003 - July 2006. Funding level: 88K €.
 - U-BROAD: Ultra High Bit Rate over Copper Technologies for BROADband Multiservice Access", European Commission, FP6 IST STREP project. Consortium led by Metalink, Inc. Israel; partners are Bar-Ilan University, Israel; Telecom Systems Institute, Tech. Univ. of Crete (Sidiropoulos is PI); Rad Data Com., France Telecom, TU Delft, Netherlands, and the Greek National Telecom Organization. Award Period: Dec. 2003 – Nov. 2005. Total budget is 2M Euro; Sidiropoulos' share is 170K €.
 - Multiuser Downlink Beamforming and Scheduling for Broadband Wireless Access Beyond 3G", Greek Secretariat for Research and Technology, Division of International Collaboration in Research and Technology. PI: Nikos Sidiropoulos; Co-PIs: Georgios Giannakis (UMN-U.S.A.) and Michael Paterakis (TSI-TUC, GR). Award Period: July 2004 – March 2007. Budget: 60K €.
- Project proposals submitted:
 - Submitted proposal to GSRT, Division of International Collaboration in R&T; participated in FP6 FET proposal CoopCom, led by Prof. Liavas.

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing*
- Society Technical Committee duties
 - Vice-Chair, *Signal Processing for Communications Technical Committee, IEEE Signal Processing Society*. Responsible for awards and voting.
 - Member, *Sensor Array and Multichannel Signal Processing Technical Committee, IEEE Signal Processing Society*.
- Conference Technical Program Committee service
 - IEEE ICASSP 2006
 - IEEE SPAWC 2006
 - Several other smaller workshops
- Conference Organization (specify role)

- General Chair, TRICAP 2006, June 2006, Chania, Crete, Greece.
- Reviewing activities
 - Reviewer for *IEEE Trans. on Signal Processing*, *IEEE Trans. on Communications*.

F – Service to the Department and the School

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

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Eleftherios Karipidis (Ph.D). Year of initial enrollment in Ph.D. program: 2004.
 - Georgios Latsoudas (M.Sc.). Year of initial enrollment in program: 2004.
 - Kleanthis Mokios (Ph.D) (co-supervised with Prof. Potamianos). Year of initial enrollment in Ph.D. program: 2006.
 - Alexandros Valyrakis (M.Sc.). Year of initial enrollment in program: 2004.
 - Evaggelia Matskani (M.Sc.). Year of initial enrollment in program: 2005.
 - Ph.D. And M.Sc. degrees awarded
 - Georgios Latsoudas (M.Sc. degree awarded). Year of initial enrollment in program: 2004.
 - Kleanthis Mokios (M.Sc. degree awarded). Year of initial enrollment in program: 2003.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Euthemios Tsakonas, “Particle filtering tools for tracking a time-varying harmonic”.
 - Dimitrios Evaggelinakis, “Hybrid semidefinite programming – sphere decoding approaches to MIMO detection”.

- Georgina Abouelxir, “Experimental evaluation of PHY-layer multicasting algorithms using measured wireless channel data”.
- Manolis Koufidakis, “A study of multidimensional scaling algorithms for node localization in sensor networks: performance assessment of iterative majorization and improvements thereof”.
- Valentina Oikonomakou, “Spectrogram segmentation-based tracking of a frequency-hopped signal”.
- Diploma theses completed (supervisor)
 - Markos Bervenakis, “System integration aspects of experimental wireless ftp radio link over analog FM”.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Sophia Tsakiridou

Rank: Visiting Lecturer (Π.Δ. 407/80)

Years in rank: 5

Full-time or part-time: Part-time

Division: Telecommunications

Lab affiliation: Information and Computer Networks Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 401 – Computer Networks I (Fall 2005)
 - TEL 411 – Computer Networks II (Spring 2006)
- Curriculum & course development
 - Lecture notes / slides developed
 - PowerPoint presentation slides for course TEL 401 (new)
 - PowerPoint presentation slides for course TEL 411 (revised)
 - Ethereal labs for course TEL 411 (revised)

B – Publications

C – Awards & Distinctions

D – Funded Projects

E – Professional service

F – Service to the Department and the School

G – Advising

- Undergraduate students supervised
 - Diploma theses in progress (co-supervisor)
 - Spiros Koutsorinakis,
 - Dimitrios Keramidas.

Computer Engineering Division

Faculty members:

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



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Michail G. Lagoudakis

Rank: Assistant Professor

Years in rank: 1

Full-time or part-time: Full-time

Division: Computer Science / Informatics

Lab affiliation: Intelligent Systems Laboratory

A – Teaching

- Undergraduate courses taught
 - COMP 401 – Theory of Computation (Fall 2005)
 - COMP 405 – Artificial Intelligence (Spring 2006)
 - AIS 413 – Autonomous Agents (Spring 2006)
- Graduate courses taught
 - AIS 613 – Autonomous Agents (Spring 2006)
- Labs taught
 - AIS 413 – Autonomous Agents Lab (Spring 2006)
- Other courses
 - BEST Spring course “Robot Programming: Creating Intelligent Machines”
Intensive course/lab for European BEST students (March 20-24)
 - AAAI-06 Tutorial on “Auction-Based Agent Coordination”
- Curriculum & course development
 - New courses / labs developed
 1. Autonomous agents course and lab (AIBO robots)
 - Lecture notes / slides developed
 1. Lecture slides for Theory of Computation
 2. Lecture slides for Artificial Intelligence
 3. Lecture slides for Autonomous Agents

B – Publications

- Publications in refereed journals
 - Submitted
 - C. Guestrin, **M. G. Lagoudakis**, and R. Parr, “Coordinated Reinforcement Learning”, submitted to *the Journal of Machine Learning Research*.
- Publications in refereed conferences
 - Accepted
 - **M. G. Lagoudakis**, “Incremental Multi-Objective Motion Control of Nonholonomic Mobile Robots”, to appear in the *Proceedings of the 2006 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2006)*, Beijing, China, October 9-15, 2006.
 - Published
 - S. Koenig, C. Tovey, **M. G. Lagoudakis**, V. Markakis, D. Kempe, P. Keskinocak, A. Kleywegt, A. Meyerson, S. Jain, “The Power of Sequential Single-Item Auctions for Agent Coordination”, *Proceedings of the 21st National Conference on Artificial Intelligence (AAAI-06)*, Boston, MA, USA, July 16-20, 2006.
 - **M. G. Lagoudakis**, “On Improving Nonholonomic Motion Control for Mobile Robots”, *Proceedings of the 4th Hellenic Conference on Artificial Intelligence (SETN06)*, Heraklion, Greece, May 18-20, 2006.

C – Awards & Distinctions

D – Funded Projects

- Project proposals accepted
 - “RLvSL: Reinforcement Learning via Supervised Learning”, *Marie Curie International Reintegration Grant*, MIRG-CT-2006-044980, PI: M. G. Lagoudakis, award period: Dec. 2006 – Dec. 2008, Budget: 80,000 €.
- Project proposals submitted
 - Proposal to the European Space Agency (jointly with the Microprocessor and Hardware Laboratory)
 - Proposal to the TUC Research Office, Call for basic research grants
 - Proposal to the TUC Research Office, Call for junior faculty grants

E – Professional service

- Conference Technical Program Committee service
 - *Robotics: Science and Systems 2006 (RSS-2006)*
 - *22nd Conference on Uncertainty in Artificial Intelligence (UAI 2006)*

- *17th European Conference on Machine Learning (ECML 2006)*
 - *ICML Workshop on Kernel Machines and Reinforcement Learning 2006*
- Conference Organization (specify role)
 - Co-organizer, *NIPS-06 Workshop on Reinforcement Learning Benchmarks and Bake-offs II*, Vancouver, BC, Canada, December 2005
 - Co-organizer, *AAAI-06 Workshop on Auction Mechanisms for Robot Coordination*, Boston, MA, USA, July 2006
- Reviewing activities
 - *Annals of Mathematics and Artificial Intelligence (AMAI)*
 - *International Journal of AI Tools (IJAIT)*
 - *IEEE Proceedings on Control Theory and Applications (CTA)*
 - *2006 IEEE American Control Conference (ACC-06)*
 - *2006 Florida Artificial Intelligence Symposium (FLAIRS-2006)*
 - *Robotics: Science and Systems 2006 (RSS-2006)*
 - *22nd Conference on Uncertainty in Artificial Intelligence (UAI 2006)*
 - *17th European Conference on Machine Learning (ECML 2006)*
 - *ICML06 Workshop on Kernel Machines and Reinforcement Learning*
 - *Neural Information Processing Systems 2006 (NIPS-2006)*
 - *International Joint Conference on Artificial Intelligence (IJCAI-07)*

F – Service to the Department and the School

- Departmental responsibilities
 - Web mastering and maintenance of www.ece.tuc.gr
 - Faculty search visit coordinator (Computer Science Division)
- School-level responsibilities

G – Advising

- Graduate students
 - Ph.D. and M.Sc. theses in progress (supervisor)
 - Rexakis Ioannis (Ph.D)
Year of initial enrollment in the Ph.D. program: 2006.
 - Markos Mpervanakis (M.Sc.)
Year of initial enrollment in the M.Sc. program: 2006.
- Undergraduate students
 - Diploma theses in progress (supervisor)
 - Vasileios Skourtis, “Implementation of Auction-Based Coordination Algorithms on a Team of AIBO Robots”
 - Konstantinos Makantasis, “Active Face Tracking with a Mobile Robot Camera”
 - Stylianos Tsigdinos, “Improving Traffic Light Control using Reinforcement Learning”

- Suzzana Volioti, “Visual Recognition of Goals in the Four-Legged RoboCup Competition”
 - Nikolaos Hartampas, “Heuristic Search Techniques for a Combinatorial Scheduling Problem”
 - Konstantinos Haldezos, “Interactive Robot Gaming”
 - Iasonas Pazis, “Microprocessor Control of a Hexapod Robot”
 - Georgios Kontes
- Diploma theses completed (committee member)
 - Ioannis Klasinas, “Statistical Machine Translation Incorporating Morphological Knowledge and Using Improved Alignments”
 - Haralambos Darakis, “Implementation and Improvement of a System for Virtual Communities based on the COMISM Model”
 - Theodore Germanis, “Implementation of a Voice Portal for TUC”
 - Christina Boubouka, “Development of a Voice Portal for Providing Automated Watering Advise for Agriculture”
- Student team projects
 - Leader of the four-legged robot soccer team “Κουρήτες”, the first Greek team ever participating in the RoboCup competition (Bremen, June 2006). The team consists of 20 graduate and undergraduate ECE students and 4 Sony AIBO robots.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Katerina Mania

Rank: Assistant Professor

Years in rank: 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 2006)
- Graduate courses taught
 - PLH 610 – Computer Graphics (Spring 2006)
- Labs taught
 - PLH 503 – Computer Graphics (Spring 2006)
- Curriculum & course development
 - New courses/labs developed
 1. PLH 503, Computer Graphics, undergraduate level, labs
 2. PLH 610, Computer Graphics, graduate level, lab exercises and major project specification
 - Lecture notes / slides developed:
 1. PLH 503, Computer Graphics Lecture slides
 2. PLH 610, Computer Graphics, Lecture slides

B – Publications

- Publications in refereed journals
 - Submitted
 - Badariah, H., **Mania, K.**, Coxon, M. (submitted 2006). Cognitive Transfer of Training from Immersive Virtual Environments to Reality, submitted to *ACM Transactions on Applied Perception*.
 - Accepted
 - Robinson, A., **Mania, K.**, Perey, P. (to appear 2007). Flight Simulation: Research Challenges and Flight Crew Assessments of Fidelity. *Simulation and Gaming*, SAGE Publications. ISSN: 1046-8781.
 - Published
 - **Mania, K.**, Wooldridge, D., Coxon, M., Robinson, A. (2006). The Effect of Visual and Interaction Fidelity on Spatial Cognition in Immersive Virtual Environments. *IEEE Transactions on Visualization and Computer Graphics*, 12(3), 396-404. ISSN 1077-2626.
 - **Mania, K.** & Robinson, A., Brandt, K. (2005). The Effect of Memory Schemas on Object Recognition in Virtual Environments. *Presence Teleoperators and Virtual Environments*, 14(5), 606-615, MIT Press. ISSN 1054-7460.
- Publications in refereed conferences
 - Accepted: those published (see below), plus
 - Petridis, P., **Mania, K.**, Pletinckx, D. White, M. (full paper, to appear 2006). Usability Evaluation of the EPOCH Multimodal User Interface: Designing 3D Tangible Interactions. *Proc. of ACM Symposium on Virtual Reality Software and Technology (VRST) 2006*, Cyprus, Nov. 2006.
 - Petridis, P., Pletinckx, D., **Mania, K.**, White, M. (full paper, to appear 2006). The EPOCH Multimodal Interface for Interacting with Digital Heritage Artefacts. *Proc. of 12th International conference on Virtual Systems and Multimedia (VSMM) 2006*, China, Oct. 2006.
 - Sifniotis, M., Jackson, B., White, M., **Mania, K.**, Watten, P. (5-page paper, to appear 2006). Presenting Uncertainty in Archaeological Reconstructions using Possibility Theory and Information Visualisation Schemes. *Proc. of 4th Eurographics Workshop on Graphics and Cultural Heritage*, Cyprus, Oct. 2006.
 - Published

- Sifniotis, M., Jackson, B., White, M., **Mania, K.**, Watten, P. (2006). Visualising Uncertainty in Archaeological Reconstructions: a Possibilistic Approach. Technical Sketch at *ACM Siggraph 2006*, Boston USA (short paper, acceptance rate 19%).
- Mourkoussis, N., **Mania, K.**, Petridis, P., White, M., Rivera, F., Pletinckx, D., Troscianko, T., Hawkes, R. (2006). An analysis of the effect of technological fidelity on perceptual fidelity. Proc. of *IEA 2006 (International Ergonomics Association), 16th World Congress on Ergonomics*, The Hague, Netherlands, July 2006, full paper, ISSN 0003-6870, Elsevier Ltd. 2006.
- **Mania, K.** (2006). Perception and Fidelity. Proc. of *2nd International workshop on VR/VE and Industry: Challenges and Opportunities* organized by the EU NoE INTUITION, Paris, France, full paper, ISBN 960-254-658-1.
- Mourkoussis, N., **Mania, K.**, Troscianko, T., Rivera, F., Hawkes, R. (2006). Friction and Slant Perception in Real and Virtual Environments. Poster at *ACM Siggraph 2006*, Boston USA.
- Badariah, S. & **Mania, K.** (2005). The Effect of Visual Fidelity on Transfer of Training and Awareness States. Poster at *2nd symposium on Applied Perception in Graphics and Visualization 2005*, Spain (sponsored by ACM Siggraph), ACM Siggraph Press.

C – Awards & Distinctions

- Invited lectures
 - “Fidelity Metrics for Virtual Environment Simulations based on Awareness States and Memory Schemas”, invited talk at Max Planck Institute for Biological Cybernetics, Germany, September 2005.
 - “Fidelity Metrics for Immersive Simulations based on Spatial Cognition”, invited talk at INRIA Sophia Antipolis, Rendering and Virtual Environments research group, January 2006.

D – Funded Projects

- Current projects (at the University of Sussex, UK):
 - Quantifying fidelity for virtual environment simulations employing schema assumptions, Engineering and Physical Sciences Council (EPSRC), UK. PI: Katerina Mania Co-PI: Prof. Tom Troscianko (University of Bristol, UK). Collaborator: Dr Rycharde Hawkes (Hewlett Packard Laboratories). £121.000. Oct.2004-Nov. 2006.
 - INTUITION, EU FP6, Network of Excellence on Virtual Reality 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.
- Project proposals submitted:
 - Submitted EU proposals SPRINTER, ACHIEVES, CLEDIN (not funded).
 - Proposal submitted to GSRT Greece related to a Graphics and Virtual Reality Network in Greece (in process).
 - Proposal submitted to the European Space Agency related to ESA Greece call for ideas (in process).
 - Proposal submitted to internal TUC basic research call for new faculty (in process).
 - Proposal submitted to internal TUC basic research call for all faculty (in process).

E – Professional service

- Associate Editor (invited June 2006)
 - Associate Editor, *Presence Tele-operators and Virtual Environments*, MIT Press.
- Conference Technical Program Committee service
 - Program committee member of ACM Symposium on Virtual Reality Software and Technology (VRST) 2006, Nov. 2006, Cyprus.
 - Program committee member of ACM Symposium on Virtual Reality Software and Technology (VRST) 2005, Nov. 2005, CA, USA.
 - Program committee member of Symposium on Applied Perception in Graphics and Visualisation (APGV) 2006 sponsored by ACM Siggraph, Boston, USA, July 2006.
 - Program committee member of 5th International Conference on Virtual Reality, Computer Graphics, Visualization and Interaction in Africa 2006 (Afrigraph – sponsored by ACM Siggraph), Cape Town South Africa, Jan. 2006.
 - Program committee member of 12th International conference on Virtual Systems and Multimedia (VSMM) 2006, China, Oct. 2006.
 - Program committee member of 11th International conference on Virtual Systems and Multimedia (VSMM) 2005, Belgium, Oct. 2005.
 - Program committee member of 9th Annual International Workshop on Presence 2006, Ohio, USA, Aug. 2006.
 - Program committee member of 8th Annual International Workshop on Presence 2005, London, UK, Sept. 2005.
- Conference Organization (specify role)

- General co-chair: 4th Eurographics workshop on Graphics and Cultural Heritage joint conference, Oct. 2006, Cyprus.
- Reviewing activities
 - Reviewer for Presence, Tele-operators and Virtual Environments (MIT Press), IEEE Transactions on Visualisation and Computer Graphics, Computer Graphics Forum (Eurographics), IEE Electronic Letters, Virtual Reality journal (Springer-Verlag), ACM Siggraph 2006, ACM Siggraph 2005, IEEE Virtual Reality 2007, ACM VRST 2005, ACM Afrigraph 2006, ACM VRCIA 2006.

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. students supervised (at the University of Sussex, UK)
 - Fiona Rivera (Ph.D): Year of initial enrollment in Ph.D. program: 2005.
 - Manuela Jungmann (Ph.D): Year of initial enrollment in Ph.D. program: 2005.
 - Maria Sifniotis (Ph.D): Year of initial enrollment in Ph.D. program: 2003.
 - Panos Petridis (Ph.D) Year of initial enrollment in Ph.D. program: 2001.
 - Post-doc fellow (at the University of Sussex, to be visiting TUC)
 - Nick Mourkoussis: Oct. 2004 – January 2007.
 - M.Sc. degrees awarded(at the University of Sussex, UK)
Three M.Sc. degrees awarded under my supervision at the University of Sussex, UK, Sept. 2005.
- Diploma thesis completed (committee member - TUC)
 - Theofanis Kanetis
 - Krommydas Konstantinos
 - Alatzidhs Xrhstos
- Diploma thesis in progress (supervisor - TUC)
 - Kalenteri Maria
 - Mpolierakis Spyros
 - Mouka Theodora



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Euripides G.M. Petrakis

Rank: Associate Professor

Years in rank: 3+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 2005)
 - Computer Vision (Fall 2005)
 - Data Structures and Algorithms (Autumn 2006)
- Graduate courses taught
 - Multimedia Data Management (Fall 2005)
- Labs taught
 - Multimedia Data Management (Fall 2005)
 - Data Structures and Algorithms (Autumn 2006)
- Curriculum & course development
 - New courses - Lecture notes & slides developed

B – Publications

- Publications in refereed journals
 - Submitted
 - 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), Aug. 2006.
 - Accepted
 - **Euripides G.M. Petrakis**, Giannis Varelak, Angelos Hliaoutakis, Paraskevi Raftopoulou, “X-Similarity: Computing Semantic Similarity between Concepts from Different Ontologies”, Journal of Digital Information Management (JDIM), December 2006 (to appear).
 - Published
 - Angelos Hliaoutakis, Giannis Varelak, Epimenidis Voutsakis, **Euripides G.M. Petrakis**, Evangelos Milios, “*Information Retrieval by Semantic Similarity*”, International Journal on Semantic Web and Information Systems (IJSWIS), Special Issue of Multimedia Semantics, Vol. 3, No. 3, July/September, 2006, pp. 55-73.
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Evdoxios Mparatis, **Euripides G.M. Petrakis**, Evangelos Milios, “An Approach to Web-Site Summarization by Image Content”, Fourth Workshop on Algorithms and Models for the Web-Graph (WAW’2006), Nov. 30 - Dec. 1, 2006, Banf, Alberta, Canada
 - Grigoris Tsagatakis, Dina Moirogiorgou, Michalis Zervakis, **Euripides Petrakis**, “A real time transmission system for HDTV resolution video over IP packet based networks”, Intern. Conf. on Signal-Image Technology & Internet Based Systems (SITIS’2006).
 - Accepted: those published (see below), plus
 - Angelos Hliaoutakis, Kalliopi Zervanou, **Euripides G.M. Petrakis**, Evangelos Milios, “*Automatic Document Indexing in Large Medical Collections*”, ACM International Workshop on Health Information and Knowledge Management (ACM HIKM 2006), November 11, 2006, Arlington, VA, USA.
 - Published
 - Angelos Hliaoutakis, Giannis Varelak, **Euripides G.M. Petrakis**, Evangelos Milios, “*MedSearch: A Retrieval System for Medical Information Based on Semantic Similarity*”, 10th ECDL European Conference on Research and Advanced Technology for Digital Libraries (ECDL’2006), pp. 512-515, September, 17-22, 2006. Alicante, Spain.
 - Epimenidis Voutsakis, **Euripides G.M. Petrakis**, Evangelos Milios, “*IntelliSearch: Intelligent Search for Images and Text on*

the Web", 3rd Intern. Conference on Image Analysis and Recognition (ICIAR'2006), pp. 697-708, Sept. 18-20, 2006, Povo de Varzim, Portugal.

- **Euripides G.M. Petrakis**, Giannis Varelas, Angelos Hliaoutakis, Paraskevi Raftopoulou, "*Design and Evaluation of Semantic Similarity Measures for Concepts Stemming from the Same or Different Ontologies*", 4th Workshop on Multimedia Semantics (WMS'06), Chania, Crete, Greece, June 19-21, 2006, pp. 44-52.
- **Euripides G.M. Petrakis**, Klaydios Kontis, Epimenidis Voutsakis, Evangelos Milios, "*Relevance Feedback Methods for Logo and Trademark Image Retrieval on the Web*", ACM Symposium on Applied Computing (ACM SAC'2006), pp. 1084-1088, Special Track on Information Access and Retrieval (IAR), Dijon, France, April 23-27, 2006.
- Giannis Varelas, Paraskevi Raftopoulou, **Euripides G.M. Petrakis**, Evangelos E. Milios, "*Semantic Similarity Methods in WordNet and their Application to Information Retrieval on the Web*", 7th ACM International Workshop on Web Information and Data Management (ACM WIDM 2005), pp. 10-16, Nov. 5, 2005, Bremen, Germany.
- Epimenides Voutsakis, **Euripides G.M. Petrakis** and Evangelos Milios: "*Weighted Link Analysis for Logo and Trademark Image Retrieval on the Web*", The 2005 IEEE/WIC/ACM International Conference on Web Intelligence (WI2005), pp. 581-585, Sept. 19-22, 2005, Compiègne University of Technology, France.

- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Integrated Inspection System supported by Automated Motion Detection (2006 - 2008), Funding Agency: Greek Secretariat for Research and Technology, Participants: TUC, ANKO INC, ARMAOS INC, Principal Investigator for TUC: Euripides G.M. Petrakis. Total Budget 669,000 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 Inovatoir

SPA, Citigroup Global Markets Limited. Project Coordinator & Principal Investigator for TUC: Euripides G.M. Petrakis. Total Budget 1,375,000 euros, TUC's share: 224,000 euros

- Getting Cretan Businesses On-Line and Doing E-Business (April 2006 - April 2008), Funding Agency: Ministry of Development, General Secretariat for Research and Technology, Participants: University of Crete, Technical University of Crete, Technological Institute of Crete, Role: The role of this laboratory is to train consultants that will advise Cretan businesses about the benefits of getting on-line and doing e-business. Grant Holder for TUC: Euripides G.M. Petrakis, Total Budget 2,000,000 euros, TUC's share: 320,000 euros
 - MedSearch: Semantic Similarity for Knowledge Discovery in Medical Archives (2005 - 2007), Funding Agency: BIOPATTERN NoE, Fp6, Participants: Technical University of Crete (TUC), Katholieke Universiteit Leuven (KUL), Universita Di Pisa (UNIP)., Principal Investigator for TUC: Euripides G.M. Petrakis
 - OPTAG: Improving Airport Security and Passenger Flow by Enhanced Passenger Monitoring (2004 - 2007), Funding Agency: IST STREP, FP-6, Role: Software integration, camera intelligence, Participants: Innovision Research & Technology plc UK, 2-University College London UK, 3-Longdin & Browning UK, 4-Photonic Science France, Technical University of Crete Greece, Grenoble Airport France, Co-Principal Investigator for TUC: Euripides Petrakis (PI: Prof. Michalis Zervakis). Total Budget 2,234,000 euros, TUC's share: 2700,000 euros.
 - BIOPATTERN (Project No 508803): Computational Intelligence for Biopattern Analysis in Support of eHealthcare (2004 - 2008), Funding Agency: Network of Excellence. Funded by the European Commission, eHealthcare, FP6, IST. Role: Participation in WP6: eOntologies under action Edelivery1: "architecture, and services, integration, 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.
 - HERAKLETOS program for basic doctoral research (2004-2006), Funding Agency: General Secretariat for Research and Technology (PhD, Candidate, Budget: 33,400 euros (PhD Candidate: Mrs Paraskevi Raftopoulou, PI: Euripides Petrakis).
- Project proposals submitted:
 - In addition to the above, many new project proposals have also been submitted in EU-FP6 and in the General Secretariat for Research and Technology (but not funded)

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 (ISVC06)” Nov. 6-8, 2006 Lake Tahoe, Nevada, USA (<http://www.isvc.net/>)
 - Program committee member of “International Conference on Image Analysis and Recognition” (ICIAR 2006) September 18-20, 2006 Póvoa de Varzim, Portugal (<http://www.iciar.uwaterloo.ca/iciar06>)
 - Program committee member of “International Conference on Image Analysis and Recognition” (ICIAR 2005) September 28-30, 2005 Toronto, Canada, (<http://www.iciar.uwaterloo.ca/iciar05>).
 - Session Chair and Program committee member (session 2 on XML Data Management and Web Discovery) in the 7th ACM Intern. Workshop on Web Information and Data Management, Nov. 5, Bremen, Germany.
- Conference Organization (specify role)
 - Publications Chair, MMSP-07, 9th international workshop on multimedia signal processing, Chania, Greece from Oct 1st-3rd 2007.
- Reviewing activities
 - Reviewer for IEEE Trans. on Knowledge and Data Engineering (IEEE TKDE), IEET Trans. On Pattern Analysis and Machine Intelligence (IEEE PAMI), ACM Trans. On Information Systems (ACM TOIS), Image and Vision Computing and in many Conferences in the areas of Multimedia and Information Systems, Computer Vision.

F – Service to the Department and the School

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

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Kalliope Zervanou, Post.Doct (PhD Univ. of Manchester, UK), Natural Language Processing, Text processing, Information Extraction.
 - Paraskevi Raftopoulou, P2P systems.

- Rena Peraki, Consumer Health Information Systems.
 - Sotiris Batsakis, learning (focused) Web Crawlers.
 - Angelos Hliaoutakis, Medical Information Systems
 - Epimeneides Voutsakis, Bibliographic Information Systems.
 - Giannis Varelas, Automatic Ontology Construction
 - Evdoxios Baratis, Time Ontologies
- PhD. And M.Sc. degrees awarded
 - Nikos Hourdakakis, Data Clustering (Expected Oct. 2006).
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Mixalhs Argyriou, Dynamic Clustering.
 - Diploma theses completed (supervisor)
 - Efthimios Drymonas, Information Extraction and Applications



Annual Activity Report

For the period: Sept 1 2005 to Aug 31 2006

Name: Vasilis Samoladas

Rank: Assistant Professor

Years in rank: 3

Full-time or part-time: Full-time

Division: Informatics

Lab affiliation: Software Technology and Network Applications (softlab)

A – Teaching

- Undergraduate courses taught
 - ΠΛΗ-301 Λειτουργικά συστήματα
 - ΠΛΗ-302 Αλγόριθμοι και πολυπλοκότητα
 - ΠΛΗ-414 Αρχές καταναεμημένων συστημάτων λογισμικού
- Graduate courses taught
 - ΠΛΗ-602 Αρχές καταναεμημένων συστημάτων λογισμικού
- Labs taught
 -
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Σημειώσεις για το ΠΛΗ-302: Αλγόριθμοι και πολυπλοκότητα
 - Authored textbooks
 - (In progress) Βιβλίο με τίτλο «ΑΡΧΕΣ ΚΑΤΑΝΕΜΗΜΕΝΩΝ ΣΥΣΤΗΜΑΤΩΝ» στα πλαίσια του ομώνυμου μαθήματος (ΠΛΗ-414)

B – Publications

- Publications in refereed journals
 - Submitted
 - Lars Arge, **Vasilis Samoladas**, Ke Yi: Optimal External Memory Planar Point Enclosure. Submitted to *Algorithmica* (under review).
 - Salah Juba, **Vasilis Samoladas**, Nikos Boretos, Ioannis Manakos, George Karydas: IMS – A Web-based map server for spatial decision support. Submitted to *Neural, Parallel and Scientific Computations* (under review)
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - ΠΥΘΑΓΟΡΑΣ Ι, (ΓΓΕΤ), Διάρκεια: 9/2004-12/2007, ρόλος: Επιστημονικός υπεύθυνος, Προϋπολογισμός 57600€
 - Βασική έρευνα ΠΚ, Διάρκεια: 3/2005 – 3/2006 ρόλος Επιστημονικός Υπεύθυνος, Προϋπολογισμός: 5000€
- Project proposals submitted:

E – Professional service

F – Service to the Department and the School

- 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), 2st year
 - Anni Xiruhaki (PhD), 2st year (με άδεια μητρότητας από τον Ιούνιο)
 - Christos Smaragdakis (MSc), 3nd year
 - Stergios Charalambakis (MSc), 1st year
 - Yiannis Botsis (MSc), 1st year
- PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - George Elias
 - Christos Tsiamantas
 - Panagiotis Drakotos
 - Mihalis Argyrioy
 - George Tsatsanifos
 - Diploma theses completed (supervisor)
 - Spiros Blanas
 - George Yannakaras
 - Panagiotis Paterakis
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Stavros Christodoulakis

Rank: Professor

Years in rank: 16

Full-time or part-time: Full-time

Division: Informatics

Lab affiliation: Distributed Information Systems and Applications
(MUSIC/TUC) Laboratory

A – Teaching

- Undergraduate courses taught
 - Data Bases
 - Web Application Development (graduate and undergraduate)
 - Information and Service Integration (graduate and undergraduate)
- Labs taught
 - Data bases
 - Web Applications
 - Information and Service Integration
 - Introduction to Computer Science (supervised)
 - Structured Programming (supervised)
 - Object oriented programming (supervised)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals

Accepted

- Tsinaraki C., Polydoros P., **Christodoulakis S.:**
"Interoperability support between MPEG-7/21 and OWL in DS-MIRF",
In IEEE Transactions on Knowledge and Data Engineering (IEEE-TKDE), Special Issue on the Semantic Web Era, 2007 (January 2007, to appear).
- Karanastasi A., Zotos A., **Christodoulakis S.:**
"User Interactions with Multimedia Repositories using Natural Language Interfaces: an Architectural Framework and its Implementation",
In the Journal of Digital Information Management (JDIM), December 2006 (to appear).
- Polydoros P., Tsinaraki C., **Christodoulakis S.:**
"GraphOnto: OWL-Based Ontology Management and Multimedia Annotation in the DS-MIRF Framework",
In the Journal of Digital Information Management (JDIM), December 2006 (to appear)
- Tsinaraki C., Polydoros P., Syntzanaki A., Martin A., Perego A., **Christodoulakis S.:**
"Semantic, Constraint & Preference Based Authoring of Multi-topic Multimedia Presentations" In the Journal of Digital Information Management (JDIM), December 2006 (to appear),

Published

- A. Karanastasi, F. Kazasis, **S. Christodoulakis:**
"A Natural Language Model and a System for Managing TV-Anytime Information in Mobile Environments",
ACM-Verlag International Journal of Personal and Ubiquitous Computing, Volume 4, 2005
- Jose Borbinha, Ching-Chih Chen, **S. Christodoulakis:**
"Multimedia Contents and Management",
International Journal on Digital Libraries, (IJDL), Springer, Jan 2006

- Publications in refereed conferences

Accepted: those published (see below), plus

- Tsinaraki C, **Christodoulakis S.:**
"A User Preference Model and a Query Language that allow Semantic Retrieval and Filtering of Multimedia Content",
In the proceedings of the Semantic Media Adaptation and Personalization Workshop (SMAP 2006), December 2006, Athens, Greece (to appear).

Published

- C. Tsinaraki, **S. Christodoulakis**:
"A Multimedia User Preference Model that Supports Semantics and its Application to MPEG 7/21",
Proceedings of IEEE Multimedia Modeling (IEEE MMM) 2006, Beijing, China, January 2006
- Kalogerakis V., **Christodoulakis S.**, Moumoutzis N.: "*Coupling Ontologies with Graphics Content for Knowledge Driven Visualization*"
Proceedings IEEE Virtual Reality Conference (IEEE VR), Virginia, USA, 2006
- Arapi P., Moumoutzis N., **Christodoulakis S.**: "*ASIDE: An Architecture for Supporting Interoperability between Digital Libraries and ELearning Applications*", 6th IEEE International Conference on Advanced Learning Technologies (IEEE ICALT), Kerkrade, The Netherlands, June 2006.
- Tsinaraki C., Polydoros P., Syntzanaki A., Martin A., Perego A., **Christodoulakis S.**:
"Semantic, Constraint & Preference Based Authoring of Multi-topic Multimedia Presentations",
In the proceedings of the Workshop on Multimedia Semantics 2006 (WMS 2006), pp. 5-13, 19-21 June 2006, Chania, Crete
- Polydoros P., Tsinaraki C., **Christodoulakis S.**:
"GraphOnto: OWL-Based Ontology Management and Multimedia Annotation in the DS-MIRF Framework",
In the proceedings of the Workshop on Multimedia Semantics 2006 (WMS 2006), pp. 14-24, 19-21 June 2006, Chania, Crete
- A. Karanastasi, A. Zwtos, **S. Christodoulakis**:
" User Interactions with Multimedia Repositories using Natural Language Interfaces: an Architectural Framework and its Implementation",
in Proceedings of the Fourth Special Workshop on Multimedia Semantics - WMS06, June 19-21, 2006
- **Christodoulakis S.**, Arapi P., Moumoutzis N., Patel M., Kapidakis S., Arahova A., Bountouri L.:
"*Interoperability of eLearning Applications with Audiovisual Digital Libraries*", Poster on the 9th European Conference on Research and Advanced Technology for Digital Libraries (ECDL 2005), September 2005, Vienna, Austria
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:

- **FP6 LOGOS**, Knowledge-on-Demand for Ubiquitous Learning. [**260.000 €**]
- **FP6 CHIRON**, New Media Knowledge Village for Innovative e-Learning Solutions [**61.000 €**]
- **FP6 D.B.E.**, Digital Business Ecosystems [**504.000 €**]
- **FP6 DELOS II**, IST Network of Excellence in Digital Libraries [**250.000 €**]
- **Support of Computer Science Studies / EPEAEK-II** in Department of Electronic and Computer Engineering, Technical University of Crete. [**1.250.000 €**]

E – Professional service

- **Co-Editor:**
 - Special Issue on Multimedia Digital Libraries, International Journal on Digital Libraries, IJDL, Jan 2006
- **Program Committee Co-chair:**
 - European Conference on Digital Libraries (ECDL), Sept 2005.
- **Conference Technical Program Committee service:**
 - Program Committee Member in: VLDB 2007, ACM CIKM 2006, ICPR 2006, ECDL 2006, ECIR 2006, EDBT 2006, UMICS 2006, VCM 2006, ACM CIKM 2005, ECDL 2005, EDBT 2005, ICPR 2005, ICME 2005, HDMS 2005, IMSA 2005
- **Conference Organization (specify role)**
 - **Co-Chair:** WMS 2006, June 2006, Chania, Crete, Greece.
- **Conference Steering Committees**
 - European Conference on Digital Libraries, ECDL, 2005 - 2006
 - Extending Database Technology, EDBT, 2004 - 2006
- **Editorial Boards**
 - Serdica Journal of Computing, UCS.

F – Service to the Department and the School

- Departmental responsibilities
 - Laboratory Director, Distributed Information Systems and Applications Lab (MUSIC/TUC), Technical University of Crete.
 - Laboratory Director, Software Engineering Lab, Technical University of Crete
- School-level responsibilities
 - Member of the Board, Telecommunication Systems Institute, Technical University of Crete.
 - Department of Architecture, technical University of Crete, Member of the Department Governing Committee.

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Tsinaraki Chrisa
 - Arapi Xenia
 - Poludoros Panagiotis
 - Karanastasi Anastasia
 - Kotopoulos Giorgos
 - Kotopoulos Giannis
 - Ntampitzias Giorgos
 - Georgoulakis Eustratios
 - Foukarakis Mixalis
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Kafantaris Dimitris
 - Sitzanaki Athina
 - Zotos Alexandros
 - Milonakis Manolis
 - Papaxristoudis Giannis
 - Kouratoras Kostas
 - Theodorakis Giorgos
 - Stilianakis Giorgos
 - Xristoulakis Marios
 - Diploma theses completed (supervisor)
 - Vangelis Kalogeraki: *"An Intelligent 3D Visualization System"*
 - Sarigiannis Xaralambos: *"Design and implementation of a distributed questioner management system according to the IMS Global Consortium"*
 - Alatzidis Xristos *"Design and Implementation of Graphic Interfaces for Accessing MOF Knowledge Bases"*
 - Kromidas Kostas *"Design and Implementation of Graphic Interfaces for Accessing MOF Knowledge Bases"*

Electronics and Computer Architecture Division

Faculty members:

- Costantinos Balas, Associate Professor
- Mathias Bucher, Assistant Professor
- Apostolos Dollas, Professor
- Kostas Kalaitzakis, Professor
- Ioannis Papaefstathiou, Visiting Associate Professor
- Dionisis Pnevmatikatos, Associate Professor
- Apostolos Samelis, Assistant Professor (didn't provide annual report input)
- Georgios Stavrakakis , Professor
- Eftihios Koutroulis, Visiting Lecturer (PD 407)



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September 1, 2005 to August 31, 2006

Name: Apostolos Dollas

Rank: Professor

Years in rank: 5

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
 - None – on sabbatical leave at Wright State University (USA).
- Graduate courses taught
 - None – on sabbatical leave at Wright State University (USA).
- Labs taught
 - None – on sabbatical leave at Wright State University (USA).
- Curriculum & course development
 - Lecture notes / slides developed: Continued on the development of the new HRY 401 (Embedded Microprocessor Systems) and HRY 412 class notes and slides, under the EPEAEK program.
 - Authored textbooks: Continued work on “The Art of Microelectronic Sstems”, under contract with the publisher A. K. Peters.

B – Publications

- Publications in refereed journals
 - Submitted
 - E. Sotiriadis, C. Kozanitis, **A. Dollas**, A Generic Reconfigurable and Fixed Architecture for BLAST Algorithm Implementation, IEEE Transactions on VLSI Systems, Special Section on Configurable Computing Design, submitted May, 2006.
 - Accepted
 - S. Sotiropoulos, K. Papadimitriou, **A. Dollas**, “Low Cost Real-Time 2-D Motion Detection based on Reconfigurable Computing”, accepted at the IEEE Transactions of Instrumentation and Measurement (full paper).
 - Published
 - E. Koutroulis, **A. Dollas**, K. Kalaitzakis, “High Frequency Pulse Width Modulation Implementation using FPGA and CPLD ICs”, *Journal of Systems Architecture*, Elsevier Press, vol. 52, No. 6, pp. 332-344, June 2006. (full paper).
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published (all papers fully refereed on full text)
 - E. Sotiriadis, C. Kozanitis, G. Chrysos, **A. Dollas**, Rapid Prototyping of a System-on-a-Chip for the BLAST Algorithm Implementation, Proceedings, 17th International IEEE Workshop on Rapid System Prototyping, (RSP), pp.223-229 , Chania, Greece, June 16-18, 2006, Computer Society Press. (full paper).
 - E. Sotiriadis, C. Kozanitis, **A. Dollas**, FPGA Based Architecture for DNA Sequence Comparison and Database Search, Proceedings, 13th Reconfigurable Architectures Workshop (RAW), April 25-26, Rhodes, Greece, 2006 (on-line proceedings under the IPDPS conference).(full paper).
 - E. Sotiriadis, C. Kozanitis, **A. Dollas**, Some Initial Results on Hardware BLAST Acceleration with a Reconfigurable Architecture, Proceedings, 8th Workshop on High Performance Computational Biology (HiCOMB), April 25, Rhodes, Greece, **2006 (on-line proceedings under the IPDPS conference). (full paper).**
 - K. Papademetriou, **A. Dollas**, Performance Evaluation of a Preloading Model in Dynamically Reconfigurable Processors, Proceedings, FPL, Barcelona, Spain, 2006. (poster paper).

- K. Papademetriou, **A. Dollas**, A Task Graph Approach for Efficient Exploitation of Reconfiguration in Dynamically Reconfigurable Systems, Proceedings, IEEE Symposium on Field Programmable Computing Machines (FCCM), Napa Valley, USA, April, 2006. (poster paper).
- D. Efstathiou, K. Kazakos, **A. Dollas**, Parrotfish: Task Distribution in an ad hoc Sensor Network through Dynamic Run Time Reconfiguration, Proceedings, IEEE Symposium on Field Programmable Computing Machines (FCCM), Napa Valley, USA, April, 2006. (poster paper).
- Books and edited book chapters
 - **A. Dollas**, The Art of Microelectronic Systems (under preparation), A. K Peters.

C – Awards & Distinctions

- Fellowships, Visiting Professorships
 - Visiting Professor, Information Technology Research Institute, Wright State University, Dayton, Ohio, USA (on sabbatical at ITRI from August, 2005 until May, 2006).
- Invited Lectures
 - “FPGA Based Architecture for DNA Sequence Comparison and Match”, Virginia Tech, USA (3/20/2006).

D – Funded Projects

- Current projects:
 - 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.
- Project proposals submitted:

- “Scientific Equipment for the Departments of the Technical University of Crete”, Total Proposal Budget 1,250,000 Euros. Under it is the proposal for “Acquisition of a GRID computer for the Technical University of Crete”, submitted to the Program PEP of Crete, Apostolos Dollas, PI. Total budget for the GRID computer proposal: 320,000 Euros. NOTE: this is a different proposal than the similarly entitled one which was submitted to the Greek Ministry of Education, but on the same topic.
- “*An Integrated Design of Video Hiding-Compression-Encryption Based on the SCAN Methodology and the Stretch Technology for Securing Multimedia Information*”, USD 99,500, proposed to the NSF.
- “*Design Space Exploration of a SCAN Based reconfigurable, Reprogrammable, High Assurance Internet Protocol Encryptor*”, USD 99,000, proposed to AFOSR.

E – Professional service

- Conference Technical Program Committee service
 - ◆ Program Committee Member 14th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM), Napa Valley, USA, April, 2006.
 - ◆ Program Committee Member 17th IEEE International Workshop on Rapid System Prototyping (RSP), Chania, Greece, June 16-18, 2006.
 - ◆ Technical Program Committee, 19th SBCCI 2006 (SYMPOSIUM ON INTEGRATED CIRCUITS AND SYSTEMS DESIGN), Ouro Preto MG, Brazil, August 28 – September 1, 2006.
 - ◆ Program Committee Member, 5th IEEE International Conference on Field-Programmable Technology (FPT 2006), Bangkok, Thailand, December 13-16, 2006.

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

- Conference Organization (specify role)
 - As Program Committee member and past Program Chairman and past General Chairman of the IEEE International Workshop on Rapid System Prototyping I succeeded in bringing the 17th IEEE RSP Workshop to Chania in 2006.
- Reviewing activities

- Several international conferences, including all in which I participate in the program committee, and journals including the Journal of VLSI Signal Processing Systems, IEE Electronics Letters, and Clinical Neurophysiology (the latter involved review on microelectronic assistive devices).

F – Service to the Department and the School

- Departmental responsibilities
 - Chair, Vice-Chair, Lab Director, NOC director, ...
 - Director, Microprocessor and Hardware Laboratory
 - Member, Undergraduate Studies Committee
 - Responsibility for Department-wide projects (e.g., EIIIEAEK, practical training, ...)
 - Coordinator on behalf of the ECE Dept. of the TUC-wide GRID computer proposal, under appointment by the Departmental General Assembly.
- School-level responsibilities
 - Advisory Committee Member for the CRINNO-UNISTEP program for technology transfer (B. Kelesidis, PI)
 - Advisory Committee of the new proposal for the TUC Liaison Office (TUC Vice-President, Prof. N. Varotsis, PI), participated in the meetings and the proposal, was replaced by Prof. S. Christodoulakis due to sabbatical leave.
 - Faculty supervisor and host (in the MHL) of the project “Bluetooth Enabled FPGA Programming” under the CRINNO – UNISTEP program,
 - Faculty advisor, TUC Students’ Radio Station group.

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Euripides Sotiriades, started Ph.D. in 2003
 - Dionissios Efstathiou, started MS in 2003
 - Iosif Koidis, started MS in 2004
 - George Vernardos, started MS in 2003
 - Petros Maragoudakis, (inactive), started MS in 2003
 - Ph.D. And M.Sc. degrees awarded (committee member)
 - Kyprianos Papademetriou, started PhD in 2003.
 - Vasilis Dimopoulos, started MS in 2004

- PhD and M.Sc. Degrees (committee member)
 - Vasileios Dimopoulos (MS)
 - Ioannis Ermis (MS)
 - Dimitrios Giakoumis (MS)
 - Ioannis Mavraganis (MS)
 - Antonios Nikitakis (MS)
 - Georgios Papoutsakis (MS)
 - Aristeidis Petrakis (MS)
 - Kyriakos Poulos (MS)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor – will be in Chania for the defense)
 - Antonis Anyfantis
 - Michalis Zampetakis
 - Konstantinos Kouinis (inactive)
 - Diploma theses completed (supervisor)
 - Konstantinos Kazakos
 - Grigoris Chrysos
 - Christos Kozanitis
 - Diploma theses in progress (committee member)
 - Panagiotis Christou
 - Konstantinos Kyriakoulakos
 - Antonis Lasithiotakis
 - Diploma theses completed (committee member)
 - Aggelos Arelakis
 - Melpomeni Demertzi
 - Sotiria Fytraki



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: September, 1, 2005 to August, 31, 2006

Name: Kostas Kalaitzakis

Rank: Professor

Years in rank: 4

Full-time or part-time: Full-time

Division: Electronics & Computer Architecture

Lab affiliation: Electric Circuits & Renewable Energy Sources Lab.

A – Teaching

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

B – Publications

- Publications in refereed journals
 - Submitted:
 - Christias P. N., Kolokotsa D., Stavrakakis G. S., **Kalaitzakis K.**, “A web application serving queries on renewable energy sources and energy management topics database built on JSP technology”, submitted to Journal of Sustainable Energy.
 - Accepted:
 - Dalamagidis K., Kolokotsa D., Stavrakakis G.S., **Kalaitzakis K.**, “Reinforcement Learning for Energy Conservation and Comfort in Buildings”, accepted to the Building and Environment.
 - Published
 - Kolokotsa D., Niachou K., Geros V., **Kalaitzakis K.**, Stavrakakis G.S., Santamouris M., “Implementation of an Integrated Indoor Environment and Energy Management System”, Energy and Buildings, Vol. 37, 2005, pp. 93–99.
 - Papadakis K., Koutroulis E., **Kalaitzakis K.**, “A Server Database System for Remote Monitoring and Operational Evaluation of Renewable Energy Sources Plants”, Renewable Energy Journal, Vol. 30, 2005, pp. 1649–1669.
 - 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.
 - Koutroulis E., Kolokotsa D., Potirakis A., **Kalaitzakis K.**, “Methodology for Optimal Sizing of Stand-Alone Photovoltaic/Wind-Generator Systems Using Genetic Algorithms”, Solar Energy, Vol. 80, Dec. 2005, pp. 1072–1088.
 - Koutroulis E., Dollas A., **Kalaitzakis K.**, “High-Frequency Pulse Width Modulation Implementation Using FPGA and CPLD ICs”, J. of Systems Architecture, Vol. 52, Oct. 2005, pp. 332–344.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 - E. Koutroulis, **K. Kalaitzakis**, V. Tzitzilonis, “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, Seventeenth IEEE International Workshop on Rapid System Prototyping, 14-16 June 2006, pp. 200 - 208.

- G. Saridakis, K. Dalamagidis, D. Kolokotsa, G. S. Stavrakakis, E. Koutroulis, **K. Kalaitzakis**, E. Antonidakis, J. Chatzakis, I. Kaliakatsos, “Development of a Greenhouse Model with an Intelligent Indoor Environment and Energy Management System for Greenhouses”, 2006 World Congress of ENERGY, ENVIRONMENT, ECOSYSTEMS, SUSTAINABLE DEVELOPMENT (EEESD'06), July 11-13, 2006.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Development of Smart System for Interior Environment and Energy Management in Buildings – Development of Spin-off Company”, funded by the Greek Department of Development in the framework of PRAXE (01 PRAXE 71), 2002.
 - “Smart Accelerate - Acceleration of Smart Buildings’ Technologies and Market Penetration”, funded by the EE ion the framework of SAVE (SAVE-2002-094), 2002.
- Project proposals submitted:

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
- Conference Organization (specify role)
 - XVII International Conference on Electric Machines ICEM 2006, member of local organizing committee
- 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., 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)
 - ΕΛΚΕ
 - Institute
 - Other
 - **Head of the Technical Committee**

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Tripolitakis E., “Energy Management in Buildings”
 - K. Papadakis (M.Sc.), year of initial enrollment in M.Sc. program: 2004.
 - V. Tzitzilonis (M.Sc.), year of initial enrollment in M.Sc. program: 2005.
 - J. Kantaris (M.Sc.), year of initial enrollment in M.Sc. program: 2005.
 - 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)
 - N. Loykas, “Development of a Microcontroller-Based System for Photovoltaic Maximum Power Point Tracking Under Partial Shadowing Conditions”.
 - N. Tsitsopoulos, “DC/AC Inverter Harmonics Minimization Using Genetic algorithms”.
- Diploma theses in progress (committee member):
- Diploma theses completed (committee member):



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Eftichios Koutroulis

Rank: Visiting Lecturer

Years in rank: 4

Full-time or part-time: Part-time

Division: Electronics & Computer Architecture

Lab affiliation: Electric Circuits & Renewable Energy Sources Laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 402 – Electric Measurements and Sensors (Fall 2005)
 - HRY 212 – Analysis of Electric Circuits (Spring 2006)
- Graduate courses taught
- Labs taught
 - HRY 402 – Electric Measurements and Sensors (Fall 2005)
 - HRY 212 – Analysis of Electric Circuits (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted

- **E. Koutroulis**, A. Dollas and K. Kalaitzakis, “High-Frequency Pulse Width Modulation Implementation Using FPGA and CPLD ICs”, accepted at *Journal of Systems Architecture*.
 - **E. Koutroulis**, D. Kolokotsa, A. Potirakis and K. Kalaitzakis, “Methodology for optimal sizing of stand-alone photovoltaic/wind-generator systems using genetic algorithms”, accepted at *Solar Energy*.
- Published
 - **E. Koutroulis**, A. Dollas and K. Kalaitzakis, “High-Frequency Pulse Width Modulation Implementation Using FPGA and CPLD ICs”, *Journal of Systems Architecture*, Volume 52, Issue 6, June 2006, pp. 332-344.
 - **E. Koutroulis**, D. Kolokotsa, A. Potirakis and K. Kalaitzakis, “Methodology for optimal sizing of stand-alone photovoltaic/wind-generator systems using genetic algorithms”, *Solar Energy*, Volume 80, Issue 9, pp. 1072-1088, 2006.
 - **E. Koutroulis** and K. Kalaitzakis, “Design of a Maximum Power Tracking System for Wind-Energy-Conversion Applications”, *IEEE Transactions on Industrial Electronics*, Vol. 53, No. 2, April 2006, pp. 486-494.
 - K. Papadakis, **E. Koutroulis** and K. Kalaitzakis, “A server database system for remote monitoring and operational evaluation of renewable energy sources plants”, *Renewable Energy*, Volume 30, Issue 11, September 2005, pp. 1649-1669.
 -
- Publications in refereed conferences
 - Submitted
 - **E. Koutroulis**, K. Kalaitzakis, V. Tzitzilioni, “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, submitted to the *Seventeenth IEEE International Workshop on Rapid System Prototyping*.
 - G. Saridakis, K. Dalamagidis, D. Kolokotsa, G. S. Stavrakakis, **E. Koutroulis**, K. Kalaitzakis, E. Antonidakis, J. Chatzakis, I. Kaliakatsos, “Development of a Greenhouse Model with an Intelligent Indoor Environment and Energy Management System for Greenhouses”, submitted to the *2006 World Congress of ENERGY, ENVIRONMENT, ECOSYSTEMS, SUSTAINABLE DEVELOPMENT (EEESD'06)*.
 - Accepted
 - **E. Koutroulis**, K. Kalaitzakis, V. Tzitzilioni, “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, accepted at the *Seventeenth IEEE International Workshop on Rapid System Prototyping*.
 - G. Saridakis, K. Dalamagidis, D. Kolokotsa, G. S. Stavrakakis, **E. Koutroulis**, K. Kalaitzakis, E. Antonidakis, J. Chatzakis, I. Kaliakatsos, “Development of a Greenhouse Model with an

Intelligent Indoor Environment and Energy Management System for Greenhouses”, accepted at the *2006 World Congress of ENERGY, ENVIRONMENT, ECOSYSTEMS, SUSTAINABLE DEVELOPMENT (EEESD'06)*.

- Published
 - **E. Koutroulis**, K. Kalaitzakis, V. Tzitzilonis, “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, *Seventeenth IEEE International Workshop on Rapid System Prototyping*, 14-16 June 2006, pp. 200 - 208.
 - G. Saridakis, K. Dalamagidis, D. Kolokotsa, G. S. Stavrakakis, **E. Koutroulis**, K. Kalaitzakis, E. Antonidakis, J. Chatzakis, I. Kaliakatsos, “Development of a Greenhouse Model with an Intelligent Indoor Environment and Energy Management System for Greenhouses”, *2006 World Congress of ENERGY, ENVIRONMENT, ECOSYSTEMS, SUSTAINABLE DEVELOPMENT (EEESD'06)*, July 11-13, 2006.

- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for *IEEE Trans. on Power Electronics* (1 paper reviewed)
 - Reviewer for *IEEE Trans. on Circuits and Systems II* (1 paper reviewed)
 - Reviewer for *IEEE Trans. on Industrial Electronics* (3 papers reviewed)
 - Reviewer for *IEE Proceedings – Electric Power Applications* (2 papers reviewed)
 - Reviewer for *IEE-Electronics Letters* (2 papers reviewed)
 - Reviewer for *Renewable Energy* (4 papers reviewed)
 - Reviewer for *Energy* (1 paper reviewed)

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised (*co-supervised with Professor K. Kalaitzakis*)
 - K. Papadakis (M.Sc.). Year of initial enrollment in M.Sc. program: 2004.
 - V. Tzitzilonis (M.Sc.). Year of initial enrollment in M.Sc. program: 2005.
 - J. Kantaris (M.Sc.). Year of initial enrollment in M.Sc. program: 2005.
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (*co-supervised with Professor K. Kalaitzakis*)
 - A. Chatziioannou, “Design Optimization of Hybrid Photovoltaic/Wind-Generator Systems Used to Power Supply Desalination Plants”.
 - Diploma theses in progress (*co-supervised with Professor G. Stavrakakis*)
 - D. Papadopoulos, “Maximizing Wind Generated Electricity with Battery Storage”.
 - Diploma theses completed (*co-supervised with Professor K. Kalaitzakis*)
 - N. Loykas, “Development of a Microcontroller-Based System for Photovoltaic Maximum Power Point Tracking Under Partial Shadowing Conditions”.
 - N. Tsitsopoulos, “DC/AC Inverter Harmonics Minimization Using Genetic algorithms”.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: **Costas Balas**

Rank: **Associate Professor**

Years in rank: **4.5 yrs**

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

Division: **Electronics and Computer Architecture Division**

Lab affiliation: **Electronics Laboratory**

A – Teaching

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

B – Publications

- Publications in refereed journals
 - Published
- Publications in refereed conferences
 - Published
 - Hyperspectral imaging: potential in non-destructive analysis of palimpsests
Rapantzikos, K.; **Balas, C.**;
International Conference on Image Processing, 2005 ICIP 2005
Volume 2, 11-14 Sept. 2005 Page(s):II - 618-21
- Books and edited book chapters

*Chapter in Book: **The Cervix Second Edition Blackwell Publishing***

Dynamic Spectral Imaging of the Cervix

Authors: Costas Balas, E. Diakomanolis, Pat Soutter

Edited by: Joseph Jordan, Albert Singer

C – Awards & Distinctions

D – Funded Projects

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

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service:
- Conference Organization (specify role)
- Reviewing activities: IEEE-Transactions on Biomedical Engineering, Journal of Applied Optics-Optical Society of America

- Participation in National Committees (e.g., EΔET)
- Other

F – Service to the Department and the School

- Departmental responsibilities
 - Member of ECE Dept. premises committee
- School-level responsibilities

G – Advising

Active Graduate Students Supervised

Ph.D. Students Supervised

- Tsapras Thanasis, 2006

M Sc. Students Supervised

- Terzakis Manos, 2004
- Papoutsoglou George, 2005

M Sc Degrees Awarded

- Papadakis Manolis, 2005
- Potirakis Antonis
- Tsapras Thanasis

Undergraduate Students Supervised

Diploma Thesis Supervised

- Adamos Thanasis
- Georgiou Nikolaos
- Sgouros Antonis

Diploma Thesis Completed (supervisor)

- Tsolaki Evaggelia

Diploma Thesis Completed (committee member)

Ροζάκης Γεώργιος	«Μη- Γραμμική Ανάλυση Ασθενούς Σήματος Διπολικών Τρανζίστορ με την Μέθοδο των Σειρών Volterra»
Βασσάλος Γεράσιμος	«Systems Biology»
Τσεγγελίδης Σάββας	«Αλγεβρική Μοντελοποίηση Μετασχηματιστών από Bayer σε RGB εικόνες»
Καλπάκας Αθανάσιος	«Ανίχνευση Διαμεμβρανικών Τμημάτων Πρωτεϊνών με Νευρωνικά Δίκτυα»
Κουρκουτά Άννα- Μαρία	«Survival Analysis on ocular melanoma using non-parametric and additive regression models»
Αγραφιώτη Φωτεινή	«Survival Analysis on ocular melanoma patients using semi-parametric regression models and neural networks»
Σουνάπογλου Θωμάς	«Σύντηξη Αλγορίθμων για την Επιλογή Χαρακτηριστικών Δεικτών από Μεγάλες Βάσεις Γονιδιακών Δεδομένων.
Μακρής Νικόλαος	«Σχεδίαση και Μοντελοποίηση Ολοκληρωμένων Πηνίων για RF Εφαρμογές»
Δαφνόπουλος Σωτήριος	«Συγκριτική Ανάλυση Μεθόδων Κατηγοριοποίησης σε Δεδομένα Μεγάλων Διαστάσεων και Εφαρμογές σε Γονιδιακή Ανάλυση»
Χατζημαρκάκης Εμμανουήλ	«Μέθοδοι Κατάταξης χωρίς Επίβλεψη για Γονιδιακή Ανάλυση»
Γιαννάτος Γεώργιος	«Επεξεργασία Εικόνας Μικροσκοπίου για τον Χαρακτηρισμό και Ανάλυση της Δομής Κολλαγόνου»
Μαργαρίτη Βανέσσα – Βαΐα	«Συγκριτική Μελέτη Ταξινομητών και Συνδυασμός αυτών (fusion) για Διάγνωση Καρκίνου της Μήτρας»



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: 1/9/2005 to 31/8/2006

Name: Matthias Bucher

Rank: Assistant Professor

Years in rank: 2.5

Full-time or part-time: Full

Division: Electronics & Computer Architecture

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - ECE 111, Digital Design, 2nd semester (Spring 2006)
 - ECE 506, Analog CMOS IC Design & MOSFET Physics, 9th semester (Fall 2005)
- Graduate courses taught
 - ECE 604, Special Themes of Analog CMOS IC Design (Fall 2005)
- Labs taught
 - ECE 111, Digital Design, 2nd semester (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 1. ECE 506, Analog CMOS IC Design & MOSFET Physics, 9th semester (Spring 2006) – continued development of lecture notes/slides
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - (submitted)
M. Bucher, D. Kazazis, P. Bendix, S. Yoshitomi, T. Ohguro, K. Kojima, “Inversion Level Dependent Scaling of Output Conductance in Pocket/Halo-Implanted CMOS”, submitted to *Solid-State Electronics*.
 - (submitted)
M. Bucher, D. Kazazis, A. Bazigos, F. Krummenacher, D. Binkley, Y. Papananos, “CMOS Transconductance Characterization and Modelling at All Levels of Inversion”, submitted to *J. Analog Integrated Circuits and Signal Processing*.
- Publications in refereed conferences
 - (submitted—accepted)
N. Mavredakis, M. Bucher, “Inversion-Level Based Design of an RF CMOS Low-Noise Amplifier”, to be published, *13th IEEE Int. Conf. on Electronics, Circ. & Syst. (ICECS 2006)*, Nice, France, December 10-13, 2006.
 - (submitted—accepted—published)
E. Kitonaki, A. Bazigos, M. Bucher, H. Puchner, S. Bhardwaj, Y. Papananos, “Scaling Issues in an 0.15 μ m CMOS Technology with EKV3.0”, *Proc. 13th Int. Conf. on Mixed Signal Design of Integrated Circuits and Systems (MIXDES 2006)*, pp. 151-158, Gdynia, Poland, June 22-24, 2006.
- Books and edited book chapters
 - (submitted—accepted—published)
M. Bucher, A. Bazigos, F. Krummenacher, J.-M. Sallese, C. Enz, “EKV3.0: An Advanced Charge Based MOS Transistor Model”, in W. Grabinski, B. Nauwelaers, D. Schreurs (Eds.), *Transistor Level Modeling for Analog/RF IC Design*, pp. 67-95, ISBN 1-4020-4555-7, Springer, 2006.
- Invited Talks & Tutorials – Workshop presentations:
 - **M. Bucher**, A. Bazigos, E. Kitonaki, F. Krummenacher, «Recent Advances in the EKV3.0 MOSFET Model», *Workshop on Compact Models, 9th Int. Conf. on Modeling and Simulation of Microsystems – NSTI Nanotech 2006*, Boston, Massachusetts, May 9-11, 2006.
 - **M. Bucher**, “EKV3.0 – A Design-Oriented Compact MOST Model for Advanced CMOS”, *European Solid-State Circuit/Device Research*

Conference (ESSCIRC/ESSDERC 2005), MOS-AK Workshop, Grenoble, France, September 12-16, 2005.

- Patents

C – Awards & Distinctions

- Paper awards
- Technical Achievement awards
- Professional service awards
- Elevation to senior membership grades in Professional Societies (e.g., IEEE, ACM, ...)
- Fellowships, Visiting Professorships
- Invited Plenary Lectures
- Other
 - Compact Model Council (CMC), Government Electronics Information Technology Association (GEIA), Arlington, Virginia, USA – Award of the sum of 10'000 \$ in the form of a research grant, for the participation in the “Next Generation MOSFET Compact Model” contest, December, 2005 (7'974 €.).

D – Funded Projects

- Current projects:
 - “MOSFET Model Evaluation for Telecommunication RFIC Design”, Sponsor: Atmel Semiconductor/GWT-TUD GmbH, Dresden, Germany, Cooperation with Technical Univ. Dresden, Duration: 1/3/2006 to 31/3/2007, PI: M. Bucher, Total budget: 30 k€, PI's budget 30 k€.
 - “RF CMOS Toshiba”, Toshiba Semiconductor, Tokyo, Japan, Duration: 1/12/2004 to 31/3/2006, PI: M. Bucher, Total budget: 43'410 €, PI's budget 43'410 €.
 - “RF CMOS Infineon”, Sponsor: Infineon Technologies, Munich, Germany, Duration 1/2/2004 to 31/1/2006. PI: M. Bucher. Total budget: 50 k€, PI's budget 50 k€.
- Project proposals submitted:
 - Participated in the preparation of project proposals to be submitted within European Commission FP7.

- Participated in project proposal to GSRT “AKMON” (accepted), led by Prof. V. Digalakis. Duration Sept. 2006 – Mar. 2008. Total budget is 164’500 €, M. Bucher’s share is (est.) 41’900 €.
- Participated in project proposal to European Commission FP6, “Automatic Measurement of Electrical Noise in Devices (AMEND)”, Co-operative Research Project (CRAFT) (FP6-2004-SME-COOP).

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
- Conference Organization (specify role)
- Reviewing activities
 - *IEEE Trans. Electron Devices*
 - *Solid-State Electronics*
 - *IEICE Trans. Electronics*
 - *J. Analog Integrated Circuits and Signal Processing*
- Participation in National Committees (e.g., EΔET)
- Other

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Ph.D. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Diamantakos Dimitrios, Automated MOS transistor model parameter determination
 - Karefylakis Michael, High-Voltage MOSFET modeling
 - Lathourakis Kyriakos, Study of matching in sub-micron CMOS
 - Petsios Alexandros
 - Kyriakos Alexandros, CAD tool for EKV3 based on Java and Matlab

- Stefanakis Dionysios, Development of a CMOS imaging sensor
- Smaragdos George
- Diploma theses completed (supervisor)
 - Mavredakis Nikolaos (13/7/2006), „Design of an RF Low Noise Amplifier at 5.5 GHz in 0.12um CMOS Technology“
- Diploma theses in progress (committee member)
- Diploma theses completed (committee member)
 - Karagiannakis Dimitrios (7/2006)
 - Andreou Charalambos (7/2006)
 - Moraitis Anastasios (7/2006)
 - Mylonas George (7/2006)
 - Antonopoulos Angelos (10/2005)



Annual Activity Report

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

Name: Ioannis Papaefstathiou

Rank: Assistant Professor (elected not yet formally appointed)

Years in rank: 1 (as Visiting Faculty, PD 407)

Full-time or part-time: Full-time

Division: Computer Architecture

Lab affiliation: Microprocessor and Hardware laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 201 - Digital Computers(Fall 2005)
 - HRY 312 – Computer Organization (Spring 2006)
 - HRY 401 - Real time Systems (Spring 2006)
- Graduate courses taught
- Labs taught
 - HRY 201 - Digital Computers(Fall 2005)
 - HRY 312 – Computer Organization (Spring 2006)
 - HRY 401 - Real time Systems (Spring 2006)
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 1. HRY 401 - Real time Systems (Spring 2006)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - D. Simos, **I. Papaefstathiou**, M Katevenis, “A 4000Gbps 32x32 Variable Packet Size Crossbar (CICQ) Single-Chip Switch core”, submitted to IEEE Design and Test
 - Accepted
 - K. Vlachos, F, Orphanoudakis, **I. Papaefstathiou**, N. Nikolaou, D. Pnevmatikatos, J Sanchez, “Design and performance evaluation of a programmable Packet Processing Engine (PPE) suitable for high-speed network processors units”, *Elsevier Microprocessors and Microsystems* to appear.
 - Published
- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - **I. Papaefstathiou**, V. Papaefstathiou “Memory-Efficient 5D Packet Classification at 40Gbps”, *Proc. IEEE Infocom 2007*, submitted.
 - **I. Papaefstathiou**, G. Kornaros, N. Chrysos, “A Buffered Crossbar-Based Chip Interconnection Framework supporting Quality of Service, *Proc IEEE DATE 2007*, submitted
 - **I. Papaefstathiou**, G Kornaros, I. Mavroidis, T. Orphanoudakis, “An FPGA-based Embedded Networking SoC for purely Ethernet MANs”, *Proc IEEE DATE 2007*, submitted
 - I. Mavroidis, **I. Papaefstathiou**, “Testbench Code Synthesis for Efficient Communication on Hardware Emulator Systems”, *Proc IEEE DATE 2007*
 - Accepted: those published (see below), plus
 - Published
 - V. Papaefstathiou, **I. Papaefstathiou**, “A Hardware-Engine for Layer-2 classification in low-storage, ultra-high bandwidth environments”, *Proc IEEE DATE 2006*
 - **I. Papaefstathiou**, V. Papaefstathiou, “An innovative low-cost Classification Scheme for combined multi-Gigabit IP and Ethernet Networks”, *Proc IEEE ICC 2006*
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:

- “ERMIS”, Greek Secretariat for Research and Technology, Division of Collaboration with Private Companies in Research and Technology. PI: D. Pnevmatikatos; Co-PI: I. Papaefstathiou. Award Period: January 2004 – December 2006. Budget: 54K €.
- Project proposals submitted:
 - Organizer of “SELINE” FP6-STREP proposal, grade 22/30
 - Co-Organizer, in “FASTEST”, FP6-STREP proposal, grade 25/30 (ranked 18th, 15 Proposals were funded)
 - Participated in “ARCHON”, FP6-STREP proposal, grade 26/30 (ranked 16th, 15 Proposals were funded)
 - Participated in “SEARCH”, FP6-STREP proposal, grade 21/30
 - Participated in “ON-FLY”, FP6-STREP proposal, grade 22/30
 - Organizer of “VPlanet” proposal to GSRT, ranked 5th, will be funded
 - Organizer of “GRID-APP” proposal to GSRT, grade 85/100, ranked 9th /42

E – Professional service

- Associate Editor duties
- Society Technical Committee duties .
- Conference Technical Program Committee service
 - IEEE RSP 2006
- Conference Organization (specify role)
 - Finace Chair, RSP 2006, Chania, Crete, Greece.
- Reviewing activities
 - Reviewer for *IEEE Micro*, *IEEE DATE 2006*, *IEEE ICS 2006*, *IEEE ISCA 2006 etc.*

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students co-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.
 - Ioannis Mavroidis (Ph.D), year of initial enrollment in Ph.D. program: 2005.

- George Kornaros (Ph.D), year of initial enrollment in Ph.D. program: 2005.
 - Antonis Nikitakis (M.Sc.), year of initial enrollment in program: 2004.
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (co-supervisor)
 - M. Platsis
 - K. Klatsias
 - N. Kassis.
 - N. Spanos
 - K. Papadopoulos
 - G. Mplemenos
 - Diploma theses completed (supervisor)
 - C. Yannakou, “Implementation of a 5-stage pipeline RISC CPU).
 - D. Mprachos, “Implemenation of a DSP Unit based on OpenRisc 1200 CPU, using SystemC”



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Dionisis Pnevmatikatos

Rank: Associate Professor

Years in rank: 4

Full-time or part-time: Full-time

Division: Electronic & Computer Architecture

Lab affiliation: Microprocessor & Hardware Laboratory

A – Teaching

- Undergraduate courses taught
 - Computer Architecture
 - Advanced Logic Design
 - High-Performance Computer Architecture
- Graduate courses taught
 - Αρχιτεκτονική Επεξεργαστών Επικοινωνιών και Δικτύων (Network Processor Architecture)
- Labs taught
 - Computer Architecture
 - Advanced Logic Design
- Curriculum & course development
 - Development of *new* course High-Performance Computer Architecture

B – Publications

- Publications in refereed journals

- Publications in refereed conferences
 - “Variable-Length Hashing For Exact Pattern Matching”, **Dionisios Pnevmatikatos** and Aggelos Arelakis, Proceedings of the 16th International Conference on Field Programmable Logic and Applications (FPL), August 28-30, 2006, Madrid, Spain.
 - “On the Importance of Header Classification in HW/SW Network Intrusion Detection Systems”, Vassilios Dimopoulos, Giorgos Papadopoulos and **Dionisios Pnevmatikatos**, Proceedings of the 10th Panhellenic Conference on Informatics (PCI), November 11-13, 2005, Volos, Greece.
- Books and edited book chapters.

C – Awards & Distinctions

D – Funded Projects

- ΠABET-NE: EPMHΣ: Σχεδίαση και ανάπτυξη ενός καινοτόμου και σύνθετου ολοκληρωμένου για ενσωματωμένα δικτυακά συστήματα παροχής μπουκέτων υπηρεσιών στο χρήστη, 01/01/05-31/12/06, Συνολικός Προϋπολογισμός 574.980€, Προϋπολογισμός Π.Κ. 53000€
- Πρόταση 98 Τηλε-εκπαίδευση, Ιδρυματικός Υπεύθυνος
- Πρακτική Άσκηση Φοιτητών Π.Κ., Τμηματικός Υπεύθυνος

E – Professional service

- Διοργάνωση συνεδρίου 17th IEEE International Workshop on Rapid System Prototyping (RSP) 2006 στα Χανιά
- RSP2006 (Program Committee)
- DATE 2006 (Program Committee)
- ISSPIT 2006 (Program Committee)
- ICS 2006 (Program Committee)
- SAMOS 2006 (Program Committee)
- Reviewer:
 - Journals: IEEE-Micro, ACM-TECS, IEEE-TIFS, JPDC, IJSN
 - Conferences: ISCA, ANCS’06, HPCA’06, HiPEAC 2006, FPL’06, ISCAS’06

F – Service to the Department and the School

- Departmental responsibilities
 - Undergraduate Program Committee
 - Responsible for the Department-wide practical training project
- School-level responsibilities
 - NOC director
 - Επιτροπή Μηχανογραφικού και Δικτύων
 - Επιτροπή Συγγραμμάτων Π. Κ.
 - Ιδρυματικός Υπεύθυνος , Πρόταση 98 Τηλε-εκπαίδευση,

G – Advising

- Active graduate students supervised
 - Ph.D.
 - Κορνάρος Γιώργος
 - Μαυροειδής Ιωάννης
 - Μαυροειδής Ιάκωβος (co-supervise)
 - Μεϊντάνης Δημήτρης (co-supervise)
 - M.Sc. students supervised
 - Γιακουμής Δημήτρης
 - Νικητάκης Αντώνης
 - Δημόπουλος Βασίλης
 - Ερμής Ιωάννης
 - M.Sc. degrees awarded
 - Θεοδωρόπουλος Δημήτρης
- Undergraduate students supervised
 - Diploma theses completed (supervisor)
 - Δεμερτζή Μελίνα
 - Φυτράκη Σωτηρία
 - Αρελάκης Άγγελος
 - Μπούρας Ευστάθιος
 - Χαραλάμπους Χαράλαμπος
 - Diploma theses completed (co-supervisor)
 - Γιαννακού Χριστόδουλος
 - Μπράχος Δημήτριος
 - Diploma theses in progress (supervisor)
 - Σίσκος Αλέξανδρος
 - Ανδρονικίδης Γεώργιος
 - Χρήστου Παναγιώτης
 - Κυριακούλάκος Κωνσταντίνος
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)

- Χρυσός Γρηγόριος
- Κοζανίτης Χρήστος



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: 1-9-2005 to 31-8-2006

Name: George Stavrakakis

Rank: Professor

Years in rank: 11

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 : 5
 - Accepted : 4
 - Published : 3(see bellow)
- J.Kaldellis, K.A.Kavadias, D.E.Papantonis and **G.S.Stavrakakis**
 “Maximising wind generated electricity with hydro storage: case study Crete “
 Wind Engineering, Vol.30,No1, pp.72-92 , 2006.
- G.Saridakis , K.Dalamagidis ,D.Kolokotsa , **G.S.Stavrakakis** et al.
 “Development of a Greenhouse Model with an Intelligent Indoor Environment
 and Energy Management System for Greenhouses”
 WSEAS Transactions on Environment and Development, Issue 5, Vol.2 , pp.690-
 697, May 2006.
- Kafetzis G. ,Patelis P., Tripolitakis E.J., **Stavrakakis G.S.**, Kolokotsa D.,
 Kalaitzakis K.,
 “PID Controller Tunning and Implementation Aspects for Building Thermal
 Control”
 WSEAS Transactions on Circuits and Systems , Issue 7, Vol.5, pp.1016-1021,
 July 2006.
- D. Kolokotsa G.A.Saridakis, A. Pouliezos, **G.S. Stavrakakis**, Design and
 installation of an advanced EIB™ fuzzy indoor comfort controller using
 Matlab™, Accepted in Energy and Buildings.
- Publications in refereed conferences
 - Submitted : 1
 - Accepted : 1
 - Published : 1(see bellow)
- D.Kolokotsa ,A.Pouliezos, **G.Stavrakakis** “Sensor fault detection in building
 energy management systems” 5th International Conference on Technology and
 Automation 2005(ICTA 05), October, 15-16 2005, Thessaloniki , Greece.
- Books and edited book chapters : none
- Patents : one in the national level (see bellow)

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

C – Awards & Distinctions

- Paper awards : none
- Technical Achievement awards : none
- Professional service awards : none
- Elevation to senior membership grades in Professional Societies (e.g., IEEE, ACM, ...) : none
- Fellowships, Visiting Professorships : none
- Invited Plenary Lectures : one
 - WSEAS Conference on Circuits and Systems, Rethymno Crete , October 24-26, 2004.
- Other

D – Funded Projects

- Current projects:
 - Project 1, ACCELERATION OF SMART BUILDINGS TECHNOLOGIES AND MARKET PENETRATION. Contract SAVE 4.1031/Z/02-094/2002. February 2003 – March 2005. Prime Contractor – Coordinator.(Total 610166Euro, TUC/TSI part 106097Euro).EXTENDED UNTIL 31-12-2008..
 - Project 2 , e-MANAGEMENT FOR INDOOR ENVIRONMENT AND ENERGY SAVINGS IN BUILDINGS. General Secretary of Research and Technology (GSRT) Concerted Program “Renewable Energy Sources and Energy Saving”. September 2003 – September 2006. Coordinator.(Total 1000000Euro , TUC/TSI part 255115Euro)
- Project proposals submitted: none

E – Professional service

- Associate Editor duties : none
- Society Technical Committee duties : one (International Committee of Electrical Machines- ICEM)
- Conference Technical Program Committee service : none

- Conference Organization (specify role) : none
- Reviewing activities : In three international Journals
- Permanent invited Reviewer of “Zentralblatt für Mathematik und ihre Grenzgebiete” (Mathematics Abstracts) edited by Springer-Verlag International publ.
- Permanent invited Reviewer of the Journal of Intelligent and Robotic Systems.
- Permanent invited Reviewer of the IEEE Transactions on Energy Conversion.
- Participation in National Committees (e.g., EΔET) : one
- Permanent Committee of the Prefecture of Crete for the Energy Problem of Crete
- Other

F – Service to the Department and the School

- Departmental responsibilities : none
- School-level responsibilities
 - 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. Kafetis Georgios
 3. Patelis Petros
 4. Tabitsikas Charalabos
 - M.Sc. degrees awarded (none)

- Undergraduate students supervised
 - Diploma theses in progress (supervisor): 9
 - Diploma theses completed (supervisor) : 4
 - Diploma theses in progress (committee member): 6
 - Diploma theses completed (committee member): 2

Systems Division

Faculty members:

- Petros Stavroulakis, Professor (on leave)
- Manolis Christodoulou, Professor



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

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

Name: Manolis A. Christodoulou
Rank: Professor
Years in rank: 14
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

• 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

M.A.Christodoulou and S.G. Kodaxakis, "Automatic Commercial Aircraft Collision Avoidance in Free Flight: The Three Dimensional Problem", *IEEE Transactions on Intelligent Transportation Systems*, vol.7, No.2, pp. 242-249, 2006.

- Publications in refereed conferences
 - Submitted: those published/appeared (see below), plus
 - Accepted: those published (see below), plus
 - Published
 - M.A.Christodoulou, S.K.Kodaxakis and Y.S. Boutalis, An Automatic System for Aircraft Collision Avoidance in Free Flight: The 3-D case, *Proceedings of the 5th International Conference on Technology and Automation ICTA'05*, October 15-16, 2005, Thessaloniki, Greece. (166)
 - Y.S. Boutalis, T.L.Kottas, B.G. Mertzios and M.A.Christodoulou A Fuzzy Rule Based Approach for Storing the Knowledge Acquired from Dynamical FCMs, *Proceedings of the 5th International Conference on Technology and Automation ICTA'05*, October 15-16, 2005, Thessaloniki, Greece.
 - Y.S. Boutalis, T.L.Kottas and M.A.Christodoulou A New Method for Weight Updating in Fuzzy Cognitive Maps using System Feedback, *Proceedings of the 2nd International Conference on Informatics in Control, Automation and Robotics*, September 14-17, 2005, Barcelona, Spain.
 - M.A.Christodoulou, and D.Zarkogianni, Recurrent High Order Neural Networks for Identification of the EGFR Signaling Pathway, *Proceedings of the 14th Mediterranean Conference on Control and Automation*, paper TM2-1, June 28-30, 2006, Ancona, Italy.
 - M.A.Christodoulou, and T.N.Iliopoulos, Neural Network Models for Prediction of Steady-State and Dynamic Behavior of MAPK Cascade, *Proceedings of the 14th Mediterranean Conference on Control and Automation*, paper TM2-2, June 28-30, 2006, Ancona, Italy.
 - K.Vamvoudakis and M.A.Christodoulou, Backstepping, Interlaced and Mixed Interlaced Adaptive Nonlinear Control for Biological Models, *Intelligent Systems and Computing: Theory and Applications Conference (ISYC 06)*, pp. 196-219, July 6-7, 2006, Ayia Napa, Cyprus.
 - M.A.Christodoulou, and T.N.Iliopoulos, Use of RHONNS to Predict Dynamics and Steady State for MAPK Cascade in Cells, *Intelligent Systems and Computing: Theory and Applications Conference (ISYC 06)*, pp. 231-242, July 6-7, 2006, Ayia Napa, Cyprus.

- E.Skounakis and M.A.Christodoulou, Selective Biomedical Image Compression via Intelligent Identification of Objects, *IASTED International Conference on Signal and Image Processing (SIP 2006)*, August 14-16, 2006, Honolulu, Hawaii, USA.
- N.K.Louvros and M.A.Christodoulou, Simulation of the Cell Cycle using a Pathway of the G1Phase and Cell's Behavior Research, *28th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, August 30 - September 3, 2006, New York, New York, USA.
- Books and edited book chapters
 - G.A. Rovithakis, S.E. Perrakis and M.A.Christodoulou, Artificial Neural Networks in Manufacturing: Scheduling, *Artificial Neural Networks in Finance and Manufacturing*, Ruhul A. Sarker Editor, Idea Group Publishing, Inc., pp. 236-261, 2006.
- Patents

C – Awards & Distinctions

D – Funded Projects

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
- Mediterranean Control Association, Member of the Board of Governors
- Conference Technical Program Committee service
- International Program Committee, Member “5th International Conference on Technology and Automation ICTA'05” Thessaloniki, Greece, October 15-16, 2005.
- International Program Committee, Member 14th Mediterranean Conference on Control and Automation, Ancona, Italy, June 28-30, 2006.
- International Program Committee, Member International Conference on Intelligent Systems and Computing: Theory And Applications, Ayia Napa, Cyprus, July 5-7, 2006.
- Conference Organization (specify role)
- Reviewing activities
 - Reviewer for various *IEEE Transactions*

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Iosif Kodaxakis
 - Panagiotis Voulgarellis
 - Vouros Efstratios
 - Thanassis Iliopoulos
 - PhD. And M.Sc. degrees awarded
 - Tech. Un. of Crete: Electronic and Computer Engineering.
Degree and Name: MSc, Emmanouil Skounakis. Year and Title: 2005, Selective Biomedical Image Compression via Intelligent Identification of Objects. Present Position: Assistant Professor, ATEI of Crete.
- Undergraduate students supervised
Several diploma theses are in process and completed.