



Annual Activity Report

For the period Sep. 1, 2004 - Aug. 31, 2005

Chania, Crete, Nov. 30, 2005

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 about 130, and the number of faculty to 19 (with 3 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, researchers at University, Government, and Industry Research Labs (e.g., Rice-U.S., NICTA-Australia, Telcordia-U.S.), 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 here and abroad.

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 earlier this year. You are holding the Department's first AAR, covering the period from Sep. 1, 2004 to Aug. 31, 2005. 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
- Polychronis Koutsakis, Post-Doctoral Researcher – Visiting Lecturer
- Athanasios Liavas, Associate Professor
- Michael Paterakis, Professor
- Alexandros Potamianos, Associate Professor
- Nikolaos Sidiropoulos, Professor



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept. 1, 2004 to Aug. 31, 2005

Name: Vassilis Digalakis

Rank: Full

Years in rank: 5

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
 - Submitted
 - N. Chatzichrisafis, **V. Digalakis**, V. Diakouloukas and C. Harizakis, “Gaussian Mixture Clustering and Language Adaptation for the Development of a New Language Speech Recognition System”.
 - P. Gavalakis and **V. Digalakis**, “Smoothing and Clustering Methods for Training Discrete Mixture Hidden Markov Models”.
 - Accepted
 - **V. Digalakis**, “Automatic pronunciation evaluation of foreign speakers using unknown text”, accepted with revisions, Computer Speech and Language, revisions due November 2005.

- Publications in refereed conferences
 - Submitted
 - P. Gavalakis and **V. Digalakis**, “A Comparative Study of Smoothing Techniques for Discrete Mixture Hidden Markov models”, Submitted to ICASSP 2006.
 - Published
 - N. Chatzichrisafis, **V. Digalakis**, V. Diakouloukas and C. Harizakis, “Rapid Acoustic Model Development using Gaussian Mixture Clustering and Language Adaptation”, Interspeech 2004, Korea, October 2004.

C – Awards & Distinctions

- The PENED proposal “Development of multimedia platform for portable devices with embedded voice recognition and synthesis capabilities” was ranked 8th among 207 proposals submitted in the Informatics category.

D – Funded Projects

- Current projects:
 - Beware, EC and National Development Fund, 1/2003-12/2005, PI, PI’s Budget € 104.750.
 - “Development of multimedia platform for portable devices with embedded voice recognition and synthesis capabilities”, PENED, PI, PI’s Budget € 180.000.
 - “Voice modeling, synthesis and recognition using computational aerodynamic analysis of the human vocal tract”, PENED Co-PI, PI’s Budget € 180.000.
 - Hiwire, (IST STREP), 6/2004-5/2006, Co-PI, PI’s Budget € 277.628.
 - Muscle, (IST NoE), 3/2004-2/2007, Co-PI, PI’s Budget € 160.000.
- Project proposals submitted:
 - MULTIPLE, GSRT Information Society, PI, PI’s Budget € 195.000.
 - “Development of cardiac diagnosis system for children using analysis of acoustic cardiac emission signals”, PENED, Co-PI, PI’s Budget € 112.500.

E – Professional service

- Reviewer in several conferences and journals.

F – Service to the Department and the School

- Departmental responsibilities
 - Department Chair
 - Director, Information and Networking Lab
- School-level responsibilities
 - Member of the University Senate
 - Deputy Director, TSI

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Costas Charizakis, x7377, PhD, 2003
 - Chris Vosnidis, x7377, PhD, 2004
 - Dimitris Oikonomidis, PhD, 2003
 - Nikos Tsourakis, MSc, 2001
 - Dimitris Pratsolis, MSc, 2001
 - PhD. And M.Sc. degrees awarded
 - Petros Gavalakis, MSc, 2004
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - T. Gjermani
 - G. Tsontzos
 - C. Mpoumpouka
 - Papadopoulos
 - Athanasoglou
 - Z. Malafouris
 - Diploma theses completed (supervisor)



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept 1, 2004 to Aug. 31, 2005

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
 - TEL 304 - Digital Signal Processing
 - TEL 313 - Digital Image Processing
- Graduate courses taught
 - Pattern Recognition
 - Special Issues in Image Processing
- Labs taught
 - TEL 304 - Digital Signal Processing
 - TEL 313 - 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

- Publications in refereed journals
 - Submitted:
 - V. Sakkalis, **M.E. Zervakis** and S. Micheloyiannis, “Significant EEG Feature Selection for the Evaluation of Cognitive Task Complexity Functions”, submitted to *IEEE Trans. on Biomedical Eng.*, 2005.
 - Accepted
 - Published
 - V. Gkoumplias, **M.E. Zervakis** and M. Tzaphlidou, ‘An Automated Approach for Analyzing D-Periods in Collagen Fibril Images’ *IEEE Trans. on Biomedical Eng.*, vol. 52, no. 7, pp. 1345-1347, July 2005
 - **M. E. Zervakis**, V. Gkoumplias and M. Tzaphlidou, “Analysis of Fibrous Proteins from Electron Microscopy Images”, *Medical Engineering and Physics*, vol. 27, pp. 655-667, 2005.
- Publications in refereed conferences
 - V. Sakalis, **M. E. Zervakis** and S. Micheloyiannis, “Biopattern Initiative: towards the Development and Integration of Next-Generation Information Fusion Approaches”, *IEEE EMBS’04 Conference*, San Francisco, September 1-5 2004
 - C. Doulaverakis, V. Vagionitis, **M. E. Zervakis** and E. Petrakis: "Adaptive Methods for Motion Characterization and Segmentation of MPEG Compressed Frame Sequence", *Intern. Conference on Image Analysis and Recognition (ICIAR'2004)*, Porto, Portugal, Sept./Oct. 2004, Proc. Part I, Springer Verlag (LNCS 3211), pp. 310-317.
 - V. Sakkalis, **M.E.Zervakis**, S. Erimaki, S. Micheloyannis, “Evaluation of electroencephalographic activity involved in mathematical thinking using wavelet analysis and significance-

based features”, *Proc. of 2nd Intl Conf. on Computational Intelligence in Medicine and Healthcare (CIMED2005)*, Lisbon, Portugal, June 29-July 1, 2005.

- M. Kounelakis, M. Blazantonakis, **M.E.Zervakis**, and X. Kotsiakakis, “The Impact Of Bioinformatics In Clinical Practices On Human Cancer”, *Proc. Emerging Aspects of Clinical Data Analysis (EACDA 2005)*, Pisa, Italy, Sept. 28-30, 2005
- Books and edited book chapters:
 - K. Rapantzikos, **M.E. Zervakis**, “Detection and Segmentation of Drusen Deposits on Retina Images”, in *Medical Imaging Systems Technology: Methods in General Anatomy*, C.T. Leondes (ed.), World Scientific Publishing, Singapore 2005.
- Patents: none

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - *Co-Principal investigator for TUC*, project TOWL: Time–determined ontology based information system for real time stock, STREP, FP6, Period 2005-2008, Total Budget 1,968,767 €, PI’s budget 244,402 €
 - *Principal investigator for TUC*, project HERPS Center: *Training Centre for Health Care, Prophylactic and Rehabilitation Services*, LEONARDO DA VINCI Community Vocational Training Action, 2nd phase, Period 2005-2007, PI’s budget 46,538 €
 - *Principal investigator for TUC*, project OPTAG: Improving Airport Security and Passenger Flow by Enhanced Passenger Monitoring, STREP, FP-6. Period 2004-2007, Total budget 2,234,853 €, PI’s budget, 269,640 €
 - *Principal investigator for TUC r*, project BIOPATTERN: Computational intelligence for biopattern analysis in support of eHealthcare, Network of Excellence, FP6. Period 2004-2006, Total budget 3,400,000 €, PI’s budget 264,630 €

- *Co-Principal investigator for TUC*, project MULTI_MINE: Multimedia data management and mining, Greek research network program sponsored by the Greek Secretariat of Research and Technology, Period 2003-2005, Total budget 180,000 €, PI's budget 18,000 €
- *Principal investigator for TUC*, project Health-Prototype, Greek research network program sponsored by the Greek Secretariat of Research and Technology, Period 2003-2005, PI's budget 12,000 €
- Project proposals submitted:
 - Over 10 from 2004 to Sept 2005

E – Professional service

- Associate Editor duties
- Society Technical Committee duties
 - Session Chair IEEE EMBS'04 Conference, San Francisco, September 1-5 2004
 - Session Chair, Intl Conf. on Computational Intelligence in Medicine and Healthcare (CIMED2005), Lisbon, Portugal, June 29-July 1, 2005
 - Session Chair, Emerging Aspects of Clinical Data Analysis (EACDA 2005), Pisa, Italy, Sept. 28-30, 2005
- Conference Technical Program Committee service
 - Programme Committee Member: ESANN'2004, 2005, 2006 (European Symposium on Artificial Neural networks).
 - Organizing Committee Member: MEDSIP 2005, 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., ΕΔΕΤ)
- 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
 - Ioannis Dimou PhD student
 - Michalis Kounelakis, PhD student
 - Michalis Blazantonakis PhD student
 - Vaggelis Sakkalis, PhD student
 - Stefanos Goumas PhD student
 - George Manikis MSc student
 - Antonis Tsichlas MSc student
 - Kostantina Moirogiorgou MSc student
 - Nikolas MARKopoulos MSc student
 - Zacharias Getsis MSc student
 - Petros Xanthopoulos MSc student
 - George Livanos MSc student
 - Kostas Michalopoulos MSc student
 - PhD. And M.Sc. degrees awarded:
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Over 10
 - Diploma theses completed (supervisor):



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Department of Electronic & Computer Engineering

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For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Athanasios P. Liavas

Rank: Associate Professor

Years in rank: 2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications

A – Teaching

- **Undergraduate courses taught**

- TEL 201 - Signals and Systems
- TEL 311 - Telecommunications Systems II (cross-listed)

- **Graduate courses taught**

- Estimation Theory
- Detection Theory

- **Curriculum & course development**

- MATLAB exercises for Signals and Systems
- MATLAB exercises for Telecommunications Systems II
- MATLAB exercises for Estimation Theory
- Lecture notes on Signals and Systems (in Greek)
- Lecture notes on Estimation Theory (in Greek)
- Lecture notes on Information Theory (in Greek)

B – Publications

- **Publications in refereed journals**

- **A. P. Liavas**, “On the sensitivity of a suboptimum precoding scheme for frequency-selective block based channel with respect to channel inaccuracies,” *IEEE Trans. Information Theory*, vol. 51, no. 9, pp. 3374—3381, September 2005.
- **A. P. Liavas**, “Tomlinson-Harashima precoding with partial channel knowledge,” *IEEE Trans. Communications*, vol. 53, no 1, pp. 5—9, January 2005.

- **Publications in refereed conferences**

- **A. P. Liavas**, “Sensitivity analysis of a suboptimal precoding scheme for block channels with respect to channel inaccuracies,” *IEEE ICASSP*, March 2005.

C – Awards & Distinctions

D – Funded Projects

- **Project proposals submitted:**

- **PI FET** (short proposal): “*Cooperative and opportunistic communication for wireless networks*”. Total Budget 2.2 M€, PI budget 400K€. Submitted 20 September 2005.

E – Professional service

- Associate Editor Duties
 - Associate Editor, *IEEE Transactions on Signal Processing*
- Reviewing activities
 - Reviewer for *IEEE Transactions on Information Theory*, *IEEE Transactions on Signal Processing*

F – Service to the Department and the School

- **School-level responsibilities**

- Member of the Library Committee

G – Advising

- **Active graduate students supervised**
 - Ph.D. and M.Sc. students supervised
 - Tsipouridou Despoina, September 2004
 - Ampatzis Eythimios, September 2004
 - Maniadakis Apollon, September 2004
 - PhD. And M.Sc. degrees awarded
 - Lyrantonaki Theano, August 2005
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Zarbou Theodora



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Department of Electronic & Computer Engineering

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For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Michael Paterakis

Rank: Professor

Years in rank: 6

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Information and Computer Networks Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 401 - Computer Networks I
- Graduate courses taught
 - TEL 605 - Computer Communication Networks Protocols
- Labs taught
 - TEL 401 - Computer Networks I
- Curriculum & course development
 - Lecture notes / slides developed
 1. Notes on the TEL 401 - “Computer Networks I” course, published on the web: www.telecom.tuc.gr/courses.htm

B – Publications

- Publications in refereed journals
 - Submitted

- P. Koutsakis, S. Psychis and **M. Paterakis**, “Modeling Videoconference Traffic for Improved Traffic Policing- A Study for H.263 Videos”.
- A. Lazaris, P. Koutsakis and **M. Paterakis**, “On Modeling MPEG-4 Videoconference Traffic”.
- S. Chatziperis, P. Koutsakis and **M. Paterakis**, “A New Call Admission Control Mechanism for Multimedia Traffic over Wireless Networks”.
- T. Chiras, **M. Paterakis** and P. Koutsakis, “Improved Energy Conservation for Wireless Sensor Networks”
- A. Satsiou and **M. Paterakis**, “Frequency-Based Cache Management Policies for Collaborative and Non-Collaborative Topologies of Segment Based Video Caching Proxies”.
- Accepted
 - 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”, accepted for publication in the *Performance Evaluation Journal*, Elsevier Publ.
 - 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”, accepted for publication in the *IEEE Transactions on Vehicular Technology*.
 - 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”, accepted for publication in the *International Journal of Electronics and Communications*, Elsevier Publ.
- Published
 - P. Koutsakis and **M. Paterakis**, “Call Admission Control and Traffic Policing Mechanisms for the Transmission of Videoconference Traffic from MPEG-4 and H.263 Video Coders in Wireless ATM Networks”, *IEEE Transactions on Vehicular Technology*, Vol. 53, No. 5, pp. 1525-1530, 2004.
 - A. Alexandraki and **M. Paterakis**, “Performance Evaluation of the Deadline Credit Scheduling Algorithm for Soft-Real-Time Applications in Distributed Video-on-Demand Systems”, *Cluster Computing Journal*, Vol. 8, no.1, pp. 61-75, Jan. 2005, Kluwer Publ.
- Publications in refereed conferences
 - Submitted
 - A. Satsiou and **M. Paterakis**, “Efficient Caching of Video Content

to an Architecture of Proxies according to Frequency-Based Cache Management Policies”.

- N. Kalogerinis and **M. Paterakis**, “Energy-Aware Scoping Algorithm and Energy Saving Techniques for Wireless Sensor Networks”.

- Published

- P. Koutsakis, H. Papadakis and M. Paterakis, “Restricted Data Traffic Access in Dynamic Packet Reservation Voice-Data Integration for High Capacity Wireless TDMA Channels”, in Proc. of the *IEEE Vehicular Technology Conference - Fall 2004*, September 2004, Los Angeles, California, pp. 1118-1122.
- J. Atzarakis and M. Paterakis, “On the Performance of a Collision Avoidance Protocol with New Backoff Retransmission Mechanism in Multihop Ad-Hoc Networks”, in Proceedings of the *5th International Network Conference (INC 2005)*, Samos, Greece, 5-7 July 2005.
- P. Koutsakis, H. Papadakis, M. Paterakis and S. Psychis, “On the Efficiency of the MI-MAC protocol for Multimedia Traffic Integrated Access over Wireless Networks”, in Proc. of the *1st IEEE/IFIP International Conference in Central Asia on Internet (ICI 2005)*, September 2005, Bishkek, Kyrgyzstan.
- T. Chiras, M. Paterakis and P. Koutsakis, “Improved Medium Access Control for Wireless Sensor Networks -A Study on the S-MAC Protocol”, in Proc. of the *14th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN 2005)*, September 2005, Chania, Greece.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “Multiuser Downlink Beamforming and Scheduling for Broadband Wireless Access Beyond 3G”, funded for the period 1/3/2004 – 28/2/2006 by the Greek General Secretariat of Research & Technology (GGET). PI: Prof. N. Sidiropoulos, Co – PI: Prof. M. Paterakis. Budget: 60000 €.
 - “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 – 30/12/2006, by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 350000 €.

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.
- *Guest Editor* for the Special Section on “Medium Access and Call Admission Control Algorithms for Next Generation Wireless Networks” of the ACM Mobile Computing and Communications Review (MC²R), published in the October 2005 issue of MC²R.
- *General Co-Chair for the:*
 - 14th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN’05), Chania, Crete, Greece, 18-21 September, 2005.
- *Technical Program Committee Member* for the:
 - 1st Intl. Workshop on Broadband Wireless Multimedia: Algorithms, Architectures and Applications, City of San Jose, CA, 29 Oct. 2004.
 - 1st IEEE Symposium on a World of Wireless, Mobile and Multimedia Networks (WOWMOM 2005), Taormina, Italy, 6-9 June, 2005.
- *Session Organizer* for the session on Channel Assignment and Reservation Schemes, IEEE Vehicular Technology Conference (VTC’04 Fall), September 26-29, Los Angeles, CA.
- Reviewing activities
 - *Reviewer* for the international technical journals:
 - IEEE Transactions on Vehicular Technology
 - IEEE Transactions on Knowledge and Data Engineering
 - Algorithmica
 - Performance Evaluation (Elsevier Science Publisher)
 - Journal of Internet Technology.
 - *Reviewer* for the international conference:
 - 1st Intl. Workshop on Broadband Wireless Multimedia: Algorithms, Architectures and Applications, City of San Jose, CA, Oct. 2004.

F – Service to the Department and the School

- Departmental responsibilities
 - June 1997 - . Director of the Graduate Program, ECE Department.
- School-level responsibilities

- October 2000 – October 2005. Director, Telecommunication Systems Research Institute, Technical University of Crete.
- October 1998 – August 2005. Member, University Research Committee.

G – Advising

- Active graduate students supervised
 - Ph.D. students supervised
 - Spyros Psychis
 - M.Sc. degrees awarded
 - Anna Satsiou, Completion Time: Fall 2004. *M.Sc. Thesis: Frequency-Based Cache Management Policies for Collaborative and Non-Collaborative Topologies of Segment Based Video Caching Proxies.*
 - Nikolaos Kalogerinis, Completion Time: Summer 2005. *M.Sc. Thesis: Energy-Aware Scoping Algorithm and Energy Saving Techniques for Wireless Sensor Networks.*
 - M.Sc. students supervised
 - Theodoros Chiras
 - Alexandros Gougousis
 - Antonis Stephanogiannis
 - Nikolaos Papalexidis
 - Sotiris Bouros
- Undergraduate students supervised
 - Diploma Theses in progress (supervisor)
 - Aggelos Lazaris, “On Modeling MPEG-4 Videoconference Traffic”.
 - Vassilis Kypouris, “Evaluation and Dynamic Selection of MAC Protocols Based on the Network Load in Wireless TDMA Networks”.
 - Diploma Thesis completed (supervisor)
 - Stelios Chatziperis, “A New Call Admission Control Mechanism for Multimedia Traffic over Wireless Networks”, completed in July 2005.



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For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Alexandros Potamianos

Rank: Associate Professor

Years in rank: 2

Full-time or part-time: Full-time

Division: Telecom

Lab affiliation: Speech and Dialog 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
 - New courses / labs developed
 - Lecture notes / slides developed
 1. Power-point presentations for TEL 303
 2. Power-point presentations for TEL 411
 - Authored textbooks

B – Publications

- Publications in refereed journals (submitted: 1, accepted: 1, published: 2)
 - D. Dimitriadis, P. Maragos, and **A. Potamianos**, "Robust AM-FM features for speech recognition," *IEEE Signal Processing Letters*, vol. 12, pp. 621-624, Sept. 2005.

- **A. Potamianos**, S. Narayanan, and G. Riccardi, "Adaptive categorical understanding for spoken dialogue systems," *IEEE Transactions on Speech and Audio Processing*, Sept 2005.
- Publications in refereed conferences (submitted: 5, accepted: 5, published: 3)
 - P. Karageorgakis, **A. Potamianos**, and I. Klasinas, "Towards incorporating language morphology into statistical machine translation systems", in *Proc. Automatic Speech Recogn. and Underst. Workshop*, (Cancun, Mexico), Dec. 2005.
 - A. Pangos, E. Iosif, **A. Potamianos**, and E. Fosler-Lussier, "Combining statistical similarity measures for automatic induction of semantic classes," in *Proc. Automatic Speech Recogn. and Underst. Workshop*, (Cancun, Mexico), Dec. 2005.
 - M. Perakakis, M. Toutoudakis, and **A. Potamianos**, "Modality selection for multimodal dialogue systems," in *Internat. Conf. on Multimodal Interfaces*, (Trento, Italy), Oct. 2005.
 - D. Dimitriadis, P. Maragos, and **A. Potamianos**, "Auditory teager energy cepstrum coefficients for robust speech recognition," in *Proc. European Conf. on Speech Communication and Technology*, (Lisbon, Portugal), Sept. 2005.
 - S. Yildirim, C. Lee, S. Lee, **A. Potamianos**, and S. Narayanan, "Detecting politeness and frustration state of a child in a conversational computer game," in *Proc. European Conf. on Speech Communication and Technology*, (Lisbon, Portugal), Sept. 2005.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - MUSCLE: Multimedia Understanding through Semantics, Computation and Learning, IST-FP6 Network of Excellence, from 3/2004 to 2/2008, PI and WP10 leader, total budget: 6,000,000€, PI's budget: 160,000€
 - HIWIRE: Speech recognition in noisy environments, IST-FP6 STREP, from 6/2004 to 5/2007, PI and WP1 leader, total budget: 3,000,000€, PI's budget: 270,000€
 - PENED: Speech synthesis and recognition by modeling the aerodynamics of the human vocal tract, from 11/2005 to 10/2008, PI, total budget: 180,000€, PI's budget: 60,000€
- Project proposals submitted:

- MM-Children: multi-modal systems for children, IST-FP6 Integrated Project, total budget: 6,500,000€, PI's budget: 800,000€
- MATLING: machine translation using linguistic knowledge, IST-FP6 STREP, total budget: 3,700,000€, PI's budget: 450,000€

E – Professional service

- Reviewer for
 - ICASSP 2005, EUROSPEECH 2005, ASRU 2005
 - *IEEE Trans. Speech and Audio, IEEE Signal Proc. Letters, Speech Communication*

F – Service to the Department and the School

G – Advising

- Post-docs and researchers
 - Dr. Eduardo Sanchez-Soto
 - Kelly Zervanou
- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Manolis Perakakis, 2nd year Ph.D
 - Michalis Toutoudakis, 3rd year M.Sc.
 - Christos Koniaris, 3rd year M.Sc.
 - Michail Maragkakis, 2nd year M.Sc.,
 - Apostolis Pangos, 3rd year M.Sc.
 - Panagiotis Karageorgakis, 3rd year M.Sc.
 - Ilias Iosif, 1st year M.Sc.
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Giannis Klasinas
 - Thanasis Tegos
 - Fotis Garitos
 - Baso Farantouri
 - Giannis Milogiannakis
 - Diploma theses completed (supervisor)
 - Ilias Iosif
 - Kostis Dermatas
 - Nikos Pallas



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Nikos Sidiropoulos

Rank: Professor

Years in rank: 3+1/2

Full-time or part-time: Full-time

Division: Telecommunications

Lab affiliation: Telecommunications Laboratory

A – Teaching

- Undergraduate courses taught
 - TEL 301 – Telecommunication Systems I (Fall 2004)
 - TEL 502 – Statistical Signal Processing for Communications (Spring 2005)
- Graduate courses taught
 - TEL 601 – Probability and Stochastic Processes (Spring 2005)
- Labs taught
 - TEL 301 – Telecommunication Systems I Lab (Fall 2004)
 - TEL 502 – Statistical Signal Processing for Communications Lab (Spring 2005)
- Curriculum & course development
 - New courses / labs developed
 1. Lab exercises for TEL 502 – Statistical Signal Processing for Communications (new)
 - Lecture notes / slides developed
 1. Lecture notes for TEL 301 – Telecommunication Systems I (revised)
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Alejandro Ribeiro, **N.D. Sidiropoulos**, G. B. Giannakis, Yingqun Yu, “Achieving Wireline Random Access Throughput in Wireless Networking via User Cooperation”, submitted to *IEEE Trans. on Information Theory*, May 2005.
 - A. Stegeman, and **N.D. Sidiropoulos**, “On Kruskal's uniqueness condition for the Candecomp/Parafac decomposition”, submitted to *Linear Algebra and its Applications*, Mar. 2005.
 - 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, to appear.
 - E. Karipidis, **N.D. Sidiropoulos**, A. Leshem, L. Youming, “Experimental Evaluation of Capacity Statistics for Short VDSL Loops”, *IEEE Trans. on Communications*, 53(7):1119—1122, July 2005.
 - **N.D. Sidiropoulos**, T.N. Davidson, Z-Q (Tom) Luo, “Transmit Beamforming for Physical Layer Multicasting”, *IEEE Trans. on Signal Processing*, to appear.
 - Accepted
 - 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, to appear.
 - E. Karipidis, **N.D. Sidiropoulos**, A. Leshem, L. Youming, “Experimental Evaluation of Capacity Statistics for Short VDSL Loops”, *IEEE Trans. on Communications*, 53(7):1119—1122, July 2005.
 - **N.D. Sidiropoulos**, T.N. Davidson, Z-Q (Tom) Luo, “Transmit Beamforming for Physical Layer Multicasting”, *IEEE Trans. on Signal Processing*, to appear.
 - G. Dimic, **N.D. Sidiropoulos**, “On Downlink Beamforming with Greedy User Selection: Performance Analysis and a Simple New Algorithm”, *IEEE Trans. on Signal Processing*, to appear.
 - Published
 - E. Karipidis, **N.D. Sidiropoulos**, A. Leshem, L. Youming, “Experimental Evaluation of Capacity Statistics for Short VDSL Loops”, *IEEE Trans. on Communications*, 53(7):1119—1122, July 2005.
 - G. Latsoudas, **N.D. Sidiropoulos**, “A Hybrid Probabilistic Data Association - Sphere Decoding Detector for Multiple-Input

Multiple-Output Systems”, *IEEE Signal Processing Letters*, 12(4):309-312, Apr. 2005.

- **N.D. Sidiropoulos**, A. Swami, and B. Sadler, “Quasi-ML Period Estimation from Incomplete Timing Data”, *IEEE Trans. on Signal Processing*, 53(2):733-739, Feb. 2005.
 - Y. Rong, S.A. Vorobyov, A.B. Gershman, and **N.D. Sidiropoulos**, “Blind Spatial Signature Estimation via Time-Varying User Power Loading and Parallel Factor Analysis”, *IEEE Trans. on Signal Processing*, 53(5):1697-1710, May 2005.
 - S.A. Vorobyov, Y. Rong, **N.D. Sidiropoulos**, and A.B. Gershman, “Robust Iterative Fitting of Multilinear Models”, *IEEE Trans. on Signal Processing*, 53(8):2678—2689, Aug. 2005.
 - G. Dimic, **N.D. Sidiropoulos**, and R. Zhang, “Signal Processing and Queueing Tools for MAC-PHYS Cross-Layer Design”, *IEEE Signal Processing Magazine*, special issue on signal processing and queueing aspects of network protocols, p. 40-50, Sept. 2004.
 - T. Jiang, and **N.D. Sidiropoulos**, “Kruskal’s Permutation Lemma and the Identification of CANDECOMP/PARAFAC and Bilinear Models with Constant Modulus Constraints”, *IEEE Trans. on Signal Processing*, 52(9):2625-2636, Sept. 2004.
 - J. M.F. ten Berge, **N.D. Sidiropoulos**, and R. Rocci, “Typical Rank and INDSCAL Dimensionality for Symmetric Three-way Arrays of Order $I \times 2 \times 2$ or $I \times 3 \times 3$ ”, *Linear Algebra and its Applications*, 388:363-377, Sep. 2004.
- Publications in refereed conferences
 - Submitted: same as published, see below
 - Accepted: same as published, see below
 - Published
 - Alejandro Ribeiro, N.D. Sidiropoulos, G. B. Giannakis, “Achieving Wireline Random Access Throughput in Wireless Networking via User Cooperation”, in *Proc. IEEE SPAWC 2005*, June 5-8, 2005, NYC, NY, U.S.A.
 - E. Karipidis, N.D. Sidiropoulos, A. Leshem, L. Youming, “Capacity Statistics for Short DSL Loops from Measured 30 MHz Channel Data”, in *Proc. IEEE SPAWC 2005*, June 5-8, 2005, NYC, NY, U.S.A.
 - G. Latsoudas, and N.D. Sidiropoulos, “On the Performance of Certain Fixed-Complexity Multiuser Detectors in FEXT-limited Vectored DSL Systems”, in *Proc. ICASSP 2005*, March 19-23, 2005, Philadelphia, PA, U.S.A.
 - Y. Yu, A. Ribeiro, N.D. Sidiropoulos, and G. B. Giannakis, “Cooperative Random Access with Long PN Spreading Codes”, in *Proc. ICASSP 2005*, March 19-23, 2005, Philadelphia, PA, U.S.A.

- A. Ribeiro, Y. Yu, N.D. Sidiropoulos, and G. B. Giannakis, "Increasing the Throughput of Spread-Aloha Protocols via Long PN Spreading Codes", in *Proc. ICC 2005*.
- Books and edited book chapters
 - A. Gershman, N.D. Sidiropoulos (Eds.), *Space-Time Processing for MIMO Communications*, John Wiley & Sons, Apr. 2005.
 - X. Liu, N.D. Sidiropoulos, and T. Jiang, "Multidimensional Harmonic Retrieval with Applications in MIMO Wireless Channel Sounding", in *Space-Time Processing for MIMO Communications*, A. Gershman, N. Sidiropoulos, Eds., John Wiley & Sons, Apr. 2005.
- Patents

C – Awards & Distinctions

- Invited Plenary Lectures
 - Plenary lecture on "Signal Processing Applications of Parallel Factor Analysis", at the second joint SIAM-CNRS-IEEE Workshop on Tensor Decompositions and Applications, Aug. 28 – Sep. 2, 2005, CNRS Campus, Luminy, Marseille, France.

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 – July 2006. Budget: 60K €.
- Project proposals submitted:

- Participated in three FP6 STREP proposals (March 2005): REACH, MEHEN, DISTANS.

E – Professional service

- Associate Editor duties
 - Associate Editor, *IEEE Transactions on Signal Processing*
- Society Technical Committee duties
 - Member and 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 2005
 - IEEE SPAWC 2005
 - IEEE SAM 2005
 - SIAM-CNRS-IEE WTD 2005
- Conference Organization (specify role)
 - Technical Program Chair, IEEE CAMSAP 2005, Dec. 12-14, 2005, Puerto Vallarta, Mexico.
 - 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
 - Vice-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
 - 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 program: 2004.
 - Georgios Latsoudas (M.Sc.). Year of initial enrollment in program: 2004.
 - Kleanthis Mokios (M.Sc.). Year of initial enrollment in program: 2003.
 - Alexandros Valyrakis (M.Sc.). Year of initial enrollment in program: 2004.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Markos Bervenakis, “System integration aspects of experimental wireless ftp radio link over analog FM”.
 - Diploma theses completed (supervisor)
 - Evaggelos Iliakis, “Forward error correction coding for experimental wireless ftp radio link over analog FM”, July 26, 2005.
 - Georgios Kardaras, “Block error correction coding for experimental wireless ftp radio link over analog FM”, July 26, 2005.
 - Christos Kokkinakis, “Channel Equalization using LMS, RLS, and CMA for experimental wireless ftp radio link over analog FM”, July 26, 2005.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Polychronis Koutsakis

Rank: Post-Doctoral Researcher & Visiting Lecturer (Π.Δ. 407/80)

Years in rank: 2

Full-time or part-time: Part-Time

Division: Telecommunications

Lab affiliation: Information and Computer Networks Laboratory

A – Teaching

- Undergraduate courses taught
 - “Computer Networks” (teaching assistant)
- Graduate courses taught
 - “Special Topics in Communication Networks”, Advanced Graduate Course, taught at the Department of Electronic and Computer Engineering of the Technical University of Crete.
 - “Special Topics in Telecommunications Systems”, Advanced Graduate Course, taught at the Department of Electronic and Computer Engineering of the Technical University of Crete.

B – Publications

- Publications in refereed journals
 - Submitted

- **P. Koutsakis**, S. Psychis and M. Paterakis, “Modeling Videoconference Traffic for Improved Traffic Policing- A Study for H.263 Videos”.
- **P. Koutsakis** and M. Vafiadis, “Medium Access Control for Integrated Multimedia Wireless Access with the use of a Video Packet Discard Scheme”.
- **P. Koutsakis**, “On Modeling VBR Videoconferencing Traffic from H.263 Video Coders”.
- **P. Koutsakis** and M. Vafiadis, “Transmission Scheduling in Next Generation Wireless Networks: Preemption vs. Contention and Noise in a MAC Scheme for Multimedia Integration”.
- A. Lazaris, **P. Koutsakis** and M. Paterakis, “On Modeling MPEG-4 Videoconference Traffic”, submitted for publication to the Elsevier Performance Evaluation Journal.
- S. Chatziperis, **P. Koutsakis** and M. Paterakis, “A New Call Admission Control Mechanism for Multimedia Traffic over Wireless Networks”, submitted for publication to the IEEE Transactions on Vehicular Technology.
- T. Chiras, M. Paterakis and **P. Koutsakis**, “Improved Energy Conservation for Wireless Sensor Networks”, submitted for publication to the Elsevier International Journal of Electronics and Communications.

○ Accepted

- **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”, *accepted for publication in the Elsevier Performance Evaluation Journal*.
- **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”, *accepted for publication in the IEEE Transactions on Vehicular Technology*.
- **P. Koutsakis**, “A Unified Mechanism for Multimedia Downlink Scheduling and Call Admission Control for Future Error-Prone Wireless Networks”, *accepted for publication in the Springer Wireless Personal Communications Journal*.
- 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”, *accepted for publication in the Elsevier International Journal of Electronics and Communications*.
- **P. Koutsakis**, “Scheduling and Traffic Policing for Variably Demanding Video Traffic Integrated with Voice and Data Traffic in

4th Generation Wireless Networks”, *accepted for publication in the Springer Wireless Personal Communications Journal*.

- Published
 - **P. Koutsakis** and M. Paterakis, “Call Admission Control and Traffic Policing Mechanisms for the Transmission of Videoconference Traffic from MPEG-4 and H.263 Video Coders in Wireless ATM Networks”, *IEEE Transactions on Vehicular Technology*, Vol. 53, No. 5, pp. 1525-1530, 2004.
- Publications in refereed conferences
 - Submitted
 - H. Papadakis and **P. Koutsakis**, “Performance Evaluation of the MI-MAC Protocol for the Integration of MPEG-4, Voice and Web Traffic over Wireless Networks”.
 - **P. Koutsakis** and H. Papadakis, “Downlink Scheduling and Call Admission Control for Voice, Video, WAP and SMS Traffic over High Capacity Wireless Picocellular Networks”.
 - Accepted
 - **P. Koutsakis**, “Improving Channel Utilization by Restricting Data Traffic Access in Voice-Video-Data Integration for High Capacity Wireless Channels”, to appear in Proc. of the IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), August 2005, Montreal, Canada.
 - **P. Koutsakis**, H. Papadakis, M. Paterakis and S. Psychis, “On the Efficiency of the MI-MAC protocol for Multimedia Traffic Integrated Access over Wireless Networks”, to appear in Proc. of the 1st IEEE/IFIP International Conference in Central Asia on Internet (ICI 2005), September 2005, Bishkek, Kyrgyzstan.
 - H. Papadakis and **P. Koutsakis**, “Reducing Energy Consumption in Medium Access Control for Wireless Sensor Networks”, to appear in Proc. of the International Conference on Software, Telecommunications and Computer Networks (SoftCOM 2005), September 2005, Split, Croatia.
 - T. Chiras, M. Paterakis and **P. Koutsakis**, “Improved Medium Access Control for Wireless Sensor Networks -A Study on the S-MAC Protocol”, to appear in Proc. of the 14th IEEE Workshop on Local and Metropolitan Area Networks (LANMAN 2005), September 2005, Chania, Greece.
 - H. Papadakis and **P. Koutsakis**, “Resource Allocation for High-Speed Uplink Wireless Channels with no Reservation Guarantees”, to appear in Proc. of the 30th IEEE Conference on Local Computer Networks (LCN 2005), November 2005, Sydney, Australia.
 - H. Papadakis, **P. Koutsakis** and M. Vafiadis, “On the Performance Evaluation of a Dynamic Bandwidth Reservation Mechanism for

Integrated H.263 Video, IP and MP3 Traffic over Wireless Networks”, to appear in Proc. of the 7th IEEE International Symposium on Multimedia (ISM 2005), December 2005, Irvine, California, USA.

- Published

- **P. Koutsakis**, H. Papadakis and M. Paterakis, “Restricted Data Traffic Access in Dynamic Packet Reservation Voice-Data Integration for High Capacity Wireless TDMA Channels”, in Proc. of the IEEE Vehicular Technology Conference -fall 2004, September 2004, Los Angeles, California, pp. 1118-1122.
- **P. Koutsakis** and S. Psychis, “On the Efficient Resource Allocation for High Quality Video Streams and FTP Traffic over Next Generation Wireless Networks”, in Proc. of the 4th IFIP International Networking Conference (NETWORKING 2005), May 2005, Ontario, Canada, *published in Lecture Notes in Computer Science, Springer-Verlag*, Vol. 3462, 2005, pp. 1362-1365.
- **P. Koutsakis**, “Multiplexing Voice and SMS Traffic with Bursty Video over Next Generation Wireless Networks with Capture”, in Proc. of the IEEE International Workshop on Wireless and Sensor Networks (ICPP 2005 Workshop), June 2005, Oslo, Norway, pp. 444-451.
- **P. Koutsakis**, “Scheduling and Call Admission Control for Burst-Error Wireless Channels”, in Proc. of the 10th IEEE Symposium on Computers and Communications (ISCC), June 2005, Cartagena, Spain, pp. 767-772.

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - *March 2004-* 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. Program ends on August 31, 2006.

E – Professional service

- *Guest Editor* for the Special Section on “Medium Access and Call Admission Control Algorithms for Next Generation Wireless Networks” of the ACM Mobile

- Computing and Communications Review (MC²R), which will be published in the last quarter issue of 2005 of MC²R.
- *Research Project Proposal Reviewer* for the Dutch Technology Foundation (STW)
 - *Technical Program Committee Member* for
 - IEEE Conference on Pervasive Computing and Communications (PerCom) 2006.
 - IEEE GLOBECOM 2006 Symposium on Satellite and Space Communications.
 - *Reviewer* for the international technical journals:
 - IEEE Journal on Selected Areas in Communications.
 - IEEE/ACM Transactions on Networking.
 - IEEE Transactions on Wireless Communications
 - IEEE Transactions on Mobile Computing
 - IEEE Network
 - IEEE Communications Magazine
 - IEEE Communications Letters
 - Wireless Networks Journal (Springer Publ.)
 - Wireless Personal Communications Journal (Springer Publ.)
 - Computer Networks Journal (Elsevier Science Publisher)
 - *Reviewer* for the international conferences:
 - IEEE INFOCOM 2001.
 - International Conference on Personal Wireless Communications 2003 (PWC'03)
 - IEEE International Conference on Communications 2004 (ICC 2004)
 - 3rd IFIP Networking Conference (Networking 2004)
 - 2nd International Conference on Performance Modeling and Evaluation of Heterogeneous Networks (HET-NETs), 2004.
 - IEEE Vehicular Technology Conference (VTC) -fall 2004.
 - 1st IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), 2005.
 - IEEE GLOBECOM 2005.

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - M.Sc. students supervised
 - Theodoros Chiras. Year of initial enrollment : 2004. Co-supervision with Prof. Michael Paterakis
- Undergraduate students supervised
 - Diploma theses in progress (committee member)

- 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.
- Diploma theses completed (committee member)
 - Stelios Chatziperis, “A New Call Admission Control Mechanism for Multimedia Traffic over Wireless Networks”, completed in July 2005, co-supervision with Prof. Michael Paterakis.

Computer Engineering Division

Faculty members:

- Manolis Koubarakis, Associate 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, 2004 to Aug. 31, 2005

Name: Manolis Koubarakis

Rank: Associate Professor

Years in rank: 3 years and 8 months

Full-time or part-time: Full-time

Division: Computer Engineering

Lab affiliation: Intelligent Systems Engineering

A – Teaching

- Undergraduate courses taught
 - COMP 411 - Compilers (Fall 2004)
 - COMP 405 - Artificial Intelligence (Fall 2004)
- Graduate courses taught
 - AIS 413/606 Agent-Based Computing (Spring 2005)
- Curriculum & course development
 - Lecture notes / slides developed
 1. COMP 411, COMP 405 and AIS 413/606 slides (revised)

B – Publications

- Publications in refereed journals
 - Submitted
 - **Manolis Koubarakis**, Christos Tryfonopoulos and Spiros Skiadopoulos. ‘Logic and Computational Complexity for Boolean Information Retrieval’, *IEEE Transactions on Knowledge and Data Engineering*. Submitted.

- Accepted
 - Paraskevi Raftopoulou, **Manolis Koubarakis**, Kostas Stergiou and Peter Triantafillou, “Fair Resource Allocation in a Simple Multi-Agent Setting: Search Algorithms and Experimental Evaluation”, *International Journal of Artificial Intelligence Tools*. Forthcoming.
 - Spiros Skiadopoulos, Christos Giannoukos, Nikos Sarkas, Panos Vassiliadis, Timos Sellis and **Manolis Koubarakis**, “Computing and Managing Cardinal Direction Relations”, *IEEE Transactions on Knowledge and Data Engineering*. Forthcoming.
- Published
 - S. Skiadopoulos and **M. Koubarakis**, “On the Consistency of Cardinal Directions Constraints”, *Artificial Intelligence*, Vol. 163, No. 1, 2005, pp. 91-135.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Stratos Idreos, Christos Tryfonopoulos, **Manolis Koubarakis**, “Distributed Evaluation of Continuous Equi-join Queries over Large Structured Overlay Networks”. In Proceedings of the 22nd *International Conference on Data Engineering (ICDE)*, Atlanta, USA, April 2006. To appear.
 - Matoula Magiridou, Stavros Sahtouris, Vassilis Christophides and **Manolis Koubarakis**, “RUL: A Declarative Update Language for RDF”, In *Proceedings of the 4th International Semantic Web Conference (ISWC)*, Galway, Ireland, November 6-10, 2005. To appear.
 - Published
 - Christos Tryfonopoulos, Stratos Idreos, and **Manolis Koubarakis**, “LibraRing: An Architecture for Distributed Digital Libraries Based on DHTs”. In *Proceedings of the 9th European Conference on Research and Advanced Technology for Digital Libraries (ECDL)*, pages 25-36, Vienna, Austria, September 2005.
 - Christos Tryfonopoulos, Stratos Idreos, and **Manolis Koubarakis**, “Publish/Subscribe Functionality in IR Environments using Structured Overlay Networks”. In *Proceedings of the 28th Annual International ACM SIGIR Conference*, Salvador, Brazil, August 2005.

- Books and edited book chapters
 1. P.-A. Chirita, S. Idreos, **M. Koubarakis**, and W. Nejdl. “Designing Semantic Publish/Subscribe Networks Using Super-Peers”, In "Semantic Web and Peer-to-Peer", Steffen Staab and Heiner Stuckenschmidt (editors), Springer, Forthcoming.

C – Awards & Distinctions

- Paper awards
 - Christos Tryfonopoulos, Stratos Idreos, and **Manolis Koubarakis**, “LibraRing: An Architecture for Distributed Digital Libraries Based on DHTs”. In Proceedings of the 9th European Conference on Research and Advanced Technology for Digital Libraries (ECDL), pages 25-36, Vienna, Austria, September 2005.

This paper received the *DELOS Research Exchange Award*. This is essentially a best student paper award that offers the principal student author of the paper (Christos Tryfonopoulos) funding for visiting one of the nodes of the DELOS Network of Excellence in Digital Libraries for one month.

- Invited talks
 - Manolis Koubarakis. Using self-organising data structures to build distributed resource sharing applications. **Invited talk** at Engineering with Complexity and Emergence (ECE'05). November 15-16, 2005. Satellite workshop of the European Conference on Complex Systems.

D – Funded Projects

- Current projects:
 - Selective Information Dissemination: Models, Algorithms and Computational Complexity, Sponsor: Ministry of Education and Religious Affairs, EPEAEK, Heraclitus Ph.D. Fellowship Programme. Period November 2002 - October 2005, Role: PI, PI's budget: 33, 574 €
 - OntoGrid: Paving the way for Knowledgeable Grid Services and Systems, Sponsor: European Commission. Framework VI, IST Strategic Objective “GRID-based Systems for solving complex problems”, Period September 2004 - August 2007, Role: PI. Total budget: 2,638,939 €, PI's budget: 400,800 €
 - Evergrowing Global Scale-Free Networks: their Provision, Repair and Unique Functions (EVERGROW), Sponsor: European Commission. Framework VI, IST FET Complex Systems

Initiative. Period January 2004 - December 2007, Role: PI. Total budget: 7,120,000 €, PI's budget: 110,000 €

- Bridging Genomes: An Integrated Genomic Approach Towards Genetic Improvement of Aquacultured Fish Species (BRIDGE-MAP), Sponsor: European Commission. Framework V, Quality of Life. Period November 2001 - December 2005, Role: PI. Total budget: 1,288,000 €, PI's budget: 110,000 €
- Go-Online, Sponsor: Greek Ministry of Development. Period December 2001 - December 2005, Role: PI, Total budget: 1087624 €, PI's budget: 276419,7 €

E – Professional service

- Associate Editor duties
 - International Journal on Artificial Intelligence Tools (Architectures, Languages, Algorithms). World Scientific (March 2002 to date).
- Conference Technical Program Committee service

PC Member

2006

- 11th International Conference on Database Systems for Advanced Applications (DASFAA 2006), Singapore. 12 - 15 April, 2006.
- P2P Infrastructures and Applications, Software Technology Track, Thirty-Ninth Annual Hawaii International Conference on System Sciences (HICSS-39), Kauai, Hawaii, January 4-7, 2006.
- 26th International Conference on Distributed Computing Systems (ICDCS 2006), Lisboa, Portugal July 4-7, 2006.
- Tenth International Conference on Principles of Knowledge Representation and Reasoning (KR2006), Lake District, UK, June 2006.
- 4th Hellenic Conference on Artificial Intelligence (SETN-06), Heraklion, Crete. May 2006.

2005

- 13th International Conference on Cooperative Information System (CoopIS 2005), Agia Napa, Cyprus, October 31 - November 4 2005.
- Peer-2-Peer Infrastructures and Applications, Software Technology Track, Thirty-Eight Annual Hawaii International Conference on System Sciences (HICSS-38), Big Island of Hawaii, January 3 - 6, 2005.

- Fourth International Joint Conference on Autonomous Agents & Multi-Agent Systems (AAMAS 2005), Utrecht, the Netherlands, July 2005.
- Second AgentLink III Technical Forum, Ljubljana, Slovenia, 28 February - 2 March 2005.
- ACM Fourteenth Conference on Information and Knowledge Management (CIKM2005), Bremen, Germany, 31th October – 5 November 2005.
- International Workshop on Data Integration and Semantic Web (DISWeb 2005). In conjunction with CAiSE 2005, Porto, Portugal.
- 10th Panhellenic Conference on Informatics (PCI'2005), Volos, Greece, 11-13 November 2005.
- 3rd Workshop on Engineering Self-Organizing Applications (ESOA'05) collocated with AMAS'05.
- 2nd European Semantic Web Conference (ESWC'05) Heraklion, Crete, Greece, May 29 to 1 June, 2005.
- Second International Workshop on Grid Computing and Peer-to-peer Systems (GPP 2005), in conjunction with ICCSA 2005 Singapore, 9-12 May 2005.
- 4ο Ελληνικό Συμπόσιο Διαχείρισης Δεδομένων– ΕΣΔΔ 2005 Αθήνα, 25-26 Αυγούστου 2005.
- Workshop on Semantic Infrastructure for Grid Computing Applications 2006 CCGRID 2005, Cardiff, UK, May 9-12, 2005.
- IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI/IAT 2005), France September 19-22, 2005.
- IEEE International Conference on Pervasive Services 2005 (ICPS'05), Santorini, Greece, 11-14 July 2005
- 4th International Semantic Web Conference (ISWC 2005), 2005Galway, Ireland, 6th - 10th November
- 3rd IEEE International Workshop on Mobility Management and Wireless Access Protocols (IEEE MobiWac 2005) jointly with WIRELESSCOM 2005, Maui, Hawaii, USA, June 13-16, 2005

- IEEE International Conference on Information Technology: Coding and Computing (ITCC2005) , Las Vegas, Nevada, April 11-13, 2005.
- Second International Workshop on Peer-to-Peer Knowledge Management (P2PKM), collocated with the MobiQuitous'05, San Diego (CA, USA), July 2005.
- 1st Workshop on Semantics in Mobile Environments (SME'05), in conjunction with the 6th MDM'05, Ayia Napa, Cyprus, May 9 2005.
- Seventeenth International Conference on Scientific and Statistical Database Management (SSDBM 2005), University of California, Santa Barbara, 27-29 June 2005.
- Sixth International Conference on Web Information Systems (WISE 2005), New York City, November 20-22 2005.

2004

- 3rd International Semantic Web Conference. Hiroshima, Japan, November 7-11, 2004 .
- Workshop on Trust, Security, and Reputation on the Semantic Web. 3rd International Semantic Web Conference Hiroshima, Japan, November 2004 .
- Workshop on Semantic Web Technology for Mobile and Ubiquitous Applications. 3rd International Semantic Web Conference Hiroshima, Japan, November 2004 .
- IEEE International Conference on Tools with Artificial Intelligence (ICTAI-04), Boca Raton, Florida, November 15-17, 2004.
- Tutorial Chair for the Services area in MobiQuitous2004, Boston, August 22-25, 2004.
- 2nd International Workshop on Peer-to-Peer Knowledge Management (P2PKM) in conjunction with MobiQuitous2004.
- AgentLink III European Network of Excellence First Technical Forum, 30 June - 2 July 2004, Rome, Italy.
- Workshop on Spatio-Temporal Database Management (STDBM'04), Toronto, Canada. August 30, 2004. Collocated with VLDB 2004.

- 6th Workshop on Distributed Data and Structures (WDAS'2004). July 5-7, 2004. Lausanne, Switzerland.
- IEEE/WIC/ACM International Conference on Intelligent Agent Technology (IAT 2004). Beijing, China. September 20-24, 2004.
- Workshop on Coordination in Emergent Agent Societies, August 22- 23, 2004. Valencia, Spain (collocated with ECAI 04).
- 2nd International Conference on Service Oriented Computing (ICSOC'04), November 15-19, 2004. New York, USA.
- 2nd ACM International Workshop on Mobility Management and Wireless Access Protocols (MobiWac). September 26 - October 1, 2004. Philadelphia, PA, USA.
- Fifth International Conference on Web Information Systems (WISE 2004). Brisbane, Australia, November 22-24, 2004.
- 11th International Symposium on Temporal Representation and Reasoning. Tatihou, Normandie, France, 1-3 July, 2004.
- 2nd Starting AI Researchers Symposium (STAIRS-2004), collocated with ECAI-2004. Valencia, Spain, August 23-24, 2004.
- 2nd International Workshop on Engineering Self-Organising Applications (ESOA 2004), collocated with AAMAS 2004. New York, July 2004.
- Workshop on Web Services and Agent-Based Engineering (WSABE 2004) collocated with AAMAS 2004. New York, July 2004.
- 1st International Workshop on Peer-to-Peer Computing and Databases, collocated with EDBT 2004. Heraklion, Crete, March 14th, 2003.
- 8th International Workshop on Cooperative Information Agents (CIA 2004). Erfurt, Germany, September 27-29, 2004.
- First International Symposium on Applications of Constraint Databases, Paris, France, 12-13 June 2004.
- The Eleventh International Conference on Artificial Intelligence: Methodology, Systems, Applications (AIMSA 2004).
- Third International Joint Conference on Autonomous Agents and Multi Agents Systems , (AAMAS04), New York, July 13-23, 2004.

- 3rd Hellenic Conference on Artificial Intelligence (SETN04), Samos, May 5-8, 2004.
- Semantic Web Area. 13th International World Wide Web Conference (WWW2004), New York, May 17-22, 2004.
- Peer-2-Peer Ecommerce Systems and Applications, Software Technology Track, Thirty-Seventh Annual Hawaii International Conference on System Sciences (HICSS-37), Big Island of Hawaii, January 5 - 8, 2004.
- Conference Organization
 - Organizer (with Carole Goble and Dave De Roure) of the 1st International Workshop on the Semantic Grid (GridSem 2004). Collocated with the European Conference on Artificial Intelligence (ECAI-04). Valencia, Spain. August 23 and 24, 2004.
 - Steering Committee Member for the Workshop “Agents and Peer-to-Peer Computing – AP2PC” (2004, 2005). Collocated with the International Joint Conference on Autonomous Agents and Multi-Agents Systems (AAMAS).
 - Steering Committee Member for the Workshop “Databases, Information Systems and Peer-to-Peer Computing – DBISP2P” (2004, 2005).
 - Member of the Organizing Committee and Publications Chair for IX International Conference on Extending Database Technology (EDBT 2004), Heraklion, Crete, Greece, March 14-18, 2004.

F – Service to the Department and the School

- Departmental responsibilities
 - Director of the Intelligent Systems Laboratory
 - Director of the Networks Laboratory
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Christos Tryfonopoulos.(Ph.D), 2002
 - Matoula Magiridou.(PhD), 2003
 - Erietta Liarou.(M.Sc), 2004

- PhD. And M.Sc. degrees awarded
 - Georgia Adamopoulou.(M.Sc.), Information alert in biological sequence databases. October 2004.
 - Stratos Idreos.(M.Sc.), *Distributed Evaluation of Continuous Equi-join Queries in Large Structured Overlay Networks*. September 2005.
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Diploma theses completed (supervisor)



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Euripides Petrakis

Rank: Associate Professor

Years in rank: 2 + 1/2

Full-time or part-time: Full-time

Division: Computer Science

Lab affiliation: Intelligent Systems Laboratory

A – Teaching

- Undergraduate courses taught
 - EKP 404 - Multimedia Data Management
 - EKP 406 - Computer Vision
- Graduate courses taught
 - EKP 404 - Multimedia Data Management
- Labs taught
 - EKP 404 - Multimedia Data Management
 - EKP 406 - Computer Vision
- Curriculum & course development
 - New courses / labs developed
 1. Multimedia Data Management
 - Lecture notes / slides developed
 1. Multimedia Data Management, Computer Vision

B – Publications

- Publications in refereed journals

- Submitted:
 - Giannis Varelas, Angelos Hliaoutakis, Epimenidis Voutsakis, Paraskevi Raftopoulou, **Euripides G.M. Petrakis**, Evangelos E. Milios "Semantic Similarity Methods for Information Retrieval in Medical Information Systems and the Web", *IEEE Trans. On Knowledge and Data Engineering, Special Issue on "Knowledge and Data Engineering in the Semantic Web Era"*
- Accepted
- Published
- Publications in refereed conferences
 - Submitted:
 - Klaydios Kontis, Epimenidis Voutsakis, **Euripides G.M. Petrakis**, "Relevance Feedback Methods for Logo and Trademark Image Retrieval on the Web", *2006 ACM Symposium on Applied Computing (SAC 2006)*
 - Accepted:
 - Giannis Varelas, Epimenidis Voutsakis, 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 (WIDM 2005)*, Nov. 5, 2005, Bremen, Germany (to appear).
 - Published:
 - 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, Compiegne University of Technology, France.
 - C. Doulaverakis, V. Vagionitis, M. Zervakis and **Euripides G.M. Petrakis**: "Adaptive Methods for Motion Characterization and Segmentation of MPEG Compressed Frame Sequence", *Intern. Conference on Image Analysis and Recognition (ICIAR'2004)*, Porto, Portugal, Sept./Oct. 2004, Proc. Part I, Springer Verlag (LNCS 3211), pp. 310-317.
- Books and edited book chapters: none
- Patents: none

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - Project Coordinator, Principal investigator for TUC, Project TOWL: Time-determined ontology based information system for real time stock, STREP, FP6, Period 2005-2008, Total Budget 1,968,767 €, PI's budget 244,402 €
 - Co-principal investigator for TUC, Project OPTAG: Improving Airport Security and Passenger Flow by Enhanced Passenger Monitoring, STREP, FP-6. Period 2004-2007, Total budget 2,234,853 €, PI's budget, 269,640 €.
 - Co-principal investigator for TUC, Project BIOPATTERN: Computational intelligence for biopattern analysis in support of eHealthcare, Network of Excellence, FP6. Period 2004-2006, Total budget 3,400,000 €, PI's budget 264,630 €.
 - Principal investigator for TUC, Project MULTI_MINE: Multimedia data management and mining, Greek research network program sponsored by the Greek Secretariat of Research and Technology, Period 2003-2005, Total budget 180,000 €, PI's budget 18,000 € .
 - Irakleitos Fellowship Program, "Multimedia Information Retrieval on the Web", Period 2003-2005, Budget: 34,000 €
- Project proposals submitted:
 - Over 10

E – Professional service

- Session Chair
 - Session Chair (session 17 on Image Indexing and Retrieval) in *the Intern. Conference on Image Analysis and Recognition (ICIAR'2004)*, Porto, Portugal, Sept./Oct. 2004
 - Session Chair, (session 2: XML Data Management and Web Discovery) *7th ACM International Workshop on Web Information and Data Management (WIDM 2005)*, Nov. 5, 2005, Bremen, Germany
- Conference Technical Program Committee service
 - Program committee member of "International Conference on Image Analysis and Recognition" (ICIAR 2005) 28-30 September 2005, Toronto, Canada, <http://www.iciar.uwaterloo.ca/iciar05>
 - Member of the Program committee of RIAO, 2004 "Coupling Approaches, Coupling Media and Coupling Languages for Information Retrieval", Avignon (Vaucluse), (<http://www.riao.org>)

- Member of the Program committee of the “International Conference on Image Processing” (ICIP 2003), Barcelona, Spain, Sept. 14-17, 2003 (<http://www.icip2003.org>)
- Member of the Program committee “International Conference on Image Processing” (ICIP 2004), Singapore, Oct. 24-27, 2004 (<http://www.icip2004.org>).
- Member of the judge team at the South-Eastern European Regional Contest of the ACM International Collegiate Programming Contest, October 18-21, 2001, Bucharest, Romania (<http://apollo.cs.pub.ro/acm/>)
- Member of the program committee of the “IEEE International Conference on Information, Intelligence and Systems” (ICIIS’99), November 1-3 1999, Washington DC, USA (<http://iciis99.cs.unr.edu>) .
- Reviewing activities:
 - Reviewer for “*IEEE Transactions on Pattern Analysis and Machine Intelligence*”, “*IEEE Transactions on Knowledge and Data Engineering*”, “*Image and Vision Computing*”, “*ACM Transactions on Information Systems*”, “*Information Systems*” “*Pattern Recognition*”, “*Computer Journal*”, “*Journal of Visual Communication and Image Representation*”, “*EURASIP JASP*”, “*Intern. Journal of Pattern Recognition and Artificial Intelligence*”, and for many conferences in his fields of expertise.

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Paraskevi Raftopoulou, PhD student, enrollment in program 2003, Topic: “Knowledge Sharing in P2P Networks”
 - Epimeneidis Voutsakis, MsC student, enrollment in program 2005, Topic: Image Ontologies in Web Information Systems.
 - Nikos Hourdakis, MsC student, enrollment in program 2004, Topic: Semantic Information Clustering
 - Giannis Varelas, MsC Student, enrollment in program 2005, Topic: Time Ontologies
 - Angelos Hliaoutakis, MsC student, enrollment in program 2005, Topic: Medical Information Systems
 - Evdoksios Mparatis, MsC student, enrollment in program 2005, Topic: Web Site Summarization

- Rena Peraki, MsC student, enrollment in program 2005, Topic: Web Information Systems.
 - Sotiris Batsakis, MsC student, Topic: Focused Crawling
- PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Over 10
 - Diploma theses completed (supervisor):
 - Klaudios Contis, “Relevance feedback Methods for Web Image Retrieval”, 2005
 - Epimeneidis Voutsakis: “Image Retrieval on the World Wide Web”, 2005
 - Giannis Varelas: “Semantic Similarity Measures and their Application to Information Retrieval on the Web”, 2005
 - Angelos Hliaoutakis: “Semantic Similarity Measures and their Applications to Medical Information Retrieval”
 - Evdoksios Baratis: “Automatic Logo and Trademark Extraction from Large Corporate Web Sites”, 2005



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Stavros Christodoulakis

Rank: Professor

Years in rank: 17

Full-time or part-time: Full time

Division: Informatics

Lab affiliation: Music-Director

A – Teaching

- Undergraduate courses taught
 - COMP 311 - Data Bases
 - EKP 403 - Web applications
 - EKP 412 - Information and Service Integration
- Graduate courses taught
 - EKP 606 - Web applications
 - EKP 604 - Information and Service Integration
- Labs taught
 - Data Bases
 - Web applications
 - Information and Service Integration
- Curriculum & course development
 - New courses / labs developed
 1. Web applications assignment/project, Information and Service Integration/project
 - Lecture notes / slides developed
 1. B application slides, Information and service integration slides.

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published
 - A. Karanastasi, F. Kazasis, **S. Christodoulakis**: "A Natural Language Model and a System for Managing TV-Anytime Information in Mobile Environments", Special Issue on ACM - Verlag International Journal of Personal and Ubiquitous Computing, Volume4, 2005
 - C. Tsinaraki, P. Polydoros, F. Kazasis, **S. Christodoulakis**: "Ontology-based Semantic Indexing for MPEG-7 and TV-Anytime Audiovisual Content", Special issue of Multimedia Tools and Application Journal on Video Segmentation for Semantic Annotation and Transcoding, 26, 299-325, Aug. 2005
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 - A. Karanastasi, **S. Christodoulakis**: "OntoNL: An Ontology-based Natural Language Interface Generator for Multimedia Repositories", *Seventh International Workshop of the EU Network of Excellence DELOS on AUDIO-VISUAL CONTENT AND INFORMATION VISUALIZATION IN DIGITAL LIBRARIES (AVIVDiLib'05)*, May 2005
 - Tsinaraki C., Polydoros P., **Christodoulakis S.** "GraphOnto: A Component and a User Interface for the Definition and Use of Ontologies in Multimedia Information Systems", In the Proceedings of AVIVDiLib 2005, Cortona, Italy, April 2005
 - C. Tsinaraki, **S. Christodoulakis**: "Semantic User Preference Descriptions in MPEG-7/21", In the Proceedings of HDMS 2005, Athens, Greece, August 2005
 - Arapi P., Moumoutzis N., Maragoudakis I., **Christodoulakis S.**: "Extending Existing eLearning Platforms to Support Automatic Conversion of Learning Content to SCORM", In the proceedings of the Joint KNOSOS-CHIRON Workshop "e-Learning Solutions - On the Way to Ubiquitous Applications", May 2005.
 - F. Kazasis, N. Gioldasis, N. Pappas, G. Anestis, **S. Christodoulakis**: "MOF-based Knowledge Management for a Digital Business Ecosystem", *2nd IST Workshop on Metadata Management in Grid and P2P Systems (MMGPS)*: Models, Services and Architectures, December 2004

- Nektarios Moumoutzis, Panagiotis Kontogiannis, **Christodoulakis S.:** *"The Design and Implementation of the Knowledge Pool in the CHIRON Project"*, In the Proceedings of the Joint KNOSOS - CHIRON Open Workshop: "e-Learning Solutions - On the Way to Ubiquitous Applications", 26 - 27 May 2005, ISBN 954-91700-1-2 (pp. 81-91).
 - Arapi P., Moumoutzis N., Maragoudakis I., **Christodoulakis S.:** *"The KNOSOS Project: A Distributed e-Learning Environment Using SCORM Model to Support Interoperability among Local Centres Expertise"*, In the proceedings of the Hellenic Conference "New Technologies in Long-Life Learning", April 2005, Greece
- Books and edited book chapters
 - **S. Christodoulakis**, F. Kazasis, G. Anestis, N. Moumoutzis: "Intelligent Information Interactions for Tourism Destinations", chapter contribution for the book entitled "Global cultural tourism: cases and trends", Butterworth Heinemann/Elsevier, 2005
 - T. Catartsi, A. DelBimbo, **S. Christodoulakis** (editors): Proceedings of AVIVDLib 05.
 - Patents

C – Awards & Distinctions

- Diploma Thesis Award for Electronic Engineers by TEE to Xenia Arapi (thesis supervisor Stavros Christodoulakis)

D – Funded Projects

- Current projects:
 - DELOS 2: EU Excellence Network project on Digital Libraries, 2003-2007, 95500 €
 - Digital Business Ecosystems, EU IST project, 2003-2006, 529218 €
 - Chiron: New Media Knowledge Village for Innovative e-learning solutions, EU Leonardo Da Vinci project, 2004-2006, 60924 €.
 - LOGOS, EU IST project (to start next year).
 - EPEAEK Pliroforikis, (undergraduate, graduate), 2003-2006, 888778 €.
 - ETPA Pliroforikis 2003-2005, 262225 €.

E – Professional service

- Associate Editor duties

- Associate Editor, JUCS
- Co-Editor: Special Issue in Multimedia Digital Libraries of the JDL
- Program Committee Co-chair : 9th ECDL, 05 (Proceedings co-editor)
- Program Committee Co-chair : AVIVDLib 05 (Proceedings co-editor)
- Society Technical Committee duties
- Conference Technical Program Committee service
 - Program committee member in: ECDL 05, AVIVDLib 05, ACM CIKM 05, EDBT 05, EDBT 06, ECIR 05, ECIR 06, IEEE ICME 05, IEEE ICPR 05, IMSA 05, IASTED 05,
- Conference Organization (specify role)
 - Conference Steering Committee Board: ECDL
 - Conference Steering Committee Board: EDBT
- Participation in National Committees
 - Scientific Board of the National Documentation Center
- Other
 - Member of the Scientific Board: Delos Excellence Network on Digital Libraries
 - Co-Director: Cluster of Multimedia Digital Libraries in the Delos Excellence Network on Digital Libraries

F – Service to the Department and the School

- Departmental responsibilities
 - Lab Director: MUSIC
 - Responsibility for Department-wide projects: Responsible for:
 - EPEAEK Pliroforikis (undergraduate)
 - EPEAEK Pliroforikis (graduate)
 - ETPA (equipment)
- School-level responsibilities
 - Member of the Board: Institute of Telecommunications
 - Departmental Steering Committee: Department of Architecture

G – Advising

- Active graduate students supervised

- Ph.D. and M.Sc. students supervised
 - Chrisa Tsinaraki, PhD
 - Nektarios Moumoutzis, PhD
 - Giorgos Anestis, PhD
 - Giorgos Kotopoulos, MEng
 - Yannis Kotopoulos, MEng
 - Xenia Arapi, MEng
 - Anastasia Karanastasi, MEng
 - Giorgos Dabizias, MEng
 - Stratos Georgoulakis, MEng
 - Michalis Foukarakis, MEng
- MSc. degrees awarded
- Undergraduate students supervised
 - Diploma theses completed (supervisor)
 - Nikos Gianopoulos: "Design and implementation of GRAMOFONE: A MOF-based graphical ontology management tool", Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Chania, 2005
 - Themistoklis Dakanalis: "SSL EDITOR: A graphical tool for creating semantic service description models", Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Chania, 2005.
 - Vangelis Kalogerakis: "An Intelligent 3D Visualization System", Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Chania, 2005.
 - Dimitris Alexopoulos: "Design and implementation of interoperability mechanisms for tourism services, compliant with ebXML and Open Travel Alliance's specifications", Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Chania, 2005.
 - Giannis Samonakis: "Design and implementation of a system for the automatic generation of summaries for audiovisual content in a digital TV environment", Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Chania, 2004



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept 1st 2004 to Aug 31, 2005

Name: Vasilis Samoladas

Rank: Assistant professor

Years in rank: 2

Full-time or part-time: full time

Division: Computer engineering

Lab affiliation: Software technology and network applications

A – Teaching

- Undergraduate courses taught
 - ΠΛΗ-301 Operating Systems
 - ΠΛΗ-302 Algorithms and Complexity
 - ΠΛΗ-414 Principles of Distributed Software Systems
- Graduate courses taught
 - ΠΛΗ-602 Principles of Distributed Software Systems
- Curriculum & course development
 - New courses / labs developed
 - Developed ΠΛΗ-302 Algorithms and Complexity course, given for the first time as a core course
 - Lecture notes / slides developed
 - Complete set of lecture slides for ΠΛΗ-301 Operating Systems
 - Authored textbooks
 - (In progress) Principles of Distributed Systems (in Greek).

B – Publications

- Publications in refereed journals

- Submitted
- Accepted
- Published
- Publications in refereed conferences
 - Lars Arge, Vasilis Samoladas, Ke Yi: Optimal External Memory Planar Point Enclosure. In Proc. European Symposium on Algorithms (ESA) 2004 (LNCS 3221): 40-52.
 - George Hatzisymeon, Nikos Houssos, Dimitris Andreadis, Vasilis Samoladas: An Architecture for Implementing Application Interoperation with Heterogeneous Systems. In Proc. Distributed Applications and Information Systems (DAIS) 2005 (LNCS 3543): 194-205.
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - PYTHAGORAS-I (GSRT), 9/2004-6/2006, single PI, 57600€

E – Professional service

- Conference Technical Program Committee service
 - Autonomous Agent and Multi-Agent Systems (AAMAS 2005)
- Reviewing activities
 - Information Processing Letters (IPL)
 - Data and Knowledge Engineering (DKE)

F – Service to the Department and the School

- School-level responsibilities
 - Regular Member of University Senate

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - George Hatzisymeon (PhD), 1st year
 - Anni Xiruhaki (PhD), 1st year

- Christos Smaragdakis (MSc), 2nd 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
 - George Yiannakaras
 - Panagiotis Paterakis
 - Diploma theses completed (supervisor)
 - Yiannis Margaritis
 - Adrianos Ntantis
 - Giorgos Dementis
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)
 - Vasilis Dimopoylos
 - Dimitrios Sarafis
 - Nikos Giannopoulos
 - Eleni Psara
 - Erietta Liaroy
 - Petros Gabras
 - Epimenidis Voytsakis
 - Dimitris Lambridis

Electronics and Computer Architecture Division

Faculty members:

- Costantinos Balas, Associate Professor
- Mathias Bucher, Assistant Professor
- Apostolos Dollas, Professor
- Kostas Kalaitzakis, Professor
- Dionisis Pnevmatikatos, Associate Professor
- Apostolos Samelis, Assistant Professor
- Georgios Stavrakakis , Professor
- Eftihios Koutroulis, Visiting Lecturer



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Apostolos Dollas

Rank: Professor

Years in rank: 4

Full-time or part-time: Full Time

Division: Electronics and Computer Architecture (HRY)

Lab affiliation: Microprocessor and Hardware Laboratory (Director)

A – Teaching

- Undergraduate courses taught
 - HRY 201 - Digital Computers (Mandatory, Fall Semester)
 - ARY 401 - Microprocessor-Based Real-Time Systems Implementation (Mandatory, Spring Semester)
- Graduate courses taught
 - HRY 631 - Special Topics on FPGA Computing
- Labs taught
 - HRY 201 (actually conducted the teaching and examination of all labs)
 - ARY 401 (supervised the teaching of labs and projects, developed the project specifications and supervised one-on-one class students doing advanced projects)
- Curriculum & course development
 - New courses / labs developed
 1. Continued on the development of the new HRY 401 (Embedded Microprocessor Systems) and HRY 412 (Microelectronic Systems Design) which replace the ARY 402 course and have not been offered yet.

- 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, and revised the class notes of HRY 201, Digital Computers.
- Authored textbooks:
 - Continued work on “The Art of Microelectronic Systems”, under contract with the publisher A. K. Peters.

B – Publications

- Publications in refereed journals
 - Submitted
 - “Low Cost real-Time 2-D Motion Detection based on Reconfigurable Computing”, submitted to *the IEEE Transactions of Instrumentation and Measurement* in 2003 (submitted as full paper).
 - Accepted
 - E. Koutroulis, **A. Dollas**, K. Kalaitzakis, “High frequency pulse width modulation implementation using FPGA and CPLD ICs”, *Journal of Systems Architecture, Elsevier Press*, accepted, to appear (short paper).
 - Published
 - **A. Dollas**, S. Sotiropoulos, K. Papademetriou, “A 2D Motion Detection Model for Low Cost Embedded Reconfigurable I/O Devices”, *IEEE Transactions on Biomedical Engineering*, vol. 52, No. 8, pp. 1443-1449, August, 2005.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 - **A. Dollas**, I. Ermis, I. Koidis, et al., “An Open Programmable Computing Machines (FCCM)”, Napa Valley, USA, April, 2005 (poster paper).
 - H Sofikitis, K. Roumpou, **A. Dollas**, N. Bourbakis, “An Architecture for Video Compression Based on the SCAN Algorithm”, *IEEE Symposium on Field Programmable Computing Machines (FCCM)*, Napa Valley, USA, April, 2005 (poster paper).
 - **A. Dollas**, D. Efstathiou, G Vernardos, et al., “On Distributed Reconfigurable Systems: Open Problems and Some Initial Solutions”, *IEEE Symposium on Field Programmable Computing Machines (FCCM)*, Napa Valley, USA, April, 2005 (poster paper).

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

C – Awards & Distinctions

- Fellowships, Visiting Professorships
 - Visiting Professor, Information Technology Research Institute, Wright State University, Dayton, Ohio, USA (on sabbatical at ITRI since August, 2005).

D – Funded Projects

- Current projects:
 - GSRT “IRAKLEITOS: Research Scholarships for TUC”, Program. TUC Budget 398778 €. Under it is the sub-program “Structures for Reconfigurable Computing”, (PhD Thesis support for E. Sotiriades), Apostolos Dollas, PI, 32229 € (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: 151200 € , (TUC Budget roughly 1/3 of the total budget plus overhead for the entire project). Project awarded in 2005, letter of acceptance returned to GSRT July 17, 2005.
 - Information Society (3rd EU Framework of Support to Greece), “Advanced Telematic Services – Tele-education” (M.10), 216102 €, Technical University of Crete Campus-Wide PI: A. Dollas, 2001-2003. (should have been completed but final acceptance letter of the project is still pending from the Information Society).
 - Information Society (3rd EU Framework of Support to Greece), “Information Society Related Upgrade of the Technical University of Crete Infrastructure (M. 7), 154625 €. Technical University of Crete Campus-Wide PI: A. Dollas, 2001-2003. (should have been completed but final acceptance letter of the project is still pending from the Information Society).
- Project proposals submitted:

- “Scientific Equipment for the Departments of the Technical University of Crete”, Total Proposal Budget 1615000 €. Under it is the proposal for “Acquisition of a GRID computer for the Technical University of Crete”, submitted to the Greek Ministry of Education, Apostolos Dollas, PI. Total budget for the GRID computer proposal: 320000 €.

E – Professional service

- Conference Technical Program Committee service
 - Program Committee Member 13th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM), Napa Valley, USA, April, 2005.
 - Program Committee Member 16th IEEE International Workshop on Rapid System Prototyping (RSP), Montreal, Canada, June, 2005.
 - Program Committee Member, 4th Workshop on Application Specific Processors (WASP) '05, New York, September 22, 2005.
 - Technical Program Committee, 18th SBCCI 2005 (SYMPOSIUM ON INTEGRATED CIRCUITS AND SYSTEMS DESIGN), Florianopolis - Brasil on September 4-7, 2005.
 - Program Committee Member, 4th IEEE International Conference on Field-Programmable Technology (FPT 2005), Singapore, December 11-14, 2005.
 - Program Committee member, 10th Panhellenic Conference on Informatics, Volos, Greece, November 11-13, 2005.

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.

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., EIEAEK, 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
 - Other
 - 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, advising on issues that include budget, relocation of the antenna, addressing of problems that occurred during a festival, etc.
 - Committee member for the proposal of the new TUC liaison office (N. Varotsis, PI) – I was replaced in Spring, 2005 by S. Christodoulakis due to my sabbatical

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)
 - Ioannis Sourdis
 - Georgios Papadopoulos
 - Michael Makakis

- PhD and M.Sc. Degrees (committee member)
 - Dimitrios Giakoumis (MSc)
 - Ioannis Ermis(MSc)
 - Dimitrios Theodoropoulos (MSc)
 - Antonios Nikitakis (MSc)
 - Georgios Papoutsakis (MSc)
 - Aristeidis Petrakis (MSc)
 - Vasileios Dimopoulos (MSc)
- Undergraduate students supervised
 - Diploma theses in progress (supervisor – will be in Chania for the defense)
 - Konstantinos Kazakos
 - Grigoris Chrysos
 - Christos Kozanitis
 - Konstantinos Kouinis (inactive)
 - Diploma theses completed (supervisor)
 - Ioannis Ermis
 - Elias Polytarchos
 - Katerina Roumpou
 - Elias Sofikiths
 - Diploma theses in progress (committee member)
 - Antonios Lasithiotakis (under replacement due to sabbatical)
 - Charalambos Charalambous (under replacement due to sabbatical)
 - Diploma theses completed (committee member)
 - Vasileios Dimopoulos
 - Dimitrios Lambridis



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept. 1, 2004 to Aug. 31, 2005

Name: Kostas Kalaitzakis

Rank: Professor

Years in rank: 2

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

B – Publications

- Publications in refereed journals
 - Submitted:
 1. 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:
 2. E. Koutroulis and **K. Kalaitzakis**, “Design of a Maximum Power Tracking System for Wind Energy Conversion Applications”, accepted at *IEEE Transactions on Industrial Electronics*.
 3. Koutroulis E., Kolokotsa D., Potirakis A., **Kalaitzakis K.**, “Methodology for Optimal Sizing of Stand-Alone Photovoltaic/Wind-Generator Systems Using Genetic Algorithms”, accepted to the Solar Energy Journal.
 4. Koutroulis E., **Kalaitzakis K.**, Dollas A., “High-Frequency Pulse Width Modulation Implementation Using FPGA and CPLD ICs”, accepted to the Journal of Systems Architecture.
 - Published
 5. Tripolitakis E.I., Kolokotsa D., **Kalaitzakis K.**, Stavrakakis G., “Study and Implementation of a Fuzzy PD Thermal Comfort Controller for Embedded Fieldbus Systems Applications”, **WSEAS Trans. on Circuits and Systems**, Vol. 3, Issue 9, Nov. 2004, pp. 2051-2057.
 6. 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.
 7. 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.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 8. Tripolitakis E.I., Kolokotsa D., **Kalaitzakis K.**, Stavrakakis G., “Study and Implementation of a Fuzzy PD Thermal Comfort Controller for Embedded Fieldbus Systems Applications”, *Proc. 3rd WSEAS Int. Conf. on E-Activities Electronics, Control & Signal Processing*, Rethymno, Crete Island, Greece, Oct. 24-26, 2004.

- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - “INTRALED – Industry driven training for low power European engineers” (*IST-2001-34631, European Communities*, 2002 – 2005, Principal Investigator, 15000 €.
- Project proposals submitted:

E – Professional service

- Conference Organization (specify role)
 - XVII International Conference on Electric Machines ICEM 2006, member of local organizing committee
- Reviewing activities:
 - IEEE Transactions on Industrial Electronics
 - IEEE Transactions on Circuits and Systems II
 - IEEE Transactions on Power Electronics
 - Renewable Energy
 - IEE-Electronics Letters

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - 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”

- PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - N. Loukas, “Development of a Microcontroller-Based System for Photovoltaic Maximum Power Point Tracking Under Partial Shadowing Conditions”.
 - A. Chatziioannou, “Design Optimization of Hybrid Photovoltaic/Wind-Generator Systems Used to Power Supply Desalination Plants”.
 - N. Tsitsopoulos, “DC/AC Inverter Harmonics Elimination Using Genetic algorithms”.
 - Diploma theses completed (supervisor)
 - D. Tsakiris, “Development of an Algorithm for Optimal Management of the Energy Produced by Renewable Energy Sources Power Supplying Desalination Plants”, November 2004.
 - J. Kantaris, “Development of a Sun-Tracking System for Maximizing the Energy Produced by Photovoltaic Cells”, June 2005.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Costantinos Balas

Rank: Associate Professor

Years in rank: 3+1/2

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture Division

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 301 - Electronics I
 - HRY 414 - Optoelectronics
- Graduate courses taught
 - Special Topics on Optoelectronics & Biomedical Engineering
- Labs taught
 - HRY 301 - Electronics I
 - HRY 414 - Optoelectronics
- Curriculum & course development
 - New courses / labs developed
 1. Optoelectronics course
 2. Optoelectronics Lab
 - Lecture notes / slides developed
 - HRY 301 - Electronics I: 150 pages notes, 250 slides
 - HRY 414 - Optoelectronics: 350 slides
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Published
 - N. Kantzilakis, E. Stiakaki, A. Ppadakis, H. Dimitriou, E. Stathopoulos, E. Markaki, **C. Balas**, M. Kalmanti, “*Spectral characteristics of acute lymphoblastic leukemia in childhood*”, Leukemia Research, 28 pp 1159-1164, 2004
(The paper received a one page special citation in “research highlights” of **NATURE oncology** Journal Dec. 2004)
- Publications in refereed conferences
 - Published
 - Konstantinos Rapantzikos, **Costas Balas** “Hyperspectral imaging: potential in non-destructive analysis of palimpsests”: *IEEE-International Conference on Image Processing (ICIP)*, September 11-14, 2005, Genova
- Books and edited book chapters
 - **Costas Balas**, E. Diakomanolis, Pat Soutter, “*Dynamic Spectral Imaging of the Cervix*”, Chapter in Colposcopy, eds A. Singer, J. Jordan (**submitted**)

C – Awards & Distinctions

- Invited Plenary Lectures
 - Symposium on “Computer Applications in Women's Health Care”
New York City, NY, USA, 2005

D – Funded Projects

E – Professional service

- Conference Technical Program Committee service:
 - Conference on Lasers and Electro-Optics (CLEO), Baltimore, Maryland, USA 2005 (sponsored by Optical Society of America and IEEE-LEOS):
Program committee member, session presider, paper review.
- Reviewing activities:
 - Reviewer for *IEEE Trans. on Biomedical Engineering*, CLEO

F – Service to the Department and the School

- Departmental responsibilities
 - Member of Dept's Buildings and Premises Committee
- School-level responsibilities
 - Deputy Member of University Senate

G – Advising

- Active Graduate Students Supervised
 - **M Sc. Students Supervised**
 - Makakis Michalis, 2003.
 - Papadakis Manolis, 2003 (thesis defense is scheduled for 10/05)
 - Potirakis Antonis, 2003 (awarded 10/05)
 - Tsapras Athanasios, 2003 (thesis defense is scheduled for 11/05)
 - Terzakis Manolis, 2004
 - Papoutsoglou Giorgos, 2005
- **M Sc Degrees Awarded**
 - Makakis Michalis, 2004.
- Undergraduate Students Supervised
 - Diploma Thesis Completed (supervisor)
 - Terzakis Manos
 - Pantos Minas,
 - Papoutsoglou George



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep.1, 2004 to Aug. 31, 2005

Name: Matthias Bucher

Rank: Assistant Professor

Years in rank: 1 + 1/2

Full-time or part-time: Full-time

Division: Electronics & Computer Architecture

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - ECE 111 - Digital Design, 2nd semester
 - ECE 506 - Analog CMOS IC Design & MOSFET Physics, 9th semester
 - Graduate courses taught
 - ECE 604 - Special Themes of Analog CMOS IC Design
 - Labs taught
 - ECE 111 - Digital Design, 2nd semester
 - Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
1. ECE 506 - Analog CMOS IC Design & MOSFET Physics, 9th semester

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published

- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 - **M. Bucher, A. Bazigos, N. Nastos, Y. Papananos, F. Krummenacher, S. Yoshitomi**, „Analysis of Harmonic Distortion in Deep Submicron CMOS“, *11th IEEE Int. Conf. on Electronics, Circ. & Syst. (ICECS 2004)*, pp. 395-398, December 13-15, 2004, Tel Aviv, Israel.

- Invited Talks/Tutorials/Panel presentations
 - **M. Bucher (invited presentation)**, “Advances in Charge-Based Compact MOSFET Modelling” *Nanotech 2005, Workshop on Compact Models*, Anaheim, California, May 10-12, 2005. [Available Online:] <http://www.ntu.edu.sg/home/exzhou/WCM/WCM2005/wcm05.htm>
 - **M. Bucher (invited Forum presentation)**, "Inversion charge" vs. "surface potential" model”, *Nanotech 2005, Workshop on Compact Models*, Anaheim, California, May 10-12, 2005. [Available Online:] <http://www.ntu.edu.sg/home/exzhou/WCM/WCM2005/wcm05.htm>
 - **M. Bucher (invited Panel discussion)**, "Model diversity" vs. "model standard", *Nanotech 2005, Workshop on Compact Models*, Anaheim, California, May 10-12, 2005. [Available Online:] <http://www.ntu.edu.sg/home/exzhou/WCM/WCM2005/wcm05.htm>
 - **M. Bucher**, “EKV3.0 MOSFET Model for Next Generation MOSFET Model Evaluation – Phase II”, *Compact Model Council Meeting – GEIA Electronics Industry Association*, Seattle, Washington, March 14-15, 2005.
 - **M. Bucher, F. Krummenacher, A. Bazigos**, “The EKV3.0 MOSFET Model for Advanced Analog IC Design“, *EKV Model Users’ Group Meeting and Workshop*, EPFL, Lausanne, Switzerland, November 4-5, 2004). [Available Online:] <http://legwww.epfl.ch/ekv/workshop>
 - **A. Bazigos, M. Bucher**, “The EKV3.0 MOSFET Model for Advanced Analog IC Design“, *EKV Model Users’ Group Meeting and Workshop*, EPFL, Lausanne, Switzerland, November 4-5, 2004. [Available Online:] <http://legwww.epfl.ch/ekv/workshop>

- **M. Bucher, (Tutorial)** “The EKV3.0 MOSFET Model for Advanced Analog IC Design”, *Design Modeling Workshop, Fabless Semiconductor Association*, Santa Clara, California, October 4-5, 2004.
- **M. Bucher**, F. Krummenacher, J.-M. Sallese, A. Bazigos, “Advances in MOSFET Charges Modelling”, *Workgroup MOS-Models Meeting*, U. Leuven, Belgium, Sept. 20, 2004.
- Books and edited book chapters
 - **M. Bucher**, C. Lallement, F. Krummenacher, C. Enz, “A MOS Transistor Model for Mixed Analog-Digital IC Design”, (Book Chapter 3, 47 p.) in R. Reis and J. Jess (Eds.), *Design of System on a Chip. Devices & Components*. ISBN 1-4020-7928-1, Kluwer Academic Publishers, 2004.
- Patents

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - RF CMOS Infineon, Sponsor Infineon Technologies, Munich, Germany
PI: M. Bucher, Period 1/2/2004 - 31/1/2006, Total budget: 50.000 €, PI's budget 50.000 €
 - RF CMOS Toshiba, Sponsor Toshiba Semiconductor, Tokyo, Japan,
PI: M. Bucher, Period 1/12/2004 - 31/3/2006, Total budget: 43'410 €, PI's budget 43.410 €
- Project proposals submitted:
 - Rejected, SmartNano, Research Training Network (Marie Curie Actions, FP6-2004-Mobility-1), Sponsor EU, co-PI: M. Bucher, Period 2004-2007

E – Professional service

- Reviewing activities
 - Reviewer for *IEEE Trans. Electron Devices Solid-State Electronics*, *IEICE Trans. on Electronics*, *IEEE ICECS*

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Diamantakos Dimitrios
 - Karefylakis Michael
 - Lathourakis Kyriakos
 - Mavredakis Nikos
 - Diploma theses completed (supervisor)
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)
 - Iliofotou Marios, (7/2005)
 - Konstantopoulos George, (2/2005)
 - Karavatzakis Fotios, (12/2004)



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Dionisis Pnevmatikatos

Rank: Associate Professor

Years in rank: 3

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
- Graduate courses taught
 - Network Processor Architecture
- Labs taught
 - Computer Architecture
 - Advanced Logic Design
- Curriculum & course development
 - New labs for the Advanced Logic Design class
 - Translation of the Hennessy & Patterson textbook “Computer Architecture – A Quantitative Approach” with colleagues D. Serpanos and G. Stamoulis

B – Publications

- Publications in refereed journals

- Ioannis Papaefstathiou, Stylianos Perissakis, Theofanis G. Orphanoudakis, Nikos A. Nikolaou, George Kornaros, Nicholas A. Zervos, George Konstantoulakis, **Dionisios N. Pnevmatikatos**, and Kyriakos Vlachos ``PRO3: A Hybrid NPU Architecture'', *IEEE Micro*, Vol. 24, no. 5, pp. 20-33, September/October 2004.
- Publications in refereed conferences
 - Giorgos Papadopoulos and **Dionisios N. Pnevmatikatos**, ‘‘Hashing + Memory = Low Cost, Exact Pattern Matching’’, , Proceedings of the 15th International Conference on Field Programmable Logic and Applications (FPL), August 24-26, 2005, Tampere, Finland.
 - Ioannis Sourdis, **Dionisios N. Pnevmatikatos**, Stephan Wong, and Stamatis Vassiliadis, ‘‘A Reconfigurable Perfect-Hashing Scheme for Packet Inspection’’, Proceedings of the 15th International Conference on Field Programmable Logic and Applications (FPL), August 24-26, 2005, Tampere, Finland.
- Books and edited book chapters
 - Ioannis Sourdis and **Dionisios N. Pnevmatikatos**, ‘‘Fast, Large-Scale String Match for a 10Gbps FPGA-based NIDS’’, New Algorithms, Architectures, and Applications for Reconfigurable Computing, Patrick Lysaght and Wolfgang Rosenstiel (Eds.), Chapter 16, pp. 195-207, ISBN 1-4020-3127-0, Springer 2005.

C – Awards & Distinctions

D – Funded Projects

- ΠABET-NE: EPMHΣ: Design and development of novel complex integrated circuit for embedded networked systems supporting user service bouquets. Period: 01/01/05-31/12/06. Total budget: 574.980€, TUC budget: 53000€
- Submission, OpenDSP [Co-operative Research proposal]
- Submission, Proposal 98 tele-education, TUC PI.

E – Professional service

- PCI2005 (Program Committee)
- Reviewer for
 - *ISCA, PCI2005, HiPEAC 2005, IEEE-Micro, ACM TECS*

F – Service to the Department and the School

- Departmental responsibilities

- NOC Director
- Responsible for the Department-wide practical training project
- School-level responsibilities
 - Member, Computing Center & Network Committee
 - Member, Textbook Committee

G – Advising

- Active graduate students supervised
 - M.Sc. students supervised
 - Giakoumis Dimitrios
 - Theodoropoulos Dimitrios
 - Nikitakis Antonios
 - Dimopoulos Basileios
 - M.Sc. degrees awarded
 - Papadopoulos George
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Bouras Efstathios
 - Xaralampous Xaralampos
 - Diploma theses completed (supervisor)
 - Dimopoulos Basileios
 - Bountas Dimitrios
 - Lampridis Dimitrios
 - Radis Serafeim
 - Iliofotou Marios
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)
 - Margaritis Iwannis
 - Kazakos Konstantinos



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Apostolos Samelis

Rank: Assistant Professor

Years in rank: 2

Full-time or part-time: Full-time

Division: Electronics and Computer Architecture

Lab affiliation: Electronics Laboratory

A – Teaching

- Undergraduate courses taught
 - HRY 311 - Electronics II
 - HRY 501 - Introduction to VLSI
- Graduate courses taught
 - HRY 630 - Special Topics on Circuit and System Design
- Labs taught
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed
 - Lectures on both HRY 311 and HRY 501 available now on the electronics laboratory web site (www.electronics.tuc.gr)
 - Authored textbooks

B – Publications

- Publications in refereed journals

- Submitted
 - Accepted
 - Published
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Konstantinos S. Vryssas and **A. Samelis**, “Behavioral Modeling of Nonlinear Radio-Frequency Power Amplifiers”, to be presented at the Asia Pacific Microwave Conference (APMC2005), Suzhou, China, 3-7 December 2005.
 - Published
 - A.Cidronali, M.Camprini, I.Magrini, E. Bertran, N. Athanasopoulos, R. Makri, G. Vannini, R. Cignani, J. Portilla, P. Casas, K. Vryssas, **A. Samelis**, G. Manes, “TX system-level analysis by behavioral modelling of RF building blocks: the IEEE802.11a and IEEE802.15.3a case studies”, 13th GAAS Symposium, Paris, France, 3-4 October 2005, pp. 333-336.
- Books and edited book chapters
- Patents
 - “Pre-matching of a Distributed Push-Pull Power Transistor Pair”. Inventor: Apostolos Samelis, 2004.
- Technical Reports:
 - **A. Samelis**, N. Prelorentzos, A. Tzimas, T. Varelas, “HBT Integrated SiGe Transceiver For Hiperlan”. Deliverable to FP5 programme “PERLA” (IST-2000-30132) on an 802.16d (or 802.16-2004) front-end demonstrator, the experimental setup, simulated and measured results comparison and improvements of the current product to fully comply with 802.16d specifications

C – Awards & Distinctions

D – Funded Projects

- Current projects:
 - TARGET (NoE), “Top Amplifier Research Groups in a European Team”, Sponsor: FP6, Period 1/1/2004-31/12/2007, Role (PI, co-PI): Partner, Total Budget: 8 Mi.€, PI’s Budget: 83k €
- Project proposals submitted:
 - Project 1: Coordinator of proposals “Semiconductor Modeling in an Advanced Research Training Network (SMART-N)” and “Semiconductor

Modelling Advances Research Towards Nanoelectronics”, 6th Framework Programme, EC, Marie Curie Research & Training Network, Mobility-1 program (judged fundable, but not funded due to unavailability of funds).

- Project 2: “Fast Advanced Semiconductor Technology Research Training Network”, Marie Curie Research Training Network proposal (iunder rview).
- Project 3: IIENEΔ 2003. Proposal for R&D in power amplifier design for 802.16a (WiMAX) networks. Funded by GSRT, budget is 165K Euro, will support three PhDs.

E – Professional service

- Reviewing activities
 - Reviewer for IEEE Transactions on Microwave Theory and Techniques and for International Journal of RF and Microwave Computer Aided Engineering.

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities
 - Deputy Member of University Senate 2004-2005
 - Member of undergraduate studies committee

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - Georgios Rozakis, 2005, M.Sc.
 - Georgios Konstantopoulos, 2005, M.Sc.
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Charalampos Andreou
 - Dimitrios Karagiannakis
 - Nikolaos Makirs
 - Georgios Mylonas
 - Spyros Voutsas
 - Diploma theses completed (supervisor)

- Φώτης Καραμπατζάκης, “Σχεδίαση Διαφορικού Ταλαντωτή Ελεγχόμενου από Τάση στα 5.5GHz σε Τεχνολογία SiGe BiCMOS 0.5 μ m”, 2004.
- Γιώργος Κωνσταντόπουλος, “Σχεδίαση Τελεστικού Ενισχυτή σε Τάση Τροφοδοσίας 1V σε Τεχνολογία 0.5 μ m SiGe BiCMOS”, Φεβρ. 2005.
- Γεώργιος Ροζάκης, “Μη γραμμική ανάλυση ασθενούς σήματος διπολικών τρανσίστορ με την μέθοδο των σειρών Volterra”, Σεπτ. 2005.
- Άγγελος Αντωνόπουλος, “Μελέτη RF πομπού διπλού IF για WiMAX εφαρμογές”, Οκτ. 2005.



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sept. 1, 2004 to Aug. 31, 2005

Name: George Stavrakakis

Rank: Proffesor

Years in rank: 10

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
 - HRY 202 - Basic Circuit Theory
 - HRY 416 - Renewable Energy Sources
- Graduate courses taught
 - SYS 603 - Advanced topics in Optimal Control
- Labs taught
 - HRY 202 - Basic Circuit Theory
 - HRY 416 - Renewable Energy Sources
- Curriculum & course development
 - New courses / labs developed
 1. 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 : 3
 - Published : 2(see bellow)
 - E.Tripolitakis, D. Kolokotsa, K. Kalaitzakis, **G. Stavrakakis** “Study and Implementation of a Fuzzy PD Thermal Comfort Controller for Embedded Fieldbus Systems Applications”, WSEAS Transactions on Circuits and Systems, 9 Vol 3, pp.2051-2057,2004.
 - D. Kolokotsa, K. Niachou, V. Geros, K. Kalaitzakis, **G. Stavrakakis**, M. Santamouris, “Implementation of an Integrated Indoor Environment and Energy Management System”, Energy and Buildings 37, pp.93-99, 2005.
- Publications in refereed conferences
 - Submitted : 2
 - Accepted : 2
 - Published : 2(see bellow)
 - E.Tripolitakis, D. Kolokotsa, K. Kalaitzakis, **G. Stavrakakis**, Study and Implementation of a Fuzzy PD Thermal Comfort Controller for Embedded Fieldbus Systems Applications, WSEAS Conference on Circuits and Systems, Rethymno Crete , October 24-26, 2004.
 - G. Sutherland, D. Kolokotsa, **G. Stavrakakis**, S. Karatassou, M. Santamouris, A Matrix Tool for Assessing the Performance of Intelligent Buildings, Passive and Low Energy Cooling Palenc 2005,Santorini island, 19-21 May 2005.
- Books and edited book chapters : none
- Patents : one at the national level (see bellow)
 - Method and integrated electronic circuit for energy management subject to comfort level constraints in buildings (OBI2004010045).

C – Awards & Distinctions

- Invited Plenary Lectures
 - WSEAS Conference on Circuits and Systems, Rethymno Crete, October 24-26, 2004.

D – Funded Projects

- Current projects:
 - Acceleration Of Smart Buildings Technologies And Market Penetration. Contract SAVE 4.1031/Z/02-094/2002. February 2003 – March 2005. Prime Contractor – Coordinator.(Total 610166 €, TUC/TSI part 106097 €)
 - 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 1.000.000 €, TUC/TSI part 255.115 €)
- Project proposals submitted: none

E – Professional service

- Associate Editor duties : none
- Society Technical Committee duties
 - International Committee of Electrical Machines- ICEM
- Conference Technical Program Committee service
 - WSEAS Conference on Circuits and Systems, Rethymno Crete, October 24-26, 2004.
 - Passive and Low Energy Cooling Palenc 2005,Santorini island, 19-21 May 2005.
- Conference Organization (specify role)
- Reviewing activities
 - Permanent invited Reviewer of “Zentralblatt fur Mathematik und ihre Grenzgebiete”, (Mathematics Abstracts) edited by Springer-Verlag International publ.
 - Permanent invited Reviewer of the Journal of Intelligent and Robotic Systems.

- Permanent invited Reviewer of the IEEE Transactions on Energy Conversion.
- Participation in National Committees (e.g., EΔET)
 - Permanent Committee of the Prefecture of Crete for the Energy Problem of Crete

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 (active two)
 - Tripolitakis Evangelos
 - Nikolaou Triantafylia
 - (Inactive PhD student : Sergaki Eleftheria)
 - (Inactive MSc student : Afentakis Nikolaos)
 - M.Sc. degrees awarded
 - Xristias Panagiotis
 - Tripolitakis Evangelos
 - Markoulakis Stilianos
- Undergraduate students supervised
 - Diploma theses in progress (supervisor): 5
 - Diploma theses completed (supervisor) : 5
 - Diploma theses in progress (committee member): 4
 - Diploma theses completed (committee member): 4



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Eftichios Koutroulis

Rank: Visiting Lecturer

Years in rank: 3

Full-time or part-time: Part-time

Division: Electronics & Computer Architecture

Lab affiliation: Electric Circuits & Renewable Energy Sources Lab.

A – Teaching

- Undergraduate courses taught
 - Power Electronics (8th semester)
 - Electric Energy Systems (9th semester)
- Graduate courses taught
 - Electric Measurements and Sensors
- Labs taught
 - Power Electronics (8th semester)
- Curriculum & course development
 - New courses / labs developed:
 - Electric Energy Systems (9th semester)
 - Lecture notes / slides developed
 - **Electric Energy Systems (9th semester)**
 - Authored textbooks

B – Publications

- Publications in refereed journals

- Submitted:
 1. **E. Koutroulis**, D. Kolokotsa, A. Potirakis and K. Kalaitzakis, “Methodology for Optimal Sizing of Stand-Alone Photovoltaic/Wind-Generator Systems Using Genetic Algorithms”, submitted to **Solar Energy**.
 2. K. Papadakis, **E. Koutroulis** and K. Kalaitzakis, “A Server Database System for Remote Monitoring and Operational Evaluation of Renewable Energy Sources Plants”, submitted to **Renewable Energy**.
- Accepted:
 3. **E. Koutroulis** and K. Kalaitzakis, “Design of a Maximum Power Tracking System for Wind Energy Conversion Applications”, accepted at **IEEE Transactions on Industrial Electronics**.
 4. K. Papadakis, **E. Koutroulis** and K. Kalaitzakis, “A Server Database System for Remote Monitoring and Operational Evaluation of Renewable Energy Sources Plants”, accepted at **Renewable Energy**.
- Published
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
- Books and edited book chapters
- Patents

C – Awards & Distinctions

D – Funded Projects

E – Professional service

- Reviewing activities:
 - IEEE Transactions on Industrial Electronics (4 papers reviewed)
 - IEEE Transactions on Circuits and Systems II (1 paper reviewed)
 - IEEE Transactions on Power Electronics (1 paper reviewed)
 - Renewable Energy (4 papers reviewed)
 - IEE-Electronics Letters (2 papers reviewed)

F – Service to the Department and the School

- Departmental responsibilities
- School-level responsibilities

G – Advising

- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Diploma theses completed (supervisor)
 - Diploma theses in progress (committee member):
 - N. Loykas, “Development of a Microcontroller-Based System for Photovoltaic Maximum Power Point Tracking Under Partial Shadowing Conditions”.
 - A. Chatziioannou, “Design Optimization of Hybrid Photovoltaic/Wind-Generator Systems Used to Power Supply Desalination Plants”.
 - N. Tsitsopoulos, “DC/AC Inverter Harmonics Elimination Using Genetic algorithms”.
 - Diploma theses completed (committee member):
 - D. Tsakiris, “Development of an Algorithm for Optimal Management of the Energy Produced by Renewable Energy Sources Power Supplying Desalination Plants”, November 2004.
 - J. Kantaris, “Development of a Sun-Tracking System for Maximizing the Energy Produced by Photovoltaic Cells”, June 2005.

Systems Division

Faculty members:

- Petros Stavroulakis, Professor
- Manolis Christodoulou, Professor



Technical University of Crete
Department of Electronic & Computer Engineering

Annual Activity Report

For the period: Sep. 1, 2004 to Aug. 31, 2005

Name: Peter Stavroulakis

Rank: Professor

Years in rank: 15

Full-time or part-time: Full-time

Division: Systems

Lab affiliation: Automation

A – Teaching

- Undergraduate courses taught
 - SYS 311 - Theory and Applications of Automatic Control
 - SYS 402 - Optimal Control
- Graduate courses taught
 - SYS 623 - Special Topics in Fuzzy Systems
- Labs taught
 - Related to the Course Theory and Applications of Automatic Control
- Curriculum & course development
 - New courses / labs developed
 - Lecture notes / slides developed: Related to the Course Above
 - Authored textbooks

B – Publications

- Publications in refereed journals
 - Submitted
 - Accepted
 - Published

- “Ant Based Probabilistic Routing with Pheromone and Pheromone Mechanism”, *International Journal of Communication Systems*, John Wiley, 2004
- “Bayesian Neural Network Channel Equalization for OFDM”, *International Journal of Communication Systems*, 2004
- “Optimization the QOS of ULTRA High and Speed Moving Terminals in Cellular Networks”, *International Journal of Communications*, John Wiley, 2004
- “Tracking of Maneuvering and Balistic Targets with a Transmitter- Independent Receiver Network (TIRN) Using Time Difference of Arrival and a Second Order Recurrent Artificial Neural Network”, *WSEAS Transactions on Communications*, 2005
- “On Line Tracking Moving Targets via Angle of Arrival and Doppler Measurements Taken by a TIRN Using First Order Recurrent Linear Neural Networks”, *WSEAS Transactions on Communications*, 2005
- Publications in refereed conferences
 - Submitted
 - Accepted
 - Published
 - “Bayesian RBF Channel Equalization and CCI Canceller for OFDM”, *CIC/IEEE Global Mobile Congress*, Shanghai China, 2004
 - “On Line Tracking of Maneuvering Targets via Angle of Arrival and Doppler Measurements”, *WSEAS Communications Conference*, 2005
 - “Robust, Real Time Airborne Video Transmission Techniques in UHF and Microwave Channels”, *IEEE Global Mobile Congress*, Chongqing, China, 2005
 - “Intersatellite Link Sub-network Routing with a Hopfield Neural Network”, *the Second IASTED International Multiconference on Automation and Information Theory*, Novosibirsk, Russia, June 2005
 - “Novel Channel Assignment Scheme in Providing TETRA”, *Specialized Services IEEE Global Mobile Congress*, Chongqing, China, 2005
 - “Monopulse and Phased Array Techniques for Neural Troposcatter Link Long Range Communications”, *IASTED International Conference on Antennas and Propagation*, July, 2005, Banff, Canada
- Edited book chapters
 - “Heuristics for Solving Fixed Channel Assignment Problem”, Chapter in the Book *HANBBOOK OF WIRELESS NETWORKS AND MOBILE COMPUTING*

- Books
 - “Interference Analysis and Mitigation of Wireless Systems”, Artech House, 2004
 - “Neurofuzzy and Fuzzyneural Applications in Telecommuniacations”, Springer, 2004
 - “Chaos Applications in Telecommunications”, Taylor & Francis 2005
- Books Accepted:
 - A Book Proposal on Terrestrial Trunked Radio has been accepted by the publisher SPRINGER and the book will be published in 2006

C – Awards & Distinctions

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

D – Funded Projects

E – Professional service

- Associate Editor duties
 - Associate Editor, *International Journal of Satellite Systems and Networking*
- Society Technical Committee duties
 - Technical Committee on Security
- Conference Technical Program Committee IEEE
 - Member of Technical Program Committee, *IEEE GMC/2005*
- Conference Organization (specify role)
 - Organized a Workshop in *IEEE EMC/2005*
 - Presented a Tutorial in *IASTED International Conference on Antenna and Propagation*, Banff Canada July/2005
- Reviewing activities
 - Reviewer of *IEEE* (3 papers)
 - Electronic Letters (4 papers)
 - International Journal of Communication Systems (8 papers)
- Other
 - Chief Editor of a Newly Established Book Series on Security, Privacy and Technology for SPRINGER/VERLAG

F – Service to the Department and the School

G – Advising

- Active graduate students supervised
 - Ph.D. and M.Sc. students supervised
 - PhD. And M.Sc. degrees awarded
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Two undergraduate theses, in lieu of Prof. Christodoulou
 - Diploma theses completed (supervisor)
 - 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, 2004 to Aug. 31, 2005

Name: Manolis A. Christodoulou

Rank: Professor

Years in rank: 13

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
 - “Automatic Commercial Aircraft Collision Avoidance in Free Flight: The 3 dimensional Problem”, accepted for publication in *IEEE Transactions on Intelligent Transportation Systems*, June. 2005.
- Published
 - G.A. Rovithakis, A.G.Malamos, T.Varvarigou and **M.A.Christodoulou**, “Quality of Service Adaptive Control of Multimedia Services in Short-Term Resource Reservation Networks: A Neural Network Approach”, *Cybernetics and Systems: An International Journal*, vol. 36, No.3, pp. 251-281, April-May 2005.
- Publications in refereed conferences
 - Submitted
 - Accepted
 - **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.
 - 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.
 - Published
 - P.Chatzilias, Z.Kamarianakis, S.Golemati and **M.A.Christodoulou**, “Robotic Control in hand-assisted Laparoscopic Nephrectomy in Humans-a Pilot Study”, *Proceedings of the 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, session 5.2.1 Surgical Robotics, pp.2742-2745, September 1-4, 2004, San Francisco, California, USA.
 - **M.A.Christodoulou** and C.K.Loukas, “Implementation of a Portable and Automated ECG Unit”, *Proceedings of the IFAC Conference on Automatic Systems for Building the Infrastructure in Developing Countries*, October 3-5, 2004, Basko, Bulgaria.
 - **M.A.Christodoulou** and S.K.Kodaxakis “An Intelligent System for Aircraft Collision Avoidance: Free Flight in Three Dimensions”, *Proceedings of the 3rd International Conference on Computing, Communications and Control Technologies*, July 24-27, 2005, Austin, Texas, USA.

- P.G. Voulgarellis, **M.A.Christodoulou** and Y.S. Boutalis “A MATLAB Based Simulation Language for Aircraft Ground Handling Operations at Hub Airports (SLAGOM)”, *Proceedings of the 13th Mediterranean Conference on Control and Automation*, session MoM04-1, pp. 334-339, June 27-29, 2005, Limassol, Cyprus.
 - G. Ioannidis, **M.A.Christodoulou** and Y.S. Boutalis “A SIMULINK Based Simulation Language for Aircraft Ground Handling Operations at Hub Airports (SSLA)”, *Proceedings of the 13th Mediterranean Conference on Control and Automation*, session MoM04-2, pp. 340-345, June 27-29, 2005, Limassol, Cyprus.
 - **M.A.Christodoulou** and S.K.Kodaxakis “An Intelligent System for Aircraft Collision Avoidance using Nonlinear Mixed Integer Programming: The 3-D Case”, *Proceedings of the Workshop on Modeling and Control of Complex Systems*, June 30 - July 1, 2005, Ayia Napa, Cyprus.
 - **M.A.Christodoulou**, G.A.Rovithakis, A.G.Malamos, T.Varvarigou and Y.S. Boutalis, “Adaptive Control of Multimedia Services in Short Term Resource Reservation Networks for QoS (Quality of Service), using Recurrent High Order Neural Networks”, *Proceedings of the Workshop on Modeling and Control of Complex Systems*, June 30 - July 1, 2005, Ayia Napa, Cyprus.
 - 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.
- Books and edited book chapters
 - “Adaptive Control with Recurrent High Order Neural Networks: Theory and Industrial Applications”, **Springer**, ISBN 1-85233-623-4
 - 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., in print, 2005.

C – Awards & Distinctions

- Professional service awards
 - 2005 MCA Founders Award *“in recognition of significant technical contributions and outstanding long-term service to the Mediterranean Control Association and the Mediterranean Conference on Control and Automation”*
- Visiting Professorships:
 - University of Victoria, Canada, Course taught: “Robotics”.

D – Funded Projects

E – Professional service

- 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 “Workshop on Modeling and Control of Complex Systems”, Ayia Napa, Cyprus, June 30-July 1, 2005.
- Conference Organization (specify role)
 - Workshop Organizer on Modeling and Control of Complex Systems, 2007 Hydra, Greece.
- Reviewing activities
 - Reviewer in 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
 - Giorgos Ioannidis
 - Manolis Skounakis
 - PhD. And M.Sc. degrees awarded
 - Electronic and Computer Engineering, **MSc**, Iosif Kodaxakis, Free Flight in Commercial Aircraft: A New Algorithm for Automatic Conflict Avoidance in 3-D space”, 2005

- Electronic and Computer Engineering, **MSc**, Konstantia Zarkogianni, "Recurrent High Order Neural Networks for Identification of the EGFR Signaling Pathway", 2005
- Undergraduate students supervised
 - Diploma theses in progress (supervisor)
 - Diploma theses completed (supervisor)
 - Diploma theses in progress (committee member)
 - Diploma theses completed (committee member)