



# **Annual Activity Report**

From Sep. 1, 2008 to Aug. 31, 2009  
Chania, Crete  
Dec. 10, 2009

## Message from the Chair

Dear Colleague,

The Department of Electronic and Computer Engineering (ECE) at the Technical University of Crete (TUC) was founded in the late '80's, and admitted its first class of (30) undergraduate students in 1990. Since then, the Department has grown considerably, by all counts. As of this writing, the incoming class of freshmen has grown to 125, and the number of faculty to 25 (with several more to join us soon).

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

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

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

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

Dionisios Pnevmatikatos  
pnevmati@ece.tuc.gr

## **Computer Science Division**

### **Faculty members**

- Garofalakis Minos
- Deligiannakis Antonios
- Lagoudakis Michail
- Mania Ekaterini
- Petrakis Euripides
- Samoladas Vassilios
- Christodoulakis Stavros



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Minos Garofalakis*

**Rank:** Professor

**Years in rank:** 8 months (since January 2, 2009)

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

**Division:** Computer Science

**Lab affiliation:** SoftNet – Software Technology and Network Applications  
Laboratory (*Director*)

### A – Teaching

- Undergraduate courses taught
  - ΠΛΗ-401: Αλγόριθμοι και Πολυπλοκότητα
  - ΠΛΗ-411: Προχωρημένα Θέματα Βάσεων Δεδομένων
- Graduate courses taught
  - ΠΛΗ-627: Προσεγγιστικές Μέθοδοι για Μεγάλες Βάσεις και Ροές Δεδομένων
- Curriculum & course development
  - New courses / labs developed  
ΠΛΗ-411, ΠΛΗ-627
  - Lecture notes / slides developed  
Διαφάνειες για τα μαθήματα ΠΛΗ-401, ΠΛΗ-422, ΠΛΗ-627

### B – Publications

- Publications in refereed journals

- Submitted: those published/appeared (see below)
  - Graham Cormode, **Minos Garofalakis**, Peter J. Haas, Christopher M. Jermaine. "Approximate Query Processing in Database Systems", Survey submitted to *Foundations and Trends in Databases*, 2009.
- Accepted:
  - Graham Cormode and **Minos Garofalakis**, "Histograms and Wavelets on Probabilistic Data", *IEEE Transactions on Knowledge and Data Engineering*, 2010 ("*Best of ICDE'2009*" Special Issue).
- Published:
  - Boon Thau Loo, Tyson Condie, **Minos Garofalakis**, David E. Gay, Joseph M. Hellerstein, Petros Maniatis, Raghu Ramakrishnan, Timothy Roscoe, and Ion Stoica. "Research Highlights: Declarative Networking", *Communications of the ACM*, Vol. 52, No. 11, November 2009.
  - Alin Dobra, **Minos Garofalakis**, Johannes Gehrke, and Rajeev Rastogi. "Multi-Query Optimization for Sketch-Based Estimation", *Information Systems*, Vol. 34, No. 2, April 2009.
- Publications in refereed conferences
  - Submitted: those published/appeared (see below)
    - Daisy Zhe Wang, Michael J. Franklin, **Minos Garofalakis**, and Joseph M. Hellerstein. "Querying Probabilistic Information Extraction"
    - Vibhor Rastogi, Nilesh Dalvi, and **Minos Garofalakis**. "Large Scale Collective Entity Matching"
  - Accepted:
    - Daisy Zhe Wang, Eirinaios Michelakis, Michael J. Franklin, **Minos Garofalakis**, and Joseph M. Hellerstein. "Probabilistic Declarative Information Extraction", *Proceedings of IEEE ICDE'2010*, Long Beach, California, USA, March 2010. (*short paper*)
  - Published:
    - Graham Cormode, Antonios Deligiannakis, **Minos Garofalakis**, and Andrew McGregor, "Probabilistic Histograms for Probabilistic Data", *Proceedings of VLDB'2009*, Lyon, France, August 2009.
    - Graham Cormode and **Minos Garofalakis**. "Histograms and Wavelets on Probabilistic Data", *Proceedings of IEEE ICDE'2009*, Shanghai, China, March 2009.
    - Daisy Zhe Wang, Eirinaios Michelakis, **Minos Garofalakis**, and Joseph M. Hellerstein. "BAYESSTORE: Managing Large, Uncertain Data Repositories with Probabilistic Graphical Models", *Proceedings of VLDB'2008*, Auckland, New Zealand, August 2008.
    - Ashwin Machanavajjhala, Erik Vee, **Minos Garofalakis**, and Jayavel Shanmugasundaram. "Scalable Ranked

Publish/Subscribe", *Proceedings of VLDB'2008*, Auckland, New Zealand, August 2008.

- Books and edited book chapters
  - **Minos Garofalakis**. "Distributed Data Streams", Chapter in: *Encyclopedia of Database Systems* (Ling Liu and M. Tamer Ozsu, Eds.), Springer, 2009.
  - **Minos Garofalakis**. "Wavelets on Streams", Chapter in: *Encyclopedia of Database Systems* (Ling Liu and M. Tamer Ozsu, Eds.), Springer, 2009.
  - **Minos Garofalakis**. "The Discrete Wavelet Transform and Wavelet Synopses", Chapter in: *Encyclopedia of Database Systems* (Ling Liu and M. Tamer Ozsu, Eds.), Springer, 2009.
- Patents
  - *GRANTED*
    1. Sumit Ganguly, **Minos Garofalakis**, and Rajeev Rastogi. "Tracking Set-Expression Cardinalities over Continuous Update Streams", U.S. Patent No. 7,596,544, Issued 9/39/2009. (*Filed December 2004*)
    2. Yigal Bejerano, Yuri Breitbart, **Minos Garofalakis**, and Rajeev Rastogi. "System And Method For Determining The Physical Topology Of A Network Having Multiple Subnets", U.S. Patent No. 7,535,911, Issued 5/19/2009. (*Filed May 2003*)
    3. Michael Benedikt, **Minos Garofalakis**, and Rajeev Rastogi. "Method For Performing Information-Preserving DTD Schema Embeddings", U.S. Patent No. 7,496,571, Issued 2/24/2009. (*Filed September 2004*)
    4. Sumit Ganguly, **Minos Garofalakis**, and Rajeev Rastogi. "Processing Data-Stream Join Aggregates Using Skimmed Sketches", U.S. Patent No. 7,483,907, Issued 1/27/2009. (*Filed December 2004*)
  - *FILED*
    1. Graham Cormode and **Minos Garofalakis**. "Methods and Apparatus to Construct Histogram and Wavelet Synopses for Probabilistic Data", U.S. Patent Application 12/334,264, AT&T Ref. 2008-0451. (*Filed February 2009*)
    2. Ramana Yerneni, Erik Vee, **Minos Garofalakis**, Srinivasan Rajagopal, Jayavel Shanmugasundaram, Mark Sordo, Donald Swanson, and Sergei Vassilvitskii. "Allocation of Internet Advertising Inventory", U.S. Patent Application, Yahoo! Ref. Y04879US00. (*Filed December 2008*)
    3. Sergei Vassilvitskii, Jayavel Shanmugasundaram, Srinivasan Rajagopal, **Minos Garofalakis**, Erik Vee, and Ramana Yerneni. "Display Advertising Inventory Estimation", U.S. Patent Application, Yahoo! Ref. Y04883US00. (*Filed October 2008*)

## C – Awards & Distinctions

- **Best Paper Award**, 25<sup>th</sup> *IEEE International Conference on Data Engineering (ICDE'2009)*, Shanghai, China, March 2009.
- Invited “**Research Highlights**” paper in “Communications of the ACM”, November 2009.
- **ACM Senior Member**, April 2009.

## D – Funded Projects

- Current projects:
  - **Fellow & Scientist in Charge** for “HeisenData: Towards a Next-Generation Uncertain-Data Management System”, FP7 Marie-Curie International Re-integration Grant (100.000 Euros, 2010-2014)
- Project proposals submitted:
  - 2 FP7 STREP proposals, 2 προτάσεις στο πρόγραμμα «Συνεργασία» (ΓΤΕΤ)

## E – Professional service

- Associate Editor duties
  - *ACM Transactions on Database Systems (TODS)*: Associate Editor (January 2008 -- present)
  - *IEEE Transactions on Knowledge and Data Engineering (TKDE)*: Associate Editor (2007 -- present)
  - *Foundations and Trends in Databases*: Editorial Board Member (2006 -- present)
  - *Proceedings of the VLDB Endowment*: Review Board Member (August 2008 -- present)
- Society Technical Committee duties
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- Conference Technical Program Committee service
  - **Conference Program Committees:** *ACM SIGMOD'2009 (PC Group Leader)*, *IEEE ICDM'2009 (Awards Committee)*, *SSDBM'2009*, *IEEE ICDE'2010*, *SIAM SDM'2010*, *ASONAM'2010*, *VLDB'2010*
  - **Workshop Program Committees:** *DataX'2009*, *EDBT/ICDT'2009 Ph.D. Workshop*, *DMSN'2009*, *MobiDE'2009*, *EDBT/ICDT'2010 Ph.D. Workshop*
- Conference Organization (specify role)
  - *9th SIAM International Conference on Data Mining (SDM'2009)*, Sparks, Nevada: Program Area Chair (Data Stream Mining)
- Reviewing activities
  -

## **F – Service to the Department and the School**

- Departmental responsibilities
- School-level responsibilities
  - Μέλος Διοικητικού Συμβουλίου της Εταιρείας Αξιοποίησης Περιουσίας και Τεχνολογικού Πάρκου του Πολυτεχνείου Κρήτης (Μάϊος 2009 – παρόν)
  - Μέλος της Επιτροπής Σχεδιασμού Ανάπτυξης Πολυτεχνείου Κρήτης (Ιούλιος 2009 – Οκτώβριος 2009)

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Daisy Zhe Wang (PhD student, UC-Berkeley, co-advised with J. Hellerstein and M. Franklin)
    - Kostas Athanasoglou (MSc student, TUC)
  - Ph.D. And M.Sc. degrees awarded
    -
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - K. Kalantzaki,
    - A. Nydriotis
    - A. Chartsias
    - G. Hristopoulos
    - L. Papageorgiou)
  - Diploma theses completed (supervisor)
    -





Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Antonios Deligiannakis

**Rank:** Assistant Professor

**Years in rank:** 2

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

**Division:** Computer Science

**Lab affiliation:** Software Technology and Network Applications Laboratory (Softnet)

### A – Teaching

- Undergraduate courses taught
  - Comp 111: Structured Programming
  - Comp 506: Data Processing and Handling in Sensor Networks
- Graduate courses taught
  - Comp 626: Data Processing and Handling in Sensor Networks
  - Comp 622: Special Issues in Database Systems
- Labs taught
  -
- Curriculum & course development
  - New courses / labs developed
    - Comp 506: Data Processing and Handling in Sensor Networks
    - Comp 626: Data Processing and Handling in Sensor Networks
    - Comp 622: Special Issues in Database Systems
  - Lecture notes / slides developed
    - Comp 506: Data Processing and Handling in Sensor Networks
    - Comp 626: Data Processing and Handling in Sensor Networks
    - Comp 622: Special Issues in Database Systems

## B – Publications

- Publications in refereed journals
  - Submitted: those published/appeared (see below)
    - Michaela A. Bornea, Vasilis Vassalos, Yannis Kotidis, **Antonios Deligiannakis**. Adaptive Join Operators for Result Rate Optimization on Streaming Inputs. *IEEE Transactions on Knowledge and Data Engineering*, 2010 (“Best of ICDE 2009” Special Issue).
    - Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis, Yannis Kotidis, Christos Papatheodorou. “DCC&U: An Extended Digital Curation Lifecycle Model,” in *International Journal of Digital Curation*.
    - **Antonios Deligiannakis** and Yannis Kotidis, “Detecting Proximity Events in Sensor Networks,” submitted to *Distributed Computing*, 2009.
    - **Antonios Deligiannakis** and Yannis Kotidis, “Detecting Proximity Events in Sensor Networks,” submitted to *Information Systems*, 2009.
  - Accepted:
    - Michaela A. Bornea, Vasilis Vassalos, Yannis Kotidis, **Antonios Deligiannakis**, “Adaptive Join Operators for Result Rate Optimization on Streaming Inputs,” *IEEE Transactions on Knowledge and Data Engineering*, 2010 (“Best of ICDE 2009” Special Issue).
    - Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis, Yannis Kotidis, Christos Papatheodorou, “DCC&U: An Extended Digital Curation Lifecycle Model,” *International Journal of Digital Curation*.
  - Published:
    - Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis, Yannis Kotidis, Christos Papatheodorou, “DCC&U: An Extended Digital Curation Lifecycle Model,” *International Journal of Digital Curation*, Volume 4(1), pages 34-45.
    - Dimitrios Sacharidis, **Antonios Deligiannakis** and Timos Sellis, “Hierarchically Compressed Wavelet Synopses, *VLDB Journal*, 18(1):203-231 (2009).
- Publications in refereed conferences

- Submitted: those published/appeared (see below)
  - Graham Cormode, **Antonios Deligiannakis**, Minos Garofalakis, Andrew McGregor, “[Probabilistic Histograms for Probabilistic Data](#),” *35th International Conference on Very Large Data Bases (VLDB)*, Lyon, France, August 2009.
  - **Antonios Deligiannakis**, [Yannis Kotidis](#), [Vassilis Stoumpos](#), [Alex Delis](#), “[Building Efficient Aggregation Trees for Sensor Network Event-Monitoring Queries](#),” *Proc. of the of the 3rd International Conference on Geosensor Networks*, Oxford, United Kingdom, July 2009.
  - Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis, Yannis Kotidis, Christos Papatheodorou, “DCC&U: An Extended Digital Curation Lifecycle Model,” *Proc. of the 4th International Digital Curation Conference*, Edinburgh, Scotland, December 2008.
  - Mihaela Bornea, **Antonios Deligiannakis**, Yannis Kotidis and Vasilis Vassalos, “A New Semi-Streaming Index Join Algorithm for ETL Workloads,” submitted to *ACM Sigmod 2009*.
  - Mihaela Bornea, **Antonios Deligiannakis**, Yannis Kotidis and Vasilis Vassalos, “An Efficient Semi-Streaming Index Join Algorithm,” submitted to *IEEE ICDE 2010*.
  - Nikos Giatrakos, Yannis Kotidis, **Antonios Deligiannakis** and Vasilis Vassalos, “Approximate Computation of Outliers in Wireless Sensor Networks,” submitted to *VLDB Conference*, 2009.
  - Nikos Giatrakos, Yannis Kotidis, **Antonios Deligiannakis** and Vasilis Vassalos, “TACO: Tunable Approximate Computation of Outliers in wireless sensor networks,” submitted to *IEEE ICDE 2010*.
  - Vassilis Stoumpos, **Antonios Deligiannakis**, [Yannis Kotidis](#) and [Alex Delis](#), “Building Efficient Collection Trees for Sensor Networks’ Event-Monitoring Queries,” Submitted to *ICDCS*, 2009.
- Accepted:
  - Graham Cormode, **Antonios Deligiannakis**, Minos Garofalakis, Andrew McGregor, “[Probabilistic Histograms for Probabilistic Data](#),” *35th International Conference on Very Large Data Bases (VLDB)*, Lyon, France, August 2009.
  - **Antonios Deligiannakis**, [Yannis Kotidis](#), [Vassilis Stoumpos](#), [Alex Delis](#), “[Building Efficient Aggregation Trees for Sensor Network Event-Monitoring Queries](#),” *Proc. of the of the 3rd International Conference on Geosensor Networks*, Oxford, United Kingdom, July 2009.
  - Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis,

Yannis Kotidis, Christos Papatheodorou, “DCC&U: An Extended Digital Curation Lifecycle Model,” *Proc. of the 4th International Digital Curation Conference*, Edinburgh, Scotland, December 2008.

○ Published:

- Graham Cormode, **Antonios Deligiannakis**, Minos Garofalakis, Andrew McGregor, “[Probabilistic Histograms for Probabilistic Data](#),” *35th International Conference on Very Large Data Bases (VLDB)*, Lyon, France, August 2009.
- **Antonios Deligiannakis**, [Yannis Kotidis](#), [Vassilis Stoumpos](#), [Alex Delis](#), “[Building Efficient Aggregation Trees for Sensor Network Event-Monitoring Queries](#),” *Proc. of the 3rd International Conference on Geosensor Networks*, Oxford, United Kingdom, July 2009.
- **Antonios Deligiannakis**, Yannis Kotidis, Vasilis Vassalos, Vassilis Stoumpos and Alex Delis. “Another Outlier Bites the Dust: Computing Meaningful Aggregates in Sensor Networks”. *IEEE International Conference on Data Engineering (ICDE)*, March 2009, Shanghai, China.
- Mihaela Bornea, Vasilis Vassalos, Yannis Kotidis and **Antonios Deligiannakis**. “Double Index Nested-loop Reactive Join for Result Rate Optimization”. *IEEE International Conference on Data Engineering (ICDE)*, March 2009, Shanghai, China.
- Panos Constantopoulos, Costis Dallas, Ion Androutsopoulos, Stavros Angelis, **Antonios Deligiannakis**, Dimitris Gavrilis, Yannis Kotidis, Christos Papatheodorou, “DCC&U: An Extended Digital Curation Lifecycle Model,” *Proc. of the 4th International Digital Curation Conference*, Edinburgh, Scotland, December 2008.

## C – Awards & Distinctions

- **Best student paper award** at the IEEE ICDE conference, for the publication: “Double Index Nested-loop Reactive Join for Result Rate Optimization”.

## D – Funded Projects

## E – Professional service

- Conference Technical Program Committee service
  - *IEEE ICDE Demo Program (2009)*
  - *Siam International Conference on Data Mining (SDM) 2009*
  - *ACM Workshop on Data Engineering for Wireless and Mobile Access (MobiDE) 2009*
  - *ACM International Workshop on Data Warehousing and OLAP (DOLAP) 2009*

- *3rd International Conference on Geosensor Networks (2009)*
- *8th Hellenic Data Management Symposium (HDMS), 2009*
- *International Workshop on Sensor Networks Technologies for Information Explosion Era (SeNTIE) 2009*
- *First International Workshop on Data and Process Provenance 2009 (WDPP'09)*
- Conference Organization (specify role)
  -
- Reviewing activities
  - Journal referee for the:
    - *Information Systems Journal*
    - *IEEE Sensors*
    - *Pervasive and Mobile Computing*
    - *IEEE Transactions on Computers*
    - *IEEE Transactions on Knowledge and Data Engineering (TKDE)*

## **F – Service to the Department and the School**

- Departmental responsibilities
  - Member of the graduate course committee at the Technical University of Crete (2008-2009)
  - Substitute Member of the under-graduate course committee at the Technical University of Crete (2008-2009)
  - Consultant in undergraduate studies (2<sup>nd</sup> semester courses, Spring 2009)

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Tsakonas Konstantinos (M.Sc)
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Dionisios Kalogiropoulos
    - Ioannis Xarxaros
    - Makis Mpousgos
    - Agis Chartsias (co-advisor, with Minos Garofalakis)



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Michail G. Lagoudakis

**Rank:** Assistant Professor

**Years in rank:** 4

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory

### A – Teaching

- Undergraduate courses taught
  - COMP 503 – Autonomous Agents (Fall 2008)
  - COMP 411 – Theory of Computation (Spring 2009)
  - COMP 417 – Artificial Intelligence (Spring 2009)
- Graduate courses taught
  - COMP 625 – Autonomous Agents (Fall 2008)
- Labs taught
  - COMP 503 – Autonomous Agents Laboratory (Fall 2008)
- Curriculum & course development
  - New courses / labs developed
    - Laboratory exercises for Autonomous Agents (undergraduate)
  - Lecture notes / slides developed
    - Updated lecture slides for Theory of Computation
    - Updated lecture slides for Artificial Intelligence
    - Updated lecture slides for Autonomous Agents (undergraduate)
    - Lecture slides for Autonomous Agents (graduate)

### B – Publications

- Publications in refereed journals

- Accepted:
  - Diomidis Katzourakis, Yannis Papaefstathiou, and **Michail G. Lagoudakis**, “Open-Source Scaled Automobile Platform for Fault-Tolerant Electronic Stability Control”, *IEEE Transactions on Instrumentation and Measurement*, 2009, to appear.
- Publications in refereed conferences
  - Published:
    - Jason Papis and **Michail G. Lagoudakis**, “Binary Action Search for Learning Continuous-Action Control Policies,” *Proceedings of the 26th International Conference on Machine Learning (ICML)*, Montreal, Quebec, Canada, June 2009, pp. 793-800.
    - Georgios Pierris and **Michail G. Lagoudakis**, “An Interactive Tool for Designing Complex Robot Motion Patterns,” *Proceedings of the 2009 IEEE International Conference on Robotics and Automation (ICRA)*, Kobe, Japan, May 2009, pp. 4013–4018.
    - Jason Papis and **Michail G. Lagoudakis**, “Learning Continuous-Action Control Policies,” *Proceedings of the 2009 IEEE International Symposium on Adaptive Dynamic Programming and Reinforcement Learning (ADPRL)*, Nashville, TN, USA, March 2009, pp. 169–176.
    - Diomidis Katzourakis, Ioannis Papaefstathiou, and **Michail G. Lagoudakis**, “Semi-Autonomous Robotic Platform for Automobile Experiments” (in Greek), *Proceedings of the 1st Hellenic Robotics Conference (HEROC)*, Athens, Greece, February 2009.
    - Souzana Volioti and **Michail G. Lagoudakis**: “Histogram-Based Visual Object Recognition for the 2007 Four-Legged RoboCup League,” *Proceedings of the 5th Hellenic Conference on Artificial Intelligence (SETN08)*, Syros, Greece, October 2008, pp. 313-326.
    - Alejandro Mosteo, Luis Montano, and **Michail G. Lagoudakis**, “Guaranteed-Performance Multi-Robot Routing under Limited Communication Range,” *Proceedings of the 9th International Symposium on Distributed Autonomous Robotic Systems 2008 (DARS2008)*, Tsukuba, Ibaraki, Japan, November 2008, pp. 491-502.
    - Ioannis Rexakis and **Michail G. Lagoudakis**, “Classifier-Based Policy Representation,” *Proceedings of the 2008 International Conference on Machine Learning and Applications (ICMLA'08)*, San Diego, CA, USA, December 2008, pp. 91-98.

## C – Awards & Distinctions

## D – Funded Projects

- Current projects:
  - “RLvSL: Reinforcement Learning via Supervised Learning”, *Marie Curie International Reintegration Grant*, Marie Curie Actions, Sixth Framework Programme, European Commission, December 2006 – December 2008, Contract: MIRG-CT-2006-044980, PI: M. G. Lagoudakis, Total/PI’s Budget: 80,000€ / 80,000€.
  - “CALR: Coordinated Action and Learning in RoboCup”, *Basic Research Grants*, Research Office (ELKE), Technical University of Crete, January 2009 – December 2010, Contract: TUC-242, PI: M. G. Lagoudakis, Total/PI’s Budget: 12,000€ /12,000€.

## E – Professional service

- Associate Editor duties
  - Editorial Board, *Journal of Intelligent Learning Systems and Applications*
- Society Technical Committee duties
  - Standard Platform League Executive Committee, *RoboCup Federation*
  - Technical Committee on Robot Learning, *IEEE Robotics and Automation Society*
- Conference Technical Program Committee service
  - *Conference on Learning and Intelligent Optimization 2009 (LION)*
  - *19<sup>th</sup> Intl Conference on Automated Planning and Scheduling (ICAPS)*
  - *26<sup>th</sup> International Conference on Machine Learning (ICML 2009)*
  - *25<sup>th</sup> Conference on Uncertainty in Artificial Intelligence (UAI2009)*
  - *12<sup>th</sup> Intl Conference on Artificial Intelligence and Statistics (AISTATS)*
- Conference Organization (specify role)
  - *Program co-Chair, 13<sup>th</sup> International RoboCup Symposium, Graz, Austria*
- Reviewing activities
  - *Autonomous Robots*
  - *IEEE International Conference on Robotics and Automation 2009 (ICRA)*
  - *Conference on Learning and Intelligent Optimization 2009 (LION)*
  - *12<sup>th</sup> Intl Conference on Artificial Intelligence and Statistics (AISTATS)*
  - *1<sup>st</sup> Hellenic Conference on Robotics (HEROC)*
  - *Machine Learning*
  - *26<sup>th</sup> International Conference on Machine Learning (ICML 2009)*
  - *25<sup>th</sup> Conference on Uncertainty in Artificial Intelligence (UAI 2009)*
  - *19<sup>th</sup> Intl Conference on Automated Planning and Scheduling (ICAPS09)*
  - *IEEE/RSJ Intl Conference on Intelligent Robots and Systems 2009 (IROS)*

## F – Service to the Department and the School



- Departmental responsibilities
  - *Vice Departmental Representative*, TUC Library Committee
  - *Vice Member*, Postgraduate Education Committee
- School-level responsibilities
  - *Editorial Board*, “TUC News” publication
  - *Member*, TUC Internal Research Funding Committee

## G – Advising

- Postdoctoral Fellows
  - Emmanuel Rachelson, “Efficient Rollout Methods for Reinforcement Learning”, January 2009 – present
- Graduate students
  - Ph.D. and M.Sc. theses in progress (supervisor)
    - Rexakis Ioannis (Ph.D program), “Reinforcement Learning via Supervised Learning”, Enrollment: 2006
    - Markos Mpervanakis (M.Sc. program), “Experimental Evaluation of Auction-Based Coordination”, Enrollment: 2006
    - Konstantinos Karakasiliotis (M.Sc. program), “Crawling and Climbing Robot Mechanisms”, Enrollment: 2008
    - Jason Pazis (M.Sc. program), “Efficient Learning Methods for High-Dimensional State-Action Spaces”, Enrollment: 2009
  - Ph.D and M.Sc. theses completed (committee member)
    - Emmanuel Rachelson (Ph.D.), “Temporal Markov Decision Problems: Formalization and Resolution”, University of Toulouse and Institut Supérieur de l’Aéronautique et de l’Espace, France, March 2009
    - Georgios Kontes (M.Sc.), “Study and Implementation of Controllers for Robotic Systems using Reinforcement Learning Algorithms”, Department of Production Engineering and Management, Technical University of Crete, July 2008
    - Ioannis Botsis (M.Sc.), “A Model for Vehicle Loading on Ferry Boats”, June 2008
    - Diomidis Katzourakis (M.Sc.), “Scaled Testbed for Automotive Experiments: Evaluation of Electronic Stability Control Schemes”, September 2008
  - Ph.D and M.Sc. theses in progress (committee member)
    - Alejandro Mosteo (Ph.D. program), “Multi-Robot Coordination under Communication Constraints”, Department of Computer

Science and Systems Engineering, University of Zaragoza, Spain  
Visiting student at TUC (April 2007 – July 2007)

- Undergraduate students
  - Diploma theses completed (supervisor)
    - Stavros Korokithakis, “Heuristic Rule Induction for Decision Making in Deterministic Domains”
    - Vasileios Vasilikos, “Optimization of Heuristic Search using Recursive Algorithm Selection and Reinforcement Learning”
    - Konstantinos Haldezos, “Interactive Robotic Gaming”
    - Eleftherios Tsallas, “GeoSage: Geographical Information and Mapping for RSS Feeds in the Sage Extension for Firefox”
    - Georgios Pierris, “Soccer Skills for Humanoid Robots”
    - Emmanuel Vardakis, “Path Planning and Motion Control for Robotic Automobile”
    - Jason Pazis, “Learning Continuous-Action Control Policies”
    - Ioannis Vasileiou, “Development of a Calorimeter Application for Mobile Phones”
  - Diploma theses in progress (supervisor)
    - Nikolaos Papoulias, “High-Level Debugging: Facilities and Interfaces – Design and Development of a Debug-Oriented IDE”
    - Andreas Panakos, “Efficient Color Recognition Under Varying Illumination Conditions For Robotic Soccer”
    - Eleftherios Chatzilaris, “Visual-Feature-based Self-Localization for Robotic Soccer”
    - Ioannis Marakis, “Conversion, Unification, and Visualization of Meta-Information for Gene Regulatory Networks”
    - Maria Rovatsou, “Minimax Search and Reinforcement Learning for Adversarial Tetris”
    - Ioannis Skoulakis, “Learning to Play the Game Neighbors”
    - Vlassis Dimitriades, “Learning to Play Strategic Games”
    - Evangelos Vazaios, “NaruComm: A Distributed Architecture for Multi-Modal Robot Communication”
    - Alexandros Paraschos, “Software Architectures for Autonomous Robotic Systems”
    - Dimitrios Katsaitis, “Estimation of 3D Camera Ego-Motion and Depth from Sequences of Images”
    - Stylianos Tsigdinos, “Learning to Play Backgammon using Reinforcement Learning”
    - Emmanuel-Theofanis Chourdakis, “Learning to Play Chord Accompaniments for Solo Instruments”
  - Diploma theses completed (committee member)
    - Dionysia Chroni (DPEM), “Motion Control of a Biped Robot using Reinforcement Learning”
    - Nikolaos Bikakis, “Supporting Semantic Queries in XML Databases”

- Nikolaos Mylonakis, “Development of a System for Personalized Educational Experiences over Multimedia Digital Libraries”
  - Nikolaos Stefanidis, “Development of an Interactive Entry and Storage System for Energy Inspection in Buildings”
  - Michail Skitsas, “Implementation of Satisfiability Solvers on Field-Programmable Gate Arrays”
- Student team projects
  - Founder and co-leader of the robotic soccer team Kouretes ([www.kouretes.gr](http://www.kouretes.gr)), the first Greek team participating in the RoboCup competition. Kouretes 2009 consisted of 4 undergraduate ECE students working on their diploma thesis.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

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

**Name:** *Katerina Mania*

**Rank:** Assistant Professor

**Years in rank:** 3 years, 9 months

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

**Division:** Computer Science

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

### A – Teaching

- Undergraduate courses taught
  - PLH 418 - Computer Graphics (Spring 2009)
  - PLH 101 – Introduction to Computers and Computer Science (Winter 2009)
- Graduate courses taught
  - PLH 612 – Visualization and Virtual Reality (Spring 2009)
- Curriculum & course development
  - Material on-line: PLH 612 Visualization and Virtual Reality

### B – Publications

- Publications in refereed journals
  - Submitted
    - Mourkoussis, N., Rivera, F., Troscianko, T., Dixon, T., Hawkes, R., **Mania, K.**, “Slant Perception based on Gait in Real and Virtual Environments,” submitted to *Human Computer Studies*, Elsevier, 2009.

- Accepted
  - Mourkoussis, N., Rivera, F., Troscianko, T., Hawkes, R., Watten, P., **Mania, K.**, “Quantifying Fidelity for Virtual Environment Simulations Employing Memory Schema Assumptions,” *ACM Transactions on Applied Perception*, ACM Press, to appear in 2010.
  - **Mania, K.**, Badariah, H., Coxon, “Cognitive Transfer of Training from Immersive Virtual Environments to Reality,” *ACM Transactions on Applied Perception*, ACM Press, to appear 2010.
  - Sylaiou, S., **Mania, K.**, Karoulis, A., White, M., “Exploring the Relationship between Presence and Enjoyment in a Virtual Museum,” *Human Computer Studies*, Elsevier, to appear 2010.
- Publications in refereed conferences

- Published

- Zotos, A., **Mania, K.**, Mourkoussis, N. A Schema-based Selective Rendering Framework. *ACM Siggraph Symposium on Applied Perception in Graphics and Visualization 2009*, 85-92, Chania, Crete, Greece, 2009.
- Papadakis, G., **Mania, K.**. The Cognitive Impact of Head-Tracking Latency. Poster, *ACM Siggraph Symposium on Applied Perception in Graphics and Visualization 2009*, 136-136, Chania, Crete, Greece, 2009.
- Zotos, A., **Mania, K.**, Mourkoussis, N. A Selective Rendering Algorithm based on Memory Schemas. Poster, *ACM Siggraph 2009*, New Orleans, USA, 2009.
- **Mania, K.**, Mourkoussis, N., Zotos, A. Selective Rendering based on Perceptual Importance of Scene Regions. *IEEE conference on Systems, Man and Cybernetics 2008*, 1596 – 1601, Singapore, 2008.

## C – Awards & Distinctions

## D – Funded Projects

- Current projects (at the Technical University of Crete, Greece):
  - Internal TUC major equipment award: Immersive eye tracking system

- Internal TUC project awarded (basic research call): *Perceptual and cognitive impact of tracking latency in ecologically valid immersive synthetic simulations with applicability to remote virtual design and tele-operation towards efficient man-machine interaction*
- Internal TUC project awarded (basic research call for junior faculty): *Real-time selective rendering algorithms based on spatial cognition*
- Project proposals submitted:
  - HRAKLEITOS call.

## E – Professional service

- Associate Editor duties
  - Associate Editor, *Presence Tele-operators and Virtual Environments*, MIT Press (since June 2006).
  - Associate Editor, *ACM Transactions on Applied Perception*, ACM Press (since September 2007).
- Conference Technical Program Committee service - membership
  - *Computational Aesthetics 2009, sponsored by Eurographics, Canada, May 2009*
  - *Computational Aesthetics 2010, sponsored by Eurographics, London, June 2010*
  - [1st IEEE International Conference in Games and Virtual Worlds for Serious Applications](#), , Coventry, UK, March 2009
  - [2nd IEEE International Conference in Games and Virtual Worlds for Serious Applications](#), Portugal, March 2010
  - *ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2009, Crete, Greece, Sept. 2009*
  - *ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2010, Germany, Los Angeles, USA, Sept. 2009*
  - *9th Annual International Workshop on Presence 2008, Italy, Oct. 2008*
  - *10th Annual International Workshop on Presence 2009, Los Angeles USA, Nov. 2009*
  - *12<sup>th</sup> International conference on Virtual Systems and Multimedia (VSMM) 2008, Cyprus, Oct.2008*
  - *13<sup>th</sup> International conference on Virtual Systems and Multimedia (VSMM) 2009, Austria, Sept.2009*
  - *ACM/IEEE conference on Multimodal Interfaces 2008, Crete, Oct. 2008*
  - *Workshop on Hypermedia 3D Internet, France, Oct. 2008*
- Conference - Program Organization (specify role)

- Program co-chair, *ACM Siggraph Symposium on Applied Perception in Graphics and Visualization 2010 (APGV 2010)*, Los Angeles, USA
- Conference co-chair of *ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation (APGV) 2009*, Sept. 2009, Crete, Greece
- Workshop and Special Sessions co-chair, *ACM/IEEE conference on Multimodal Interfaces 2008*, Oct. 2008, Crete, Greece
- Reviewing activities
  - Reviewer for *Presence, Tele-operators and Virtual Environments, IEEE Transactions on Visualisation and Computer Graphics, IEEE Multimedia, International journal of Human Computer Studies, Winter School of Computer Graphics conference and journal 2008 (WSCG 2008 – sponsored by Eurographics), ACM Siggraph ASIA 2008, Eurographics 2008 full papers program etc..*

## **F – Service to the Department and the School**

- Departmental responsibilities
  - Regular Member of the Undergraduate Studies committee of the Dept. of Electronic and Computer Engineering (ECE), 2008-2009
  - Regular member of the Graduate Studies committee of ECE, 2008-2009
  - Studies' advisor for the Dept. of ECE, 2008-2009
- School-level responsibilities

Substitute member of the Graduate Studies committee of the Technical University of Crete, 2007-2008

Substitute member of the Board of Regents (Siglitos) of the Technical University of Crete, 2008-2009

## **G – Advising**

- Active graduate students supervised
  - Graduate students (at the Technical University of Crete)
    - Aleksandros Zotos (Ph.D candidate, accepted for admission to PhD program, April 2008)
    - Aleksandros Zotos (M.Sc. candidate, year of enrollment Dec. 2007, to be completed October 2009)

- Giwrgos Papadakis (M.Sc. candidate, year of enrollment Dec. 2007)
- Giannis Christodoulou (M.Sc. candidate, year of enrollment Sept. 2008)
- Ph.D. students supervised (at the University of Sussex)
  - Fiona Rivera (Ph.D): Year of initial enrollment in Ph.D. program: 2005.
  - Maria Sifniotis (Ph.D): Year of initial enrollment in Ph.D program: 2003.
  - Andrew Robinson (Ph.D): Year of initial enrollment in Ph.D program: 2003 (continuation in 2008).
- Undergraduate students supervised (completed)
  - Meletis Stathis (completed, 7/10/2009): ‘Physics-based 3D Computer Gaming’.
- Undergraduate students supervised (in progress)
  - Nick Zervoudakis (to be completed November 2009): ‘3D Computer Gaming using a Rendering Engine’.
  - Isidoros Tsouris (to be completed November 2009): ‘3D Computer Gaming using a Game Engine’.

In many undergraduate 3-member project committees.





## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Euripides G.M. Petrakis

**Rank:** Associate Professor

**Years in rank:** 5+1/2

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory (<http://www.intelligence.tuc.gr>)

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

### A – Teaching

- Undergraduate courses taught
  - Multimedia Data Management (Fall 2008)
  - Data Structures and Algorithms (Autumn 2009)
  - Computer Vision (Fall 2008) with prof. Michalis Zervakis
- Graduate courses taught
  - Multimedia Data Management (Fall 2009)
- Labs taught
  - Multimedia Data Management (Fall 2008)
  - Data Structures and Algorithms (Autumn 2008)
  - Computer Vision (Fall 2008)

### B – Publications

- Publications in refereed journals
  - Submitted
    - E.G.M.Petrakis, E. Drymonas, K. Zervanou: “Exploiting MultiWord Similarity for Information Retrieval: the TSRM Approach”, July 2009, Knowledge and Information Systems Journal (KAIS) major revision submitted.

- N. Hourdakakis, M. Argyriou, E.G.M. Petrakis, E. Milios, "*Hierarchical Clustering and Retrieval in Medical Document Collections using the BIC-Means Method*", June 2009, Submitted to Journal of Digital Information Management (JDIM)
  - Accepted
    - Paraskevi Raftopoulou, **Euripides G.M. Petrakis**, Christos Tryfonopoulos, "*Rewiring Strategies for Semantic Overlay Networks*", Distributed and Parallel Databases (DAPD), 2009.
  - Published
    - Evdoxios Mparatis, Euripides G.M. Petrakis, Evangelos Milios, "*Automatic Web Site Summarization by Image Content: A Case Study with Logo and Trademark Images*", IEEE Transactions to Knowledge and Data Engineering (IEEE TKDE), Sept. 2008.
    - A. Hliaoutakis, K. Zervanou, E.G.M. Petrakis, "*The AMTEx Approach in the Medical Document Indexing and Retrieval Application*", March 2009, Data & Knowledge Engineering (DKE) Journal
    - S. Batsakis, E.G.M. Petrakis, E. Milios, "*Design and Evaluation of Focused Web Crawlers*", October 2009, Data & Knowledge Engineering (DKE) Journal
- Publications in refereed conferences
  - Submitted:
    - K. Stravoskoufos, E. Baratis, N. Papadakis, **E. G.M. Petrakis**, D.Plexousakis, "PROTON: A Prolog Reasoner for Temporal Ontologies in OWL", 7th IEEE Workshop on Context Modeling and Reasoning (CoMoRea), 2009.
    -
  - Accepted:
  - Published
    - Evdoxios Baratis, **Euripides G.M. Petrakis**, Sotiris Batsakis, Nikolaos Maris and Nikolaos Papadakis, "*TOQL: Temporal Ontology Querying Language*", 11<sup>th</sup> International Symposium on Spatial and Temporal Databases (SSTD 2009), July 8-10, 2009, Aalborg, Denmark.
    - Evdoxios Baratis, Nikolaos Maris, **Euripides G.M. Petrakis**, Sotiris Batsakis, and Nikolaos Papadakis, "*The TOQL system*", 11<sup>th</sup> International Symposium on Spatial and Temporal Databases (SSTD 2009), July 8-10, 2009, Aalborg, Denmark. Demo paper.
    - Paraskevi Raftopoulou, **Euripides G.M. Petrakis**, "*A Measure for Cluster Cohesion in Semantic Overlay Networks*", 6th Workshop on Large-Scale Distributed Systems for Information Retrieval (LSDS-IR'08), Napa Valley, California, October 26-30, 2008.
    - P. Raftopoulou, E. G.M. Petrakis, C. Tryfonopoulos and G. Weikum, "*Information Retrieval and Filtering over Self-Organising Digital Libraries* ", 12th European Conference on

Research and Advanced Technology for Digital Libraries (ECDL 2008), Aarhus, Denmark, September 14 to September 19, 2008.

- Books and edited book chapters
  - Submitted
    - Sotirios Batsakis, Euripides G.M. Petrakis, “*Integrated Ontologies for Spatial Scene Descriptions*”, Qualitative Spatio-Temporal Representation and Reasoning: Trends and Future Directions, IGI Global, Shyamanta M. Hazarika (Eds)
  - Accepted:
    - Euripides G.M. Petrakis, “*Intelligent Search for Text and Image Information on the Web*”, Cross-Modal Integration/Interaction for Performance Improving in ultimedia: State-of-the-Art Review, Petros Maragos (eds), Springer Verlag, 2009
- Patents

## C – Awards & Distinctions

## D – Funded Projects

- Current projects (completed projects are not included in this list, for a complete list of current and past projects please refer to <http://www.intelligence.tuc.gr/~petrakis/funding/funding.htm>):
  - Integrated Inspection System supported by Automated Motion Detection (2006 - 2008), Funding Agency: Greek Secretariat for Research and Technology, Participants: TUC, ANKO INC, ARMAOS INC, Principal Investigator for TUC: Euripides G.M. Petrakis. Total Budget 669,000 euros, TUC’s share: 150,000 euros.
  - TOWL (Project No 026896): Time-determined ontology based information system for real time stock (2006 - 2008), Funding Agency: IST-STREP FP6, Participants: Technical University of Crete (TUC), Zoorobotics B.V., Erasmus Universiteit Rotterdam, Politecnico di Bari, Akademia Ekonomiczna W Poznaniu, S.I.I Semantic Internet Inovatoin SPA, Citigroup Global Markets Limited. **Project Coordinator & Principal Investigator for TUC: Euripides G.M. Petrakis**. Total Budget 1,375,000 euros, TUC’s share: 275,000 euros
  - “*RT3S: Real Time Simulation for Safer Vascular Stenting*” (2010 - 2013), **Co-Principal Investigator for TUC: Euripides Petrakis** **Funding Agency: FP7-ICT-STREP**, Total Budget: 2,745,300 euros, TUCs share: 376,000 euros

- Basic research fund, Special Research Committee, TUC. **“SOWL: Spatio-Temporal OWL for Reasoning and Querying over the Semantic Web”** (2009-2011), Budget 15.000.
- Project proposals submitted:
  - In addition to the above, several (> 5 ) new project proposals have also been submitted in EU-FP7 (calls 3, 4, 5)

## E – Professional service

- Associate Editor duties
  -
- Society Technical Committee duties
  -
- Conference Technical Program Committee service
  - Program committee member of *International Symposium on Visual Computing (ISVC08)* 2008, USA (<http://www.isvc.net/>)
  - Program committee member of *International Symposium on Visual Computing (ISVC09)*, 2009, USA (<http://www.isvc.net/>)
  - *International Conference on Image Analysis and Recognition (ICIAR)* 2008, Halifax, Canada.
  - *International Conference on Image Analysis and Recognition (ICIAR)* 2009, Porto, Portugal
- Reviewing activities
  - Reviewer for *IEEE Trans. on Knowledge and Data Engineering (IEEE TKDE)*, *IEEE Trans. On Pattern Analysis and Machine Intelligence (IEEE PAMI)*, *ACM Trans. On Information Systems (ACM TOIS)*, *Image and Vision Computing* and in many Conferences in the areas of Multimedia and Information Systems, Computer Vision.

## F – Service to the Department and the School

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

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised

- Kalliope Zervanou, Post.Doct (PhD Univ. of Manchester, UK), Natural Language Processing, Text processing, Information Extraction.
- Paraskevi Raftopoulou, P2P systems.
- Sotiris Batsakis, Semantic Web.
- Angelos Hliaoutakis, Medical Information Systems
- Efthimios Drymonas, Ontology Construction from Text.
- Evi Mavrogiannaki, Ontologies in medicine.
- Kostas Strvoskoufos, Spatio-Temporal Ontology Languages.
- PhD. And M.Sc. degrees awarded
  - Efthimios Drymonas: Ontology learning from text based on multi-word term concepts: The OntoGain method.
- Undergraduate students supervised
  - Michalis Argyriou, Dynamic Clustering
  - Pyrros Koletis, Image Ontologies
  - Nikos Maris, Ontology Reasoning.
- Diploma theses in progress (supervisor)
  - Nikos Sepetas, Σύστημα Διαχείρισης Χρονικών Οντολογιών
  - Leonida Partsas, Επέκταση Protege για την διαχείριση χρονικών οντολογιών
- Diploma theses completed (supervisor)
  - Michalis Argyriou, Dynamic Clustering
  - Pyrros Koletis, Image Ontologies
  - Nikos Maris, Ontology Reasoning.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: Sept 1 2008 to Aug 31 2009*

**Name:** Vasilis Samoladas

**Rank:** Assistant Professor

**Years in rank:** 5

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

**Division:** Informatics

**Lab affiliation:** Software technology and network applications (softlab)

### A – Teaching

- Undergraduate courses taught
  - ΠΛΗ-301 Λειτουργικά συστήματα
  - ΠΛΗ-202 Εργαλεία ανάπτυξης λογισμικού και προγραμματισμός συστημάτων
  - ΠΛΗ-416 Επεξεργασία πολυδιάστατων δεδομένων
- Graduate courses taught
  - ΠΛΗ-416 Επεξεργασία πολυδιάστατων δεδομένων
  -

#### Labs taught

ΠΛΗ-301 Λειτουργικά Συστήματα

ΠΛΗ-202 Εργαλεία ανάπτυξης λογισμικού και προγραμματισμός συστημάτων

#### Curriculum & course development

New courses / labs developed

Lecture notes / slides developed

Εργασία για το μάθημα Εργαλεία Ανάπτυξης Λογισμικού και Προγραμματισμός Συστημάτων

Διαφάνειες για το μάθημα “Επεξεργασία Πολυδιάστατων Δεδομένων”

Authored textbooks

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

## **B – Publications**

- Publications in refereed journals
- Publications in refereed conferences
  - Submitted
    - Strevinas, D., **Samoladas, V.**, Manakos I., A spatially-enabled wiki utilizing WebGIS technologies, in *EARSeL 2009*.
  - Accepted
    - Strevinas, D., **Samoladas, V.**, Manakos I., A spatially-enabled wiki utilizing WebGIS technologies, *29<sup>th</sup> EARSeL Symp.*, 2009.
  - Published

## **C – Awards & Distinctions**

## **D – Funded Projects**

## **E – Professional service**

- Conference Technical Program Committee service
  - *ESWC (European Semantic Web Conf.) 2009*
  - *SDM (SIAM Intl Conf on Data Mining) 2009*
- Conference Organization (specify role)
- Reviewing activities
  - *Trans. on Knowledge and Data Eng. (TKDE)*
  - *Future Generation Computing Systems (FGCS)*
- Participation in National Committees (e.g., ΕΔΕΤ)
  - Επιστημονική επιτροπή Μ/Κ Εταιρίας ΕΛ/ΛΑΚ (υπο τον ΕΔΕΤ)

## **F – Service to the Department and the School**

- School-level responsibilities
  - Institute
    1. Επιτροπή Μηχανογραφικού
  - Other

- Ιδρυματικός εκπρόσωπος: Μ/Κ Εταιρεία ΕΛ/ΛΑΚ (Ελεύθερου Λογισμικού/Λογισμικού Ανοιχτού Κώδικα) (υπο τον ΕΔΕΤ).
- Ιδρυματικός Επιστημονικός Υπεύθυνος για τον Υπολογιστή Πλέγματος

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    1. George Hatzisymeon (PhD), 5<sup>th</sup> year
    2. Stergios Charalambakis (MSc), 4<sup>rd</sup> year
    3. Μιχάλης Αργυρίου
  - Ph.D. And M.Sc. degrees awarded
    1. Yiannis Botsis (MSc)
  - Ph.D. And M.Sc. degrees awarded (committee member)
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    1. Ασήμογλου Κατερίνα
    2. Βλάχου Γεωργία
  - Diploma theses completed (supervisor)
    1. Κώστας Κατάκης
    2. Δημήτρης Στρεβίνας
    3. Διονύσης Χατζημαρκάκης
    4. Πάνος Αϊναλής
  - Diploma theses in progress (committee member)
  - Diploma theses completed (committee member)





## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Stavros Christodoulakis*

**Rank:** Professor

**Years in rank:** 20

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

**Division:** Informatics

**Lab affiliation:** MUSIC Laboratory

### A – Teaching

- Undergraduate courses taught
  - Data Bases
  - Web Applications
  - Information and Service Integration
- Graduate courses taught
  - Web Applications
  - Information and Service Integration
- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed
  - Authored textbooks

### B – Publications

- Publications in refereed journals

**Accepted (in addition to Published)**

- **Christodoulakis, S.**, Foukarakis, M., Ragia, L., Uchiyama, H., Imai, T.: Mobile Picture Capturing for Semantic Pictorial Database Context Access, Browsing and Interaction., *IEEE Multimedia*, 2010, to appear.

## Published

- Christodoulakis, S., Foukarakis, M., Ragia, L., .Personalized Spatial Knowledge Management for Pictures using Ontologies and Semantic Maps., International Journal of Digital Culture and Electronic Tourism, 2009.

## ○ Conference Publications

### Published

- Bikakis, N., Gioldasis, N., Tsinaraki, C., **Christodoulakis, S.**:Querying XML Data with SPARQL., *Proceedings DEXA 2009*.
- **Christodoulakis, S.**, Foukarakis, M., Ragia, L., Uchiyama, H., Imai, T.:Semantic Maps and Mobile Context Capturing for Picture Content Visualization and Management of Picture Databases, *Proceedings ACM Mobile Ubiquitous Multimedia (MUM)*, 2009.
- Makris, K., Gioldasis, N., Tsinaraki, C., Bikakis, N., **Christodoulakis, S.**:Towards a Mediator Based on SPARQL., *Proceedings Second WSKS, 2009.Multimedia (MUM)*, Finland, 2009.
- Ragia, L., **Christodoulakis, S.**: .A Model for Mobile Multimedia Capturing., *Proceedings Second WSKS*, 2009.
- Bikakis N., Gioldasis N., Tsinaraki C., **Christodoulakis S.** Semantic Based Access over XML Data. *In the Proceedings of the 2nd World Summit on the Knowledge Society*, Crete, Greece 2009
- Moumoutzis, N., Christoulakis, M., Arapi, P., Mylonakis, M., **Christodoulakis, S.**: The IQTOOL Project: Developing a Quality Assurance Tool for e-learning, *Proceedings of LOGOS Open Conference*, Budapest, 2009.

## • Books and edited book chapters

- Tsinaraki and Christodoulakis: Domain Knowledge Representation in Semantic MPEG-7 Descriptions, in *The Handbook of MPEG applications*, John Wiley and Sons (to appear).

## **C – Awards & Distinctions**

- The ACM MUM paper was selected among the best papers of the conference to be submitted to a Special Issue in IEEE Multimedia.

## **D – Funded Projects**

### ***Current projects:***

- IQTOOL: Innovative eLearning Tool for Quality Training Material in VET, EU.
- pSkills: Programming Skills Development in Secondary Education by means of Modern Educational Programming Languages, EU.
- Organic.MedNet: Developing the Skills of Organic Agriculture Trainers for the Mediterranean, EU.
- NaturalEurope: Natural History & Environmental Cultural Heritage in European Digital Libraries for Education, EU.

## **E – Professional service**

- Conference Steering Board:
  - ECDL,
- Conference Technical Program Committee service:
  - ECDL

## **F – Service to the Department and the School**

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

## **G – Advising**

- Active graduate students supervised

- Ph.D. and M.Sc. students supervised
  - Giorgos Kotopoulos (MSc)
  - Yannis Kotopoulos(MSc)
  - Xenia Arapi (MSc)
  - Andreas Pitsiladis (MSc)
  - Manolis Mylonakis (MSc)
  - Marios Christoulakis (MSc)
  - Giorgos Stylianakis (MSc)
  
- MSc. degree awarded
  - Michalis Foukarakis
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Papachristoudis
    - Panteli
    - Makris
    - Georgakaki
    - Skevakis
    - Stavrakantonakis
  
  - Diploma theses completed (supervisor)
    - Mpikakis

## **Systems Division**

### **Faculty members**

- Christodoulou Manolis
- Stavroulakis Petros



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Manolis A. Christodoulou

**Rank:** Professor

**Years in rank:** 17

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

**Division:** Systems

**Lab affiliation:** Automation

### A – Teaching

- Undergraduate courses taught
  - Neural Networks
  - Linear Systems
- Graduate courses taught
  - Advanced Topics in Linear Systems
  - Special Topics in Control (Non-linear Adaptive Control)
- Labs taught
  - Neural networks
  - Linear Systems
- Curriculum & course development
  - New labs in Neural Networks
  - Electronic web slides developed for Linear Systems

### B – Publications

- Publications in refereed journals

Published

- **M.A.Christodoulou** and C. Kontogeorgou, Collision Avoidance in Commercial Aircraft Free Flight via Neural Networks and Non-Linear Programming", *International Journal of Neural Systems*, vol.18, No. 5, pp. 371-387, 2008.
- Y.S.Boutalis, D.C.Theodoridis and **M.A.Christodoulou**, A new Neuro FDSDeñition for Indirect Adaptive Control of Unknown Nonlinear Systems using a method of Parameter Hopping", *IEEE Transactions on Neural Networks*, vol.20, No. 4, pp. 609-625, 2009.
- D.C.Theodoridis, Y.S.Boutalis, and **M.A.Christodoulou**, Direct Adaptive Control of Unknown Nonlinear Systems using a new Neuro-Fuzzy Method To gether with a Novel Approach of Parameter Hopping", *Kybernetika*, vol.45, No. 3, pp. 349-386, 2009. (62)
- Y.S.Boutalis, T.L.Kottas and **M.A.Christodoulou**, Adaptive Estimation ofFuzzy Cognitive with Proven Stability and Parameter Convergence", *IEEE Transactions of Fuzzy Systems*, vol.17, No. 4, pp. 874-889, 2009.

- Publications in refereed conferences

Published

- Y.S.Boutalis, **M.A.Christodoulou** and D.C.Theodoridis A new Neuro-Fuzzy intelligent method for indirect adaptive control of nonlinear systems via a novel approach of parameter hopping", *Joint 4th International Conference on Soft Computing and Intelligent Systems and 9th International Symposium on Advanced Intelligent Systems*, pp. 918-923, September 17-21, 2008, Nagoya University, Nagoya, JAPAN.
- **M.A.Christodoulou** and Y.S.Boutalis\New Trends in Neuro-Fuzzy adaptive control systems", *Symposium in Systems and Control to Honor the Distinguished Career of Prof. William A. Wolovich, following 47th IEEE CDC*, pp. 1-16, December 7, 2008, Cancun, MEXICO.
- Y.S.Boutalis, T.L.Kottas and **M.A.Christodoulou** On the Existence and Uniqueness of Solutions for the Concept Values in Fuzzy Cognitive Maps", *Proceedings of the 47th IEEE Conference on Decision and Control*, pp. 98-104, Cancun, MEXICO, Dec. 9-11, 2008.
- **M.A.Christodoulou** Robotics: Round Table discussion on Technologies in the Surgical Theater; the Engineering Approach", *9th Panhellenic Conference on Laparoscopic Surgery*, pp. 33, Athens, Greece, May. 21-23, 2009.
- **M.A.Christodoulou** "Intelligent Systems and Control", *Uncertainty and complexity: From Earth to Heaven In honor of Professor Francesco Donati*, Torino, ITALY, May 29, 2009.
- **M.A.Christodoulou**, D.C.Theodoridis and Y.S.Boutalis,Neuro-Fuzzy Non-linear Dynamical System Approximations using High Order Neural Networks", *Proceedings of the 2nd CHAOS 2009, Chaotic Modeling and*

*Simulation International Conference*, paper SCS3.2, Chania, Crete, Greece, June 1-5, 2009.

- **M.A.Christodoulou**, D.C.Theodoridis and Y.S.Boutalis, "Weight Tracking in Nonlinear System Identification via Fuzzy High Order Neural Network Function Approximation", *Proceedings of the 2nd CHAOS 2009, Chaotic Modeling and Simulation International Conference*, paper SCS3.3, Chania, Crete, Greece, June 1-5, 2009.
- D.C.Theodoridis, Y.S.Boutalis and **M.A.Christodoulou**, "Direct Adaptive Control in Unknown Nonlinear Systems that exhibit Brunovski Canonical Form, using Neuro-Fuzzy High Order Neural Networks, with Robustness Analysis", *Proceedings of the 2nd CHAOS 2009, Chaotic Modeling and Simulation International Conference*, paper SCS4.4, Chania, Crete, Greece, June 1-5, 2009.
- D.C.Theodoridis, **M.A.Christodoulou** and Y.S.Boutalis "Direct Adaptive Control of Unknown Multi-variable Nonlinear Systems with Robustness Analysis using a new Neuro-Fuzzy Representation and a Novel Approach of Parameter Hopping", *Proceedings of the 17th Mediterranean Conference on Control & Automation Makedonia Palace*, , pp. 558-563, Thessaloniki, Greece, June 24 - 26, 2009.
- T.L.Kottas, Y.S.Boutalis and **M.A.Christodoulou** "Fuzzy Cognitive Networks: Conditions for Existence and Uniqueness of Equilibria and Adaptive Network Estimation", *Proceedings of the Conference in Honor of G. Vachtsevanos 70<sup>th</sup> Birthday*, Lemnos, Greece, June 28, 2009.
- **M.A.Christodoulou**, Y.S.Boutalis and T.L.Kottas "Adaptive Estimation of Fuzzy Cognitive Maps with Proven Stability and Parameter Convergence", *Proceedings of the SIAM Conference on Control and its Applications*, p. CP3.C, Denver, Colorado, USA, July 6-8, 2009.
- **M.A.Christodoulou**, Y.S.Boutalis and D.C.Theodoridis, "Indirect Adaptive Control of unknown MIMO Nonlinear Systems using a new Neuro-Fuzzy Representation", *Proceedings of the SIAM Conference on Control and its Applications*, p. CP12.A, Denver, Colorado, USA, July 6-8, 2009.
- Y.S.Boutalis, **M.A.Christodoulou** and D.C.Theodoridis, "A new Neuro-Fuzzy Method for Direct Adaptive Control of Unknown Nonlinear Systems with Robustness Analysis", *Proceedings of the European Control Conference*, pp. 934-939, Budapest, Hungary, August 23-26, 2009.
- D.C.Theodoridis, Y.S.Boutalis and **M.A.Christodoulou**, "A new Neuro-Fuzzy Dynamical System Definition based on High-Order Neural Network Function Approximators", *Proceedings of the European Control Conference*, pp. 3305-3310, Budapest, Hungary, August 23-26, 2009.
- D.C.Theodoridis, Y.S.Boutalis and **M.A.Christodoulou**, "Direct Adaptive Regulation and Robustness Analysis for Systems in Brunovsky Canonical form using a new Neuro-Fuzzy Method", *Proceedings of the European Control Conference*, pp. 3317-3322, Budapest, Hungary, August 23-26, 2009.



- Books and edited book chapters  
T.L Kottas, Y.S. Boutalis and M.A.Christodoulou, \Adaptive Estimation of Fuzzy Cognitive Networks and Applications", Kimon P. Valavanis Editor, Springer, pp. 329-363, 2009.

## **C – Awards & Distinctions**

## **D – Funded Projects**

## **E – Professional service**

- Mediterranean Control Association, Member of the Board of Governors
- Associate Editor, *16th IEEE Mediterranean Conference on Control and Automation*, Corsica, France, June 25-27, 2008.
- International Program Committee, Member
- International program committee member, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Chairman, Plenary Talk: Tony Vardoulakis, Linear Multivariable Control Methods & Philosophy, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Chairman, Plenary Talk: Jie Huang, Nonlinear Regulation Control, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Invited Session Organizer, New Trends in Neuro-Fuzzy Adaptive Control II, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Chairman, New Trends in Neuro-Fuzzy Adaptive Control II, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Invited Session Organizer, New Trends in Neuro-Fuzzy Adaptive Control I, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009.
- Chairman, New Trends in Neuro-Fuzzy Adaptive Control I, 17th MED Conference on Control and Automation" Makedonia Palace, Thessaloniki, Greece, June 24-26, 2009

- Chairman, Nonlinear Systems Session, CHAOS 2009 2nd Chaotic Modeling and Simulation International Conference" Chania, Greece, June 1-5, 2009.
- Chairman, Neural Networks Session, CHAOS 2009 2nd Chaotic Modeling and Simulation International Conference" Chania, Greece, June 1-5, 2009
- International program committee member, CHAOS 2009 2nd Chaotic Modeling and Simulation International Conference" Chania, Greece, June 1-5, 2009.
- Associate Editor 17th IEEE Mediterranean Conference on Control and Automation" Thessaloniki, Greece, June 24-26, 2009.
- International Program Committee, Member 17th IEEE Mediterranean Conference on Control and Automation" Thessaloniki, Greece, June 24-26, 2009.
- Associate Editor 16th IEEE Mediterranean Conference on Control and Automation" Corsica, France, June 25-27, 2008.
- International Program Committee, Member 16th IEEE Mediterranean Conference on Control and Automation" Corsica, France, June 25-27, 2008. *IEEE Mediterranean Conference on Control and Automation*, Corsica, France, June 25-27, 2008.
- Chairman, Keynote Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- Chairman, Self-organisation/control Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- Chairman, Neural Networks Session, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*, Chania, Greece, June 2-6, 2008.
- International program committee member, *CHAOS 2008 Chaotic Modeling and Simulation International Conference*', Chania, Greece, June 2-6, 2008.
  - Reviewer for various *IEEE Transactions and IEEE Conferences*.

## **F – Service to the Department and the School**

## **G – Advising**

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



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Peter Stavroulakis*

**Rank:** Professor

**Years in rank:** 19

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

**Division:** Systems

**Lab affiliation:** Automation

### A – Teaching (Προπτυχιακά)

- Θεωρία και εφαρμογές αυτομάτου ελέγχου
- Βέλτιστος έλεγχος
- Νευρωνικά Δίκτυα (μεταπτυχιακό)

### B – Publications

Books published

“Handbook in Communication and information security” to be published by Springer.

### C – Awards & Distinctions

### D – Funded Projects

## **E – Professional service**

- Associate Editor duties
  - International Journal on Communication and information Security,*  
*published by John Wiley*
  - China Communications Journal*
  - International Satellite Systems and Networking*
- Society Technical Committee duties
  - Founding Member of the *IEEE Technical Committee on communication and information Security*
- Conference Organization (specify role)
  - *Symposium Chairman on Communication and Information security for CHINACOM/ August 2009 conference sponsored by IEEE*
- Reviewing activities
  - Reviewer of *IEEE* (3 papers)
  - *Electronic Letters* (5 papers)
  - *International Journal of Communication Systems* (5 papers)
  - *Communications Journal for the old IEE now IET* (3 papers)
  - *CHINA COMMUNICATIONS JOURNAL* (20 papers)

## **F – Service to the Department and the School**

## **G – Advising**

Undergraduate thesis

- Leonidas Kagkarakis Application of Neural Networks in Optimization problems for Lyapunov based Stability, June 2009.

## **Electronics and Computer Architecture Division**

### **Faculty members**

- Balas Costas, Associate Professor
- Bucher Matthias, Assistant Professor
- Dollas Apostolos, Professor
- Kalaitzakis Kostas, Professor
- Papaefstathiou Ioannis, Assistant Professor
- Pnevmatikatos Dionisios, Associate Professor
- Stavrakakis Georgios, Professor



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Costas Balas

**Rank:** Associate Professor

**Years in rank:** 7.5

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

**Division:** Electronics and Computer Architecture Division

**Lab affiliation:** Electronics Laboratory

### A – Teaching

Undergraduate courses taught

Electronics I

Optoelectronics

Graduate courses taught

Optoelectronics

Special Topics on Optoelectronic Biomedical Technology

- Labs taught
  - Electronics I
  - Optoelectronics
- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed
  - Authored textbooks

## B – Publications

Publications in refereed journals

Submitted: those published/appeared (see below)

Accepted:

Published:

**Costas Balas** “[Review of biomedical optical imaging—a powerful, non-invasive, non-ionizing technology for improving in vivo diagnosis](#)” Meas. Sci. Technol. IoP, **20** 104020, 2009.

William P. Soutter, Emmanuel Diakomanolis, Deirdre Lyons, Sadaf Ghaem-Maghani, Tosin Ajala, Dimitrios Haidopoulos, Dimitrios Doumplis, Costas Kalpaktsoglou, Gerasimos Sakellaropoulos, Suzan Soliman, Karen Perryman, Vicky Hird, C. Hilary Buckley, Kitty Pavlakis, Sofia Markaki, Roberto Dina, Vourneen Healy and **Costas Balas**, “*Dynamic Spectral Imaging: Improving Colposcopy*,” CLINICAL CANCER RESEARCH, 15 (5): 1814-1820 MAR 1 2009.

A. Tsapras, J. Chatzakis, **C. Balas** and K. Kalaitzakis “A New Equalization Scheme for Series Connected Battery Cells”, EPE Journal, in press

Publications in refereed conferences

Submitted: those published/appeared (see below)

Accepted:

Published:

**Costas Balas**, G. Papoutsoglou, C. Loukas, Y. Skiadas, C. Pappas, D. Haidopoulos, E. Diakomanolis, W.P. Soutter “*In vivo* assessment of microstructural and functional alterations in cervical neoplasia” ECBO-OSA, Munich, 2009

**Costas Balas**, “Novel Optical Imaging Technologies for in vivo Diagnosis and Screening,” *IEEE International Workshop on Imaging Systems and Techniques (IST 2008)*, September 10-11, Chania, Island of Crete, Greece, 2008

- Books and edited book chapters

**Costas Balas**, “Multi/Hyper-Spectral Imaging” in *Handbook of Biomedical Optics*, Taylor&Francis Books, Inc, USA, *submitted*

- Patents

## **C – Awards & Distinctions**

- Invited Plenary Lectures
  - IEEE International Workshop on Imaging Systems and Techniques (IST 2008)
  - “Molecular colposcopy” *Regional IALMS conference Photomedicine 2009: diagnosis and treatment*, 2nd BALM Congress, Vilnius.

## **D – Funded Projects**

Project proposals submitted:

“In vivo Molecular Imaging of Epithelial Pre-Cancers based on Dynamic Optical Scattering Modeling” Heraklitos, GSRT, #17/26/6

## **E – Professional service**

Conference Organization

International advisory committee member Regional IALMS conference Photomedicine 2009: diagnosis and treatment“ *2nd BALM Congress*, Vilnius.

Reviewing activities

*Journal of Biomedical optics*

## **F – Service to the Department and the School**

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

Tsapras Athanasios (PhD)

Papoutsoglou George (PhD)

Georgiou Nikos (MSc)

Epitropou George (MSc)

Kavadias Vasilis (MSc)

PhD. And M.Sc. degrees awarded

Undergraduate students supervised

Diploma theses in progress (supervisor)

Anastasopoulou Antigoni

Galaras Costas

Makridou Georgia

Aronis Spiros

Diploma theses completed (supervisor)



Laga Peggy  
Kontouli Agelika  
Sgouros Antonis  
Kavadias Basilis  
Epitropou Georgios



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Matthias Bucher*

**Rank:** Assistant Professor (tenure)

**Years in rank:** 5+1/2

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Electronics Laboratory

### A – Teaching

- Undergraduate courses taught
  - ECE 503 – Design of CMOS Analog Integrated Circuits (Fall 2008)
  - ECE 311 – Electronics II (Spring 2009)
- Graduate courses taught
  - ECE 604 – Special Themes of Analog Integrated Circuit Design (Fall 2008)
- Labs taught
  - ECE 503 – Design of CMOS Analog Integrated Circuits (Fall 2008)
  - ECE 311 – Electronics II (Spring 2009)
- Curriculum & course development
  - Lecture notes/slides developed, ECE 311 – Electronics II, ECE 503 – Design of CMOS Analog Integrated Circuits, ECE 604 – Special Themes of Analog Integrated Circuit Design

## B – Publications

- Publications in refereed journals
  - Submitted:
    - **M. Bucher**, M. A. Chalkiadaki, A. Bazigos, “The EKV3 MOS Transistor Model for RF Circuit Simulation“, submitted, *Int. J. on Numerical Modelling*.
    - **M. Bucher**, “Moderate Inversion in MOSFETs – Characterization, Modelling and Design”, submitted, *J. of Telecommunications and Information Technology (JTIT)*.
    - M.-A. Chalkiadaki, **M. Bucher**, “Large-signal RF modelling of MOSFETs with the EKV3 MOSFET model”, submitted, *J. of Telecommunications and Information Technology (JTIT)*.
  - Accepted-Published:
    - P. Martin, M. Cavelier, R. Fascio, G. Ghibaudo, **M. Bucher**, “EKV3 Compact Modeling of MOS Transistors from a 0.18  $\mu\text{m}$  CMOS Technology for Mixed Analog-Digital Circuit Design at Low Temperature”, *Cryogenics*, 2009 (DOI: 10.1016/j.cryogenics.2008.12.005).
  - Published:
    - A. Bazigos, **M. Bucher**, P. Sakalas, M. Schroter, W. Kraus, „High-frequency Compact Modelling of Si-RF CMOS“, *Phys. Status Solidi (c), Current Topics in Solid State Physics*, Vol. 5, N° 12, pp. 3681-3685, December 2008 (DOI: 10.1002/pssc.200780121).
- Publications in refereed conferences
  - **M. Bucher**, M. A. Chalkiadaki, A. Bazigos, “The EKV3 MOS Transistor Model for RF Circuit Simulation“ (Invited Plenary Talk), *16<sup>th</sup> Int. Conf. Mixed Design of Integrated Circuits and Systems (MIXDES 2009)*, Lodz, Poland, 25-27 June 2009.
- International Workshop Presentations:
  - **M. Bucher**, “Moderate Inversion in MOSFETs – Characterization, Modelling and Design” (Invited), *Diagnostics & Yield Symposium*, Warsaw, Poland, 22-24 June 2009.
  - M.-A. Chalkiadaki, **M. Bucher**, “Large-signal RF modelling of MOSFETs with the EKV3 MOSFET model”, *Diagnostics & Yield Symposium*, Warsaw, Poland, 22-24 June 2009.
  - P. Martin, G. Ghibaudo and **M. Bucher**, “Low-Frequency Noise Modeling at Low Temperature with the EKV3 Compact Model”, *MOS-AK Workshop on Compact Modeling, IHP*, Frankfurt/Oder, April 2-3, 2009.

- **M. Bucher**, A. Bazigos, M.-A. Chalkiadaki, “Aspects of High-Frequency Modelling with EKV3”, *MOS-AK Workshop on Compact Modelling, European Solid-State Device Research/Circuits Conference (ESSDERC-ESSCIRC)*, Edinburgh, 16-19 September, 2008.
- P. Martin, R. Fascio, G. Ghibaudo and **M. Bucher**, “Evaluation of the EKV3 Compact Model for Low Temperature Analog Circuit Simulation”, *MOS-AK Workshop on Compact Modelling, European Solid-State Device Research/Circuits Conference (ESSDERC-ESSCIRC)*, Edinburgh, 16-19 September, 2008.

## C – Awards & Distinctions

## D – Funded Projects

- Current projects:
  - NexGenMilliWave, Next Generation Millimeter Wave Backhaul Radio, Corallia Hellenic Technology Cluster Initiative in Microelectronics, Phase 2, National Strategic Reference Framework (ΕΣΠΑ 2007-2013), Duration: 2009 – 2012.
  - MEMSENSE, MEMS Based Wireless Sensor Networks, Corallia Hellenic Technology Cluster Initiative in Microelectronics, Phase 2, National Strategic Reference Framework (ΕΣΠΑ 2007-2013), Duration: 2009 – 2012.
  - COMpact MOdelling Network (COMON), FP7-PEOPLE-2007-3-1-IAPP, Grant Nr. 218255, Marie Curie Industry Academia Partnership & Pathways, Total Funding 1.921.436 €, PI: M. Bucher, PI's budget 140.231 €. Duration: Dec. 2008 – Nov. 2012.
  - Power Amplifiers for Wireless Metropolitan Area Networks based on Protocol 802.16, PENED03 - 354, General Secretariat for Research and Technology, Greece. Budget 160.000 €. Duration: Jan. 2006 – June 2009.

Project proposals submitted:

FP7-ICT-2009-4 “PRAGMENT”, ICT-2009.3.2: Design of Semiconductor Components and Electronic-based Miniaturized Systems.

Heraklitos II, Nanoscale RF CMOS Transceiver Design, Greek Ministry of Education.

Archimedes III, Organic Electronic Devices for Radiation Detectors, Greek Ministry of Education.

- Development of Electronics Laboratory infrastructure:

- Dynamic Signal Analyzer (HP 35670A).
- Modular Source/Monitor Unit (HP 4142B).
- Arbitrary Waveform/Function Generator, 50 MHz (Keithley 3390).
- Active probe for oscilloscope, 1.5 GHz (Agilent 1156A).
- Digital multimeter, 5½ digit (Agilent 33405A).
- Triple output power supply (Agilent E3630A).
- Test fixture (Agilent 16047A) for LCR meter.
- Cable kit (Cascade Microtech) for LCR meter.
- Micropositioners (Cascade Microtech DCM 210, EZ).

## **E – Professional service**

- Conference Technical Programme Committee service
  - *TPC member, IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems (DDECS) 2009.*
- Conference Organization
  - *Workshop & Tutorials Chairman, European Solid-State Circuits Conference (ESSCIRC 2009), Athens, September 14-18, 2009.*
- Reviewing activities
  - *IEEE Trans. on Electron Devices*
  - *IEEE Trans. on Computer Aided Design of Integrated Circuits and Systems*
  - *Solid-State Electronics*

## **F – Service to the Department and the School**

- Departmental responsibilities
  - Director, Electronics Laboratory.
  - Deputy Member, Committees for undergraduate and graduate Studies.
  - Member, Examinatory committee for admission of undergraduate students.
  - Organized & accompanied 3<sup>rd</sup> and 4<sup>th</sup> year students' educational excursion (June 8-13, 2009, 70 participants).

## G – Advising

- Graduate students supervised
  - DRT (diplome de recherche technologique) degree awarded (member of the examinatory committee):
    - Raphael Fascio, Modele EKV3 du transistor MOS appliqué a la conception de circuits integres fonctionnant a basse temperature avec une filiere CMOS 0.18um, Institut National Polytechnique de Grenoble, March 27, 2009.
  - Ph.D. students supervised (supervisor):
    - Angelos Antonopoulos, Design of nanoscale RF CMOS transceivers, Enrollment: June 2008.
    - George Rozakis, Non-linearity analysis in CMOS power amplifiers, Enrollment: Oct 2008.
  - M.Sc. students supervised (supervisor):
    - Nikos Makris, Design of RF CMOS voltage controlled oscillators (VCOs), Enrollment 2006.
    - Nikos Mavredakis, Design of RF CMOS low noise amplifiers (LNAs), Enrollment 2006.
    - Maria-Anna Chalkiadaki, Design of RF CMOS power amplifier (PA), Enrollment: Oct. 2008.
- Undergraduate students supervised
  - Diploma theses completed (supervisor):
    - Michael Karefylakis, Compact modelling of high-voltage MOSFETs, Aug. 2009.
    - Maria-Anna Chalkiadaki, Small- and large-signal modeling of MOSFETs at high frequencies, Oct. 2008.
    - Marios Katsis, Characterization and modeling of advanced CMOS technology, Oct. 2008.
    - Alexandros Kyriakos, Development of a Java and Matlab based CAD tool for the EKV3 MOSFET model, Sept. 2008.
  - Diploma students (supervisor):
    - Athanasios Dimakos, Low voltage analog design techniques.
    - George Diles, Study of transconductance in advanced CMOS technology.
    - George Smaragdos, Design of integrated filters based on current-mode OPAMPs.
    - Prodromos Prodromou, Development of a MOSFET benchmarking tool in Cadence.

- George Volanis, Design of a low-voltage Sigma-Delta Analog-to-Digital Converter.
  - Apostolos Tsivitis, Study of 1/f noise in MOS transistors.
  - Tasos Grammatikos, CMOS varactor modeling.
  - Vassilis Mylonakis, Design of CMOS variable gain amplifier (VGA).
  - Theodora Tsironikou, Automated parameter extraction system for EKV model.
  - Konstantinos Kangarakis, tbd.
- Diploma theses completed (committee member):
- Angeliki Kontouli, In depth imaging of highly scattering skin tissues, July 2009.
  - Peggy Lagga, Spectral imaging and classification algorithms of reflection spectra for the detection and mapping of tooth caries, May 2009.
  - Stavros Zampelis, Design and economic evaluation of a hybrid photovoltaic-windgeneration based desalination system, Oct. 2008.
  - Eleftheria Leventaki, Control of maximization of the efficiency of a hybrid photovoltaic – fuel cell system connected to power grid, Sept. 2008.



## Annual Activity Report

*For the period: September 1, 2008, to August 31, 2009*

**Name:** Apostolos Dollas

**Rank:** Professor

**Years in rank:** 8

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

**Division:** Electronics and Computer Architecture (HRY)

**Lab affiliation:** Microprocessor and Hardware Laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 501 - VLSI and ASIC Design (elective, formerly mandatory)
  - HRY 211 - Advanced Logic Design (mandatory)
- Graduate courses taught
  - HRY 631 – Special Topics on Reconfigurable Computing
- Labs taught
  - Supervised the labs of HRY 501 (VLSI and ASIC Design) which I had completely re-written during the previous academic year on a different platform than the one previously used.
  - Completely rewrote the laboratory exercises of HRY 211 (Advanced Logic Design), introducing mandatory hands-on lab exercises with Xilinx Spartan FPGA's. Supervised the new labs of HRY 211
- Curriculum & course development
  - Lecture notes / slides developed: Developed new HRY 211 (Advanced Logic Design) class notes which were distributed in preliminary form through the web-based e-learning environment Webcourses

### B – Publications



- Publications in refereed journals
  - Submitted
    - G. Chrysos, **A. Dollas**, N. Bourbakis, A Low-Cost Embedded Software-Reconfigurable Color Segmentation Architecture for Real-Time Processing Systems, submitted to the *IEEE Trans. On Circuits and Systems for Video Technology* (submitted, July, 2009).
    -
  - Accepted
    - K. Papadimitriou, A. Anyfantis, **A. Dollas**, An Effective Framework to Evaluate Dynamic Partial Reconfiguration in FPGA Systems, *IEEE Transactions on Instrumentation and Measurement* (accepted in November 2008, to appear).
  - Published
- Publications in refereed conferences
  - Accepted
    - N. Alachiotis, A. Stamatakis, E. Sotiriades, **A. Dollas**, A Reconfigurable Architecture for the Phylogenetic Likelihood Function, *Proceedings, International Symposium on Field Programmable Logic (FPL)*, Prague, Sept. 2009.
    - G. Chrysos, E. Sotiriades, I. Papaefstathiou, **A. Dollas**, A FPGA Based Coprocessor for Gene Finding Using Interpolated Markov Model (IMM), *Proceedings, International Symposium on Field Programmable Logic (FPL)*, Prague, Sept. 2009.
    - C. Effraimidis, K. Papadimitriou, **A. Dollas**, I. Papaefstathiou, A Self-Reconfiguring Architecture Supporting Multiple Objective Functions in Genetic Algorithms, *Proceedings, International Symposium on Field Programmable Logic (FPL)*, Prague, Sept. 2009.
  - Published (all papers fully refereed)
    - S. Ninos, **A. Dollas**, Modeling recursion data structures for FPGA-based implementation, *Proceedings, International Symposium on Field Programmable Logic (FPL)*, pp. 11-16, Heidelberg, 2008.
    - M. Zampetakis, V. Samoladas, **A. Dollas**, A reconfigurable accelerator for quantum computations. *Proceedings, International Symposium on Field Programmable Logic (FPL)*, pp. 623-626, Heidelberg, Sept. 2008.
    - Nikolaos Alachiotis, Euripides Sotiriades, **Apostolos Dollas**, and Alexandros Stamatakis “Exploring FPGAs for Accelerating the Phylogenetic Likelihood Function” at the 8th *IEEE International Workshop on High Performance Computational Biology (HiCOMB2009)*, Rome Italy, May 25<sup>th</sup> 2009.
- 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, patent granted, with issue date: September 1, 2009. US Patent No. 7,583,819. Serial No. 11/133,861.

## **C – Awards & Distinctions**

## **D – Funded Projects**

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

## **E – Professional service**

- Conference Technical Program Committee service
  - ◆ Program Committee Member *17th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM)*, Napa Valley, USA, April 5-7, 2009.
  - ◆ Program Committee Member, *IEEE/ACM International Symposium on Field Programmable Logic (FPL)*, Prague, Czech Republic, Aug 31 – Sept. 2, 2009.
  - ◆ Program Committee Member, *International Conference on Field Programmable Technology (FPT, IEEE Sponsored)*, Sydney, Australia, December 9-11, 2009.
  - ◆ Program Committee Member, *IEEE Symposium on Application-Specific Processors (SASP 2009)*, San Fransisco, USA, July 27-29, 2009.
- Member of the election committee for an Assistant Professor at the University of Ioannina

- Member of the election committee for an Assistant Professor at the University of Patras
- Member of several election committees and recommendation committees and faculty elections at the Dept. of ECE of the Technical University of Crete

*In all the program committees in which I participated, I contributed with reviews of papers (as many as 8 full paper reviews in a single conference), the selection process, organizational issues, and when possible, attendance of the PC meeting. Because my field is rapidly changing, international conferences reflect the state of the art much more than archival journals and I have deliberately given the weight of my reviewing and committee activity on such conferences.*

- Reviewing activities
  - Several international conferences, including all in which I participate in the program committee, and journals including several IEEE journals

## **F – Service to the Department and the School**

- Departmental responsibilities
  - Faculty Advisor to the 4<sup>th</sup> year students
  - Director, Microprocessor and Hardware Laboratory until May, 2009
  - Member of the TUC – U. Crete *ad hoc* rector's committee for the development of a bi-institutional graduate program in biomedical engineering
  - Member, Graduate Studies Committee
  - Member of faculty recommendation committees in several faculty elections, member of the election committee and participation in the election process of several faculty elections.
- Responsibility for Department-wide projects
  - Coordinator on behalf of the ECE Dept. of the TUC-wide Grid computer proposal, under appointment by the Departmental General Assembly and the Rector's council, overseeing the acquisition process (which ranges from the international bidding competition to coordinating its installation in the TUC NOC data center, which is also under development and addressing all issues regarding its operation). *The Grid computer was delivered to the TUC community, fully operational.*
- School-level responsibilities
  - TUC Senate – appointed TUC-wide principal investigator for the student's practical training program, coordinating the 1,437M Euro proposal "Practicum at the Technical University of Crete" for three years (2009-2012), and the university-level policy that it entailed.

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised (advisor, completed)
    - Ninos, Spyridon (MS)
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Papademetriou, Kyprianos (PhD)
    - Sotiriades, Euripides (PhD)
    - Chrysos, Grigorios (PhD)
    - Efstathiou, Dionissios (MS)
  - Ph.D. And M.Sc. degrees awarded (committee member)
    - Fytraki, Sotiria
    - Nikitakis, Antonios
    - Katzourakis, Diomidis
    - Kyriakoulakos, Constantinos
  - PhD and M.Sc. Degrees (committee member)
    - Mavroidis, Ioannis (PhD)
    - Mavroidis, Iakovos (PhD)
    - Kornaros, George (PhD)
    - Meidanis, Dimitrios (PhD)
    - Mplemenos, George (MS)
    - Papadopoulos, Constantinos (MS)
    - Siskos, George A.
- Undergraduate students supervised
  - Diploma theses in progress
    - Kouinis, Konstantinos
    - Kokkalis, Stylianos
    - Nikoloudakis, George
    - Vasilopoulos, Dimitrios
    - Peres, Juliana
    - Koukousoulas, Pantelis
    - Gegios, Nikolaos
  - Diploma theses completed (supervisor)
    - Sartzetakis, Ippokratis – Leonidas
    - Alachiotis, Nikolaos
    - Kallitsis, Nikolaos
    - Malakonakis, Pavlos
    - Mastrogiannopoulos Dimitrios – Panagiotis
    - Liatakis, Constantinos
    - Eufframides, Charalampos
    - Kagiavas, Christos

- Dagritzikos, Panagiotis
- Skitsas, Michael

○ Diploma theses in progress (committee member)

- Desarti, Athina
- Lakka, Matina
- Smerdis, Miltiadis
- Kottikas, Constantinos
- Spanakis, Michael
- Elias, Anargyros
- Stefanatos. K.
- Tsapeli, Fani
- Ntortou, Eiranna
- Founta, Ifigeneia
- Tzanoudakis
- Agadakos

○ Diploma theses completed (committee member)

- Afratis, Panagiotis
- Vavouras, Michael
- Sotiropoulos, Ioannis
- Pelekanos, Nektarios
- Athanasiou, Georgios
- Galanakis, Constantinos
- Spanos, Nikolaos,
- Kouratoras, Constantinos
- Tsiligiannis, Nikolaos
- Kontos, Dimitrios
- Spyropoulos, Kyriakos



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September, 1, 2008 to August, 31, 2009*

**Name:** *Kostas Kalaitzakis*

**Rank:** Professor

**Years in rank:** 7

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

**Division:** Electronics & Computer Architecture

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

### A – Teaching

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

## B – Publications

- Publications in refereed journals
  - Submitted:
  - Accepted:
  - Published:
    - Koutroulis E., **Kalaitzakis K.**, Tzitzilioni V., “Development of an FPGA-based System for Real-Time Simulation of Photovoltaic Modules”, *Microelectronics J.*, Vol. 40, Issue 7, July 2009, pp. 1094-1102
    - Kolokotsa D., Diakaki C., Grigoroudis E., Stavrakakis G., **Kalaitzakis K.**, “Decision Support Methodologies on the Energy Efficiency and Energy Management in Buildings”, *Advances in Building Energy Research*, Vol. 3, No 1, 2009, pp. 121-146.
- Publications in refereed conferences
  - Submitted:
  - Accepted:
  - Published:
    - Sarantopoulos I., Bakirtzoglou V., Che Franklin, Tsoutsos T., **Kalaitzakis K.**, “Autonomous Biodiesel Production Unit 'Daedalus': a Complete Solution for Rural Sustainable Biodiesel Production”, *Proc. of 17th European Biomass Conf. & Exhibition - From Research to Industry and Markets*, 29 June-3 July 2009, Hamburg, Germany.
    - Mitsios I., Kolokotsa D., Stavrakakis G., **Kalaitzakis K.**, Pouliezios A., “Developing a Control Algorithm for CEN Indoor Environmental Criteria – Addressing Air Quality, Thermal Comfort and Lightning”, *Proc. of 17th Mediterranean Conference on Control and Automation, MED'09*, 24-26 June 2009, Thessaloniki, Greece.
    - Kampelis N., Grigoroudis E., **Kalaitzakis K.**, Stavrakakis G., Diakaki C., Kolokotsa D., “A Multiobjective Decision Support Standard for Energy Saving in Buildings”, *21<sup>st</sup> National Operation Research Conf.*, May 2009, Athens, Greece.
    - Sergaki E. S., Stavrakakis G. S., **Kalaitzakis K.**, Piromalis D., “Algorithm Implementation of an hybrid Efficiency controller incorporated to a PMSM standard FOC variable speed motor drive”, *Proc. 35th Annual Conf. of the IEEE Industrial Electronics Society IECON09*, 3-5 Nov. 2009, Porto, Portugal.
- Books and edited book chapters:
  - Kolokotsa D., Diakaki C., Grigoroudis E., Stavrakakis G. and **Kalaitzakis K.**, “Decision support methodologies on the energy efficiency and energy

management in buildings”, Chap. 5, Advances in Building Energy Research, Vol. 3, *Earthscan Publications Ltd.*, July 2009, pp. 121-146.

- Patents

## **C – Awards & Distinctions**

## **D – Funded Projects**

- Current projects:
  - **Positive-Energy Buildings Through Better Control Decisions** (PEBBLE), Small/Medium-Scale Focused Research Project, FP7-ICT-2009.6.3: ICT for Energy Efficiency, B. ICT Support To Energy-Positive Buildings And Neighborhood, Coordinator is the Technical Univ. of Crete, 7 European participants (Institutions and Companies), total cost 2.4 MEuro, 500 kEuro for the TUC.
- Project proposals submitted:

## **E – Professional service**

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
- Conference Organization (specify role)
- Reviewing activities:
  - *IEEE Trans. on Power Electronics*
  - *IEEE Trans. on Circuits and Systems II*
  - *IEEE Trans. on Industrial Electronics*
  - *IEE Proceedings – Electric Power Applications*
  - *IEE-Electronics Letters*
  - *Renewable Energy*
  - *Energy*
- Participation in National Committees (e.g. EΔET)
- Other

## **F – Service to the Department and the School**

- Departmental responsibilities
  - Lab Director: Electric Circuits and Renewable Energy Sources
- School-level responsibilities



## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - K. Papadakis (M.Sc.), year of initial enrollment in M.Sc. program: 2004.
    - A. Siskos (M.Sc.), year of initial enrollment in M.Sc. program: 2006.
    - A. Kornelakis (M.Sc.), year of initial enrollment in M.Sc. program: 2008.
  - Ph.D. And M.Sc. degrees awarded
    - A. Siskos (M.Sc.), year of initial enrollment in M.Sc. program: 2006.
    - A. Kornelakis (M.Sc.), year of initial enrollment in M.Sc. program: 2008.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - K. Sfakianakis, “Development of a Detailed PV Model”
    - M. Desarti, “Application of the Tabu Search method to Bioengineering Subjects”
    - P. Prokopis, “Optimal Design of a Solar-Power Plant”
    - E. Batzelis, “Optimal Design of a PV Plant using the Tabu Search Method”
    - T. Mantzoros, “Optimal Design of a WECS Plant using the Tabu Search Method”
    - P. Doriakis, “Optimal Design of a PV Plant using the Particle Swarm Method”
    - P. Kalodimas, “Cultivation Automation and Supervising using Remote Monitoring and GSM Technology”
    - T. Dafoulis, “ECG Signal Classification using the Ant Colony approach”
  - Diploma theses completed (supervisor)
    - S. Nikolaidis, “Heart Diagnosis Support Device using ECG and Sphygmomanometer Signals”
    - E. Founta, “PWM generator using FPGA”
  - Diploma theses in progress (committee member):
  - Diploma theses completed (committee member):



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Ioannis Papaefstathiou

**Rank:** Assistant Professor

**Years in rank:** 2

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 401 – Embedded Systems Design (Fall 2008)
  - HPY 312 – Computer Organization (Spring 2009)
- Graduate courses taught
  - HRY 501 – VLSI CAD tools (Spring 2009)
- Labs taught
  - HRY 401 – Embedded Systems Design (Fall 2008)
  - HPY 312 – Computer Organization (Spring 2009)

### B – Publications

- Publications in refereed journals
  - Submitted
  - Accepted
    - I. Mavroidis, I. Mavroidis, I. Papaefstathiou, “Accelerating Emulation and Providing Full Chip Observability and Controllability at Run-Time” accepted to *IEEE Design & Test*.

- K. Papadopoulos, I. Papaefstathiou, “Titan-R: A Reconfigurable hardware implementation of a high-speed compressor/decompressor” accepted to *ACM Transactions on Reconfigurable Computing*.
  - D. Katzourakis, I. Papaefstathiou, M. Lagoudakis, “Open-Source Experimental Platform for Real-Time Data Fusion”, accepted to *IEEE Transactions on Instrumentation and Measurements*.
- Published
  - D. Simos, I. Papaefstathiou, M. Katevenis, “Towards Fabric-On-a-chip(FoC) : A 400Gbps 32×32 Variable-Packet-Size Buffered Crossbar (CICQ) Single-Chip Switch Core”, *IEEE Design & Test (D&T)* Nov/Dec 2008
- Publications in refereed conferences
  - Submitted: those published/appeared (see below), plus
    - G. Chatziparaskeyas, I. Papaefstathiou, “A Reconfigurable Parallel processor for Option Pricing using the Crank-Nicholson Scheme”, submitted to [\*ACM/SIGDA International Symposium on Field-Programmable Gate Arrays 2010 \(FPGA 2010\), February 21-23, Monterey, CA, USA.\*](#)
    - I. Mavroidis, I. Papaefstathiou, “Cost-Efficient Hardware/Software Partitioning”, submitted to [\*IEEE Design Automation and Test in Europe \(DATE 2010\), March 8-12, Dresden, Germany.\*](#)
    - A. Brokolakis, I. Papaefstathiou, “Using Hardware-based Forward Error Correction to reduce the overall energy consumption of WSNs”, submitted to [\*IEEE Design Automation and Test in Europe \(DATE 2010\), March 8-12, Dresden, Germany.\*](#)
  - Accepted: same as published (see below) plus
    - G. Chrysos, I. Papaefstathiou, “Heavily Reducing WSNs’ Energy Consumption by Employing Hardware-Based Compression, *IEEE ADHOC-NOW 2009*, Sept. 20-23 Murcia, Spain, “(Ποσοστό αποδοχής εκτενών εργασιών 27%)
  - Published
    - G. Chrysos, I. Papaefstathiou, “Heavily Reducing WSNs’ Energy Consumption by Employing Hardware-Based Compression, *IEEE ADHOC-NOW 2009*, Sept. 20-23 Murcia, Spain, “(Ποσοστό αποδοχής εκτενών εργασιών 27%)
    - K. Kontos, D. Pnevmatikatos, I. Papaefstathiou, “Design Space Exploration of Reconfigurable Systems for Calculating Flying Object’s Optimal Noise Reduction Paths”, *IEEE International Conference on Field Programmable Logic and Applications*

(FPL), 2009, Aug 31- Sept 2, Prague, Czech Republic, (Ποσοστό αποδοχής εκτενών εργασιών 23%)

- I. Sotiropoulos, I. Papaefstathiou, “A *FAST PARALLEL MATRIX MULTIPLICATION RECONFIGURABLE UNIT UTILIZED IN FACE RECOGNITIONS SYSTEMS*”, *IEEE International Conference on Field Programmable Logic and Applications (FPL)*, 2009, Aug 31- Sept 2, Prague, Czech Republic, (Ποσοστό αποδοχής εκτενών εργασιών 23%)
- Charalampos Effraimidis, Kyprianos Papadimitriou, Apostolos Dollas, Ioannis Papaefstathiou, “A SELF-RECONFIGURING ARCHITECTURE SUPPORTING MULTIPLE OBJECTIVE FUNCTIONS IN GENETIC ALGORITHMS”, *IEEE International Conference on Field Programmable Logic and Applications (FPL)*, 2009, Aug 31- Sept 2, Prague, Czech Republic (short paper)
- Grigorios Chrysos, Euripides Sotiriades, Ioannis Papaefstathiou, Apostolos Dollas, “A FPGA BASED COPROCESSOR FOR GENE FINDING USING INTERPOLATED MARKOV MODEL (IMM)”, *IEEE International Conference on Field Programmable Logic and Applications (FPL)*, 2009, Aug 31- Sept 2, Prague, Czech Republic (short paper)
- K. Vavouras, K. Papadimitriou, I. Papaefstathiou, “High-speed FPGA-based Implementations of a Genetic Algorithm”, *International Symposium on Systems, Architectures, MOdeling and Simulation, SAMOS IX*, Samos, Greece, July 20-23, 2009
- Michalis Platsis, Ioannis Papaefstathiou and Dimitrios Meintanis “Design and Implementation of an UWB Digital Transmitter Based on the Multiband OFDM Physical Layer Proposal”, *20th IEEE/IFIP International Symposium on Rapid System Prototyping, RSP’09*, June 23-26, 2009 Paris, France
- E. Ladis, I. Papaefstathiou, R. Marchesani, K. Tuinenbereijer, P. Langendorfer, T. Zahariadis, H.C. Leligou, L. Redondo, T. Riesgo, P. Kannegiesser, M. Berekovic, C.J.M. van Rijn, “Secure Mobile Visual Sensor Networks Architecture”, *IEEE SECON 2009*, 22-26 June 2009, ***Invited paper***
- K. Theocharoulis, C. Manifavas, I. Papaefstathiou, “High-End Reconfigurable Systems for fast Password Cracking”, *IEEE Symposium on Field-Programmable Custom Computing Machines (FCCM)*, 2009, April 5-7, Napa California USA (short paper).
- Panagiotis Afratis, Constantinos Galanakis, Euripides Sotiriades, Georgios-Grigorios Mplemenos, Grigorios Chrysos, Yiannis Papaefstathiou, Dionisios Pnevmatikatos: “Design and Implementation of a Database Filter for BLAST Acceleration”, In *Proceedings, Design, Automation and Test Europe*, 20-24 April 2009, Nice, France (Ποσοστό αποδοχής εκτενών εργασιών 22%).

- D. Meidanis, I. Papaefstathiou, “On the Power Consumption of security algorithms employed in wireless networks”, *6th Annual IEEE Consumer Communications & Networking Conference (CCNC 2009)* 10 - 13 January 2009 Las Vegas, Nevada, USA (Ποσοστό αποδοχής εκτενών εργασιών 31%)
- I. Mavroidis, I. Papaefstathiou, “Accelerating Hardware Simulation: Testbench Code Emulation”, *IEEE International Conference on Field Programmable Technology 2008 (FPT’08)*, December 7th -10th Taipei, Taiwan (Ποσοστό αποδοχής εκτενών εργασιών 22%).
- Dimitris Theodoropoulos, Ioannis Papaefstathiou, Dionisios Pnevmatikatos, “CCproc: An Efficient Cryptographic Coprocessor”, *16th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SOC 2008)*, October 13-15, 2008 Rhodes Island, Greece

#### I. Books and edited book chapters

- a. I. Papaefstathiou, C. Maniavas, Book Chapter 51, “Security in Ad Hoc Wireless Sensor Networks”, in *Security in Computing and Networking Systems: The State-of-the-Art*, Editors: William McQuay and Waleed W. Smari, Wiley, in Print
- b. Th. Zahariadis, P. Trakadas, H. Leligou, K. Papadopoulos, E. Ladis, Ch. Tselikis, Ch. Vangelatos, L. Besson, J. Manner, M. Loupis, F. Alvarez, I. Papaefstathiou, Securing Wireless sensor networks towards a trusted “Internet of Things”, *Towards the Future Internet*, G. Tselentis et. Al. (eds.), IOS Press (2009), doi: 10.3233/978-1-60750-007-0-47, σελ. 47-56.

#### J. Patents

## C – Awards & Distinctions

## D – Funded Projects

- Current projects:
  - AWISSENET, FP7-STREP, Award Period January 2008 – March 2010, Funding Level 2.2M € (300K € for TUC)
  - OSMOSIS, FP7-CAPACITIES, Award Period October 2009 –September 2011, Funding Level 1.2M € (300K € for TUC). Technical Manager
  - SMART, FP7-ARTEMIS, Award Period May 2009 – April 2012, Funding Level 4.2M € (300K € for TUC). Technical Manager
- Project proposals submitted:

- Organizer, of “HEAP”, FP7-STREP proposal, grade 12.5/24 **will be funded** from 1/02/09
- Participating in “R3-COP”, FP7-ARTEMIS proposal, results awaited.

## **E – Professional service**

- Associate Editor duties
- Society Technical Committee duties
- Conference Technical Program Committee service
  - *IEEE DATE 2009 and 2010*
  - *IEEE FPL 2009*
  - *IEEE RSP 2009*
  - Several other smaller workshops
- Conference Organization (specify role)
- Reviewing activities
  - Regular reviewer for *IEEE Communications, IEEE Design & Test, ECAD magazines*
  - Regular reviewer for *IEEE Samos, IEEE VLSI-SoC*

## **F – Service to the Department and the School**

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Dimitris Meintanis (Ph.D). Year of initial enrollment in Ph.D. program: 2005 (co-supervised with Prof. Dollas).
    - Iakovos Mavroidis (Ph.D). Year of initial enrollment in Ph.D. program: 2005.
    - Antonis Nikitakis (Ph.D.). Year of initial enrollment in program: 2008
    - Panagiotis Christou, (M.Sc.). Year of initial enrollment in program: 2006.
    - Georgios Mplemenos (M.Sc). Year of initial enrollment in program: 2008
    - Konstantinos Papadopoulos (M.Sc.). Year of initial enrollment in program: 2008

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - G. Mpouris.
    - A. Katsoulas
    - N. Pogkas
    - D. Daskalakis
    - I. Agadakos
    - N. Chrysanthou
    - K. Mountakis
    - T. Tzanakakis
  - Diploma theses completed (supervisor)
    - A. Katsoulas
    - I. Kartsonakis
    - E. Ntortou
    - K. Stefanatos



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Dionisis Pnevmatikatos*

**Rank:** Associate Professor

**Years in rank:** 7

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 201 – Digital Computers (Fall 2008)
  - HRY 411 – Computer Architecture (Spring 2009)
- Graduate courses taught
  - HRY 621 – Advanced Computer Architecture (Fall 2008)
- Labs taught
  - HRY 201 – Digital Computers (Fall 2008)
  - HRY 411 – Computer Architecture (Spring 2009)
- Curriculum & course development
  - New courses / labs developed
    -
  - Lecture notes / slides developed
    - Digital Computers (Update)
    - Advanced Logic Design (Update)
  - Authored textbooks
    -



## B – Publications

Publications in refereed journals

Submitted: those published/appeared (see below)

Accepted:

Published:

Publications in refereed conferences

Submitted: those published/appeared (see below)

Accepted:

Published:

Ioannis Papaefstathiou, Dimitris Mprachos, Christodoulos Yannakou, Nikolaos Zervos, **Dionisios Pnevmatikatos**, “Rapid System Prototyping of Networking Embedded Systems using System-C”, *In proceedings, Parallel and Distributed Computing and Systems (PDCS)*, 16-18 November, 2008.

Sotiria Fytraki, **Dionisios Pnevmatikatos**, “ReSim, a Trace-Driven, Reconfigurable ILP Processor Simulator”, *In Proceedings, Design, Automation and Test Europe*, 20-24 April 2009, Nice, France.

Panagiotis Afratis, Constantinos Galanakis, Euripides Sotiriades, Georgios-Grigorios Mplemenos, Grigorios Chrysos, Yiannis Papaefstathiou, **Dionisios Pnevmatikatos**, “Design and Implementation of a Database Filter for BLAST Acceleration”, *In Proceedings, Design, Automation and Test Europe*, 20-24 April 2009, Nice, France.

George Kalokerinos, Vassilis Papaefstathiou, George Nikiforos, Stamatis Kavadias, Manolis Katevenis, **Dionisios Pnevmatikatos** and Xiaojun Yang, “FPGA Implementation of a Configurable Cache/Scratchpad Memory with Virtualized User-Level RDMA Capability”, *Proceedings of the 2009 International Conference on Embedded Computer Systems: Architectures, Modelling and Simulation (IC-SAMOS 2009)*, Samos, Greece, July 20-23, 2009.

Konstantinos Kyriakoulakos, **Dionisios Pnevmatikatos**, “A Novel SRAM-Based FPGA Architecture for Efficient TMR Fault Tolerance Support”, *Proceedings of the 19th International Conference on Field Programmable Logic and Applications (FPL)*, August 31-September 2, 2009, Prague, Czech Republic.

Dimitrios Kontos, Ioannis Papaefstathiou, **Dionisios Pnevmatikatos**, “Design Space Exploration of Reconfigurable Systems for Calculating Flying Object’s Optimal Noise Reduction Paths”,

*Proceedings of the 19th International Conference on Field Programmable Logic and Applications (FPL)*, August 31-September 2, 2009, Prague, Czech Republic.

Panagiotis Afratis, Eyripides Sotiriades, Grigorios Chrysos, Sotiria Fytraki, **Dionisios Pnevmatikatos**, ``A Rate-based Prefiltering Approach to BLAST Acceleration'', *In Proceedings, International Conference on Field Programmable Logic and Applications (FPL)*, September 8-10, 2008, Full 6-page paper, **Poster** Presentation.

Dimitris Theodoropoulos, Ioannis Papaefstathiou and **Dionisios Pnevmatikatos**, ``Cproc: An efficient Cryptographic Coprocessor'', *In Proceedings, 16th IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC)*, October 13-15, 2008, 4-page paper, **Poster** Presentation.

Dimitris Theodoropoulos, Alexandros Siskos, **Dionisios Pnevmatikatos**, ``CCproc: A custom VLIW cryptography co-processor for symmetric-key ciphers'', *5th International Workshop on Applied Reconfigurable Computing (ARC) 2009*, Full 6-page paper, **Poster** Presentation.

- Books and edited book chapters
- Patents

## **C – Awards & Distinctions**

## **D – Funded Projects**

Project proposals submitted:  
FASTER IST

## **E – Professional service**

Conference Technical Program Committee service

Conference Technical Committee Member:

*International Conference on Field Programmable Logic and Applications (FPL) 2009*

*International Conference on Embedded Computer Systems: Architectures, Modelling, and Simulation (IC-SAMOS) 2009*

*International Workshop on Rapid System Prototyping (RSP) 2009*

*IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-Soc) 2008*

Workshop Technical Committee Member:

*HIPEAC-RC (Reconfigurable Computing) 2009*

*HIPEAC- Interconnection Network Architectures: On-Chip, Multi-Chip (INA-OCMC) 2009*

Conference Organization

Program Chair:

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

General Co-Chair:

*Panhellenic Conference on Informatics (PCI) 2008*

Reviewing activities

Journal Reviewer:

*ACM TRETS*

*ACM TACO*

*Journal of HIPEAC*

*Computer Architecture Letters*

*IET Journal*

Conference Reviewer:

*Parallel Architectures and Compilation Techniques (PACT)*

*International Symposium on High-Performance Computer Architecture (HPCA)*

*ACM/IEEE Symposium on Architectures for Networking and Communications Systems*

## **F – Service to the Department and the School**

Departmental responsibilities

Department Chair

Undergraduate Program Committee

Graduate Program Committee

Responsible for the Department-wide practical training project

School-level responsibilities

University Senate

University Disciplinary committee

University Graduate committee

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

G. Kornaros

I. Mavroidis

PhD. And M.Sc. degrees awarded

Konstantinos Kyriakoylakos (M.Sc.)

Fytraki Sotiria

Diploma theses completed (committee member)

ΝΙΚΗΤΑΚΗΣ ΑΝΤΩΝΙΟΣ (M.Sc.)

ΝΙΝΟΣ ΣΠΥΡΙΔΩΝ (M.Sc.)

ΚΑΝΤΑΡΗΣ ΙΩΑΝΝΗΣ (M.Sc.)

Undergraduate students supervised

Diploma theses in progress (supervisor)

ΠΑΠΑΣ

ΜΑΡΚΟΠΟΥΛΟΣ

ΤΡΟΥΛΙΝΟΣ

Diploma theses completed (supervisor)

ΓΑΛΑΝΑΚΗΣ ΚΩΝ/ΝΟΣ

ΤΣΙΛΙΓΙΑΝΝΗΣ ΓΕΩΡΓΙΟΣ

ΑΦΡΑΤΗΣ ΠΑΝΑΓΙΩΤΗΣ

ΣΠΥΡΟΠΟΥΛΟΣ ΚΥΡΙΑΚΟΣ

Diploma theses completed (committee member)

ΒΑΒΟΥΡΑΣ ΜΙΧΑΗΛ

ΣΩΤΗΡΟΠΟΥΛΟΣ ΙΩΑΝΝΗΣ

ΠΕΛΕΚΑΝΟΣ ΝΕΚΤΑΡΙΟΣ

ΣΠΑΝΟΣ ΝΙΚΟΛΑΟΣ

ΑΛΑΧΙΩΤΗΣ ΝΙΚΟΛΑΟΣ

ΚΟΝΤΟΣ ΔΗΜΗΤΡΙΟΣ

ΚΑΛΛΙΤΣΗΣ ΝΙΚΟΛΑΟΣ

ΜΑΛΑΚΩΝΑΚΗΣ ΠΑΥΛΟΣ

ΜΑΣΤΡΟΓΙΑΝΝΟΠΟΥΛΟΣ ΔΗΜΗΤΡΙΟΣ

ΛΙΑΤΑΚΗΣ ΚΩΝ/ΝΟΣ

ΚΑΓΚΑΡΑΚΗΣ ΛΕΩΝΙΔΑΣ

ΕΦΡΑΙΜΙΔΗΣ ΧΑΡΑΛΑΜΠΟΣ

ΚΑΓΙΑΒΑΣ ΧΡΙΣΤΟΣ

ΔΑΓΡΙΤΖΙΚΟΣ ΠΑΝΑΓΙΩΤΗΣ



## Annual Activity Report

*For the period: 1-9-2008 to 31-8-2009*

**Name:** Stavrakakis George

**Rank:** Professor

**Years in rank:** 14

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

**Division:** Electronic and Computer Architecture

**Lab affiliation:** Electric Circuits and Renewable Energy Sources

### A – Teaching

Undergraduate courses taught

Basic Circuit Theory (HRY 202)  
Renewable Energy Sources (HRY 416)

Graduate courses taught

Advanced topics in Optimal Control (SYS 603)

- Labs taught
  - Basic Circuit Theory (HRY 202)
  - Renewable Energy Sources (HRY 416)
- Curriculum & course development
  - New courses / labs developed: Renewable Energy Sources (HRY 416)
  - Lecture notes / slides developed: Renewable Energy Sources (HRY 416)

## B – Publications

### Publications in refereed journals

Submitted: 10

Accepted: 8

Published: 6 (see bellow)

- T.G. Nikolaou, D.S. Kolokotsa, I.D. Skias and **G.S. Stavrakakis**, “Asset and operational benchmarking for office buildings in Greece” *International Journal of Sustainable Energy* 27 (4), pp. 1-15, 2008.
- D. Kolokotsa, C. Diakaki, E. Grigoroudis, **G. Stavrakakis** and K. Kalaitzakis, “Decision support methodologies on the energy efficiency and energy management in buildings, *ADVANCES IN BUILDING ENERGY RESEARCH*, 2009, VOLUME 3, PAGES 121–146 , Chapter 5.
- E. Koutroulis, D. Kolokotsa, and **G. Stavrakakis**, ”Optimal Design and Economic Evaluation of a Battery Energy Storage System for the Maximization of the Energy Generated by Wind Farms in Isolated Electric Grids,” *WIND ENGINEERING* , VOLUME 33, NO. 1, 2009
- D. Kolokotsa , A. Pouliezos , **G. Stavrakakis** , C. Lazos, “Predictive control techniques for energy and indoor environmental quality management in buildings,” *Building and Environment* 44 (2009) 1850–1863
- G.P. Giatrakos, T.D. Tsoutsos, P.G. Mouchtaropoulos, G.D. Naxakis, **G. Stavrakakis**, “Sustainable energy planning based on a stand-alone hybrid renewable energy/hydrogen power system: Application in Karpathos island, Greece,” *Renewable Energy* 34 (2009) 2562–2570.
- Z. E. Gketsis, M. E. Zervakis, **G. Stavrakakis**, “Detection and classification of winding faults in windmill generators using Wavelet Transform and ANN,” *Electric Power Systems Research* 79 (2009) 1483–1494.

### Publications in refereed conferences

Submitted: 4

Accepted: 4

Published: 1(see bellow)

- Ioannis Mitsios, Dionissia Kolokotsa, **George Stavrakakis**, Konstantinos Kalaitzakis and Anastasios Pouliezos, “Developing a control algorithm for CEN indoor environmental criteria – addressing air quality, thermal comfort and lighting,” *17<sup>th</sup> Mediterranean Conference on Control & Automation*, Thessaloniki, Greece, June 2009.

- Patents: one in the national level (see below)
  - Έξυπνη μέθοδος και ολοκληρωμένη ηλεκτρονική διάταξη διαχείρισης πληροφοριών σε συστήματα εξασφάλισης εσωτερικής άνεσης με ταυτόχρονη ενεργειακή διαχείριση κτιρίων. (OBI2004010045)

## C – Awards & Distinctions

## D – Funded Projects

### Current projects:

- BALKWASTE-Waste network for sustainable solid waste management planning and promotion of integrated decision tools in the Balkan region”. LIFE + funded. 1<sup>st</sup> January 2009- 31-12-2011. Project site: [www.balkwaste.eu](http://www.balkwaste.eu) .

## E – Professional service

Society Technical Committee duties: *International Committee of Electrical Machines- ICEM*

### Reviewing activities:

- *Zentralblatt für Mathematik und ihre Grenzgebiete (Mathematics Abstracts)* edited by Springer-Verlag International publ.
- *Journal of Intelligent and Robotic Systems.*
- *IEEE Transactions on Energy Conversion.*

Participation in National Committees (e.g., ΕΔΕΤ):

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

## F – Service to the Department and the School

## G – Advising

Active graduate students supervised

PhD students supervised

1. Tripolitakis Evangelos

2. Nikolaou Triantafylia
3. Sergaki Eleftheria

○ M.Sc Students supervised

1. Afentakis Nikolaos
2. Vassalos Gerasimos
3. Dougali Evaggelia
4. Sytzanaki Athina
5. Gobakis Konstantinos
6. Panagiwtidou Natalia
7. Limneos Georgios

M.Sc. degrees awarded : 2

1. Kafetzis Georgios
2. Patelis Petros

Committee Member of M.Sc. degrees awarded: 2

Undergraduate students supervised

Diploma theses in progress (supervisor): 16

Diploma theses completed (supervisor) : 8

Diploma theses in progress (committee member): 12

Diploma theses completed (committee member): 7



## **Telecommunications Division**

- Bletsas Aggelos
- Digalakis Vassilios
- Zervakis Michail
- Karystinos George
- Koutsakis Polychronis
- Liavas Athanasios
- Paterakis Michail
- Potamianos Alexandros
- Sidiropoulos Nikolaos



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Aggelos Bletsas

**Rank:** Assistant Professor

**Years in rank:** 0 (started during summer 2009)

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### B – Publications

Publications in refereed journals

Submitted: those published/appeared (see below)

- A. Bletsas, A. G. Dimitriou and J. N. Sahalos, "Improving Backscatter Radio Tag Efficiency", submitted June 2009, *IEEE Transactions on Microwave Theory and Techniques (MTT)*.
- A. Bletsas, A. Lippman and J. N. Sahalos, "Simple, Zero-Feedback, Distributed Beamforming with Unsynchronized Carriers", submitted April 2009, *IEEE Journal on Selected Areas of Communication (JSAC)*, Special Issue on Simple Sensor Networking Solutions.
- A. Bletsas, A. G. Dimitriou and J. N. Sahalos, "Interference-Aware Opportunistic Relaying with Reactive Spectrum Sensing", submitted August 2008, revised May 2009, *IEEE Transactions on Wireless Communications (TWC)*.

Accepted:

- A. Bletsas and J. N. Sahalos, "Hirsch Index Rankings Require Scaling and Higher Moment", accepted - to appear in 2009, *Journal of the*

*American Society for Information Science and Technology (JASIST).*

- A. Bletsas**, S. Siachalou and J.N. Sahalos, "Anti-collision Backscatter Sensor Networks", accepted - to appear in 2010, *IEEE Transactions on Wireless Communications (TWC)*.

Published:

- A. Bletsas**, "Orthogonal Opportunistic Relaying for Cooperative Wireless Communications", chapter 7 in "Cooperative Wireless Communications", pp. 73-92, *Auerbach Publications*, 2009.

Publications in refereed conferences

Accepted:

- A. Bletsas**, A. Lippman and J. N. Sahalos, "Simple, Zero-Feedback, Distributed Beamforming for Emergency Radio", accepted, *IEEE ISWCS 2009*, Sienna Italy.

Published:

- A. Bletsas**, A.G. Dimitriou, J.N. Sahalos, "Reduced-Delay Interference-Aware Opportunistic Relaying", *IEEE International Conference on Communications (ICC) 2009*.
- A. Bletsas**, S. Siachalou, J.N. Sahalos, "Anti-collision Tags for Backscatter Sensor Networks", *38th European Microwave Conference (EuMC)*, October 2008, Amsterdam, Netherlands.
- A. Bletsas**, J.N. Sahalos, "Interference-Aware Opportunistic Relaying with Reactive Spectrum Sensing", invited paper, *IEEE Personal Indoor Mobile Radio Communications Conference (PIMRC)*, September 2008, Cannes, France.

- Books and edited book chapters

- A. Bletsas**, "Orthogonal Opportunistic Relaying for Cooperative Wireless Communications", chapter 7 in "Cooperative Wireless Communications", pp. 73-92, *Auerbach Publications*, 2009.

Invited Talks

- A. Polycarpou, A. G. Dimitriou, **A. Bletsas** and J. N. Sahalos, "RFID in Healthcare", *COST Antenna Systems & Sensors for Information Technology Societies (ASSIST) Workshop*, May 2009, Valencia, Spain.
- A. Bletsas**, A.G. Dimitriou, J.N. Sahalos, "Improving Backscatter Radio Tag Efficiency", *COST RF/Microwave Communication*

*Subsystems for Emerging Wireless Technologies (RFCSET)*  
Workshop, April 2009, Brno, Czech Republic.

## **D – Funded Projects**

Current projects:

“RFID in Healthcare”, Cyprus Research Promotion Foundation.

“Network of Broadband Meters”, Wind.

## **E – Professional service**

Conference Technical Program Committee service

*IEEE ICC 2009.*

Reviewing activities

~12 papers at major IEEE journals and conferences.



## Annual Activity Report

*For the period: September 1, 2008 to August 31, 2009*

**Name:** Vassilios Digalakis

**Rank:** Full

**Years in rank:** 9

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

**Division:** Telecommunications

**Lab affiliation:** Information & Computer Networks Lab

### A – Teaching

Undergraduate courses taught

Introduction to Speech Processing

Probabilities and Random Signals (with A. Potamianos)

Statistical Pattern Recognition (with A. Potamianos)

Graduate courses taught

Advanced topics in speech processing

### B – Publications

Publications in refereed conferences

Submitted

O. Tsergoulas and **V. Digalakis**, “Greek Broadcast News: Corpus and Development of an Automatic Transcription System”, submitted to *ICASSP 2010*.

P. Papadopoulos and **V. Digalakis**, “Identification of Linear Systems in Canonical Form through an EM Framework”, submitted to *ICASSP 2010*.

### C – Awards & Distinctions

## **D – Funded Projects**

Current projects: (PI)

“Ανάπτυξη Πολυτροπικής Πλατφόρμας με ενσωματωμένες υπηρεσίες Αναγνώρισης και Σύνθεσης Φωνής για Φορητές Συσκευές”, ΠΕΝΕΔ, PI, PI’s Budget € 180.000.

Current projects: (Collaborator)

Μοντελοποίηση, σύνθεση και αναγνώριση φωνής με υπολογιστική αεροδυναμική ανάλυση του ανθρώπινου ηχητικού σωλήνα, ΠΕΝΕΔ, Co-PI, PI’s Budget € 180.000.

Proposals submitted:

ExTeNtS, “Pole of Excellence in Telecommunication Systems, Networks and Services”, coordination of proposal submitted to REGPOT 2009-1.

## **E – Professional service**

Reviewer in several journals.

*ICASSP 2010* Reviewer

*Interspeech 2009* Reviewer

*Eusipco 2009* Reviewer and TPC member

## **F – Service to the Department and the School**

Departmental responsibilities

Director, Information and Computer Networks Lab

Member, Undergraduate studies committee

School-level responsibilities

Director, Telecommunication Systems Institute

## **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

Orfeas Tsergoulas, MSc, 2007- awarded 10/2009

Pavlos Papadopoulos, MSc, - to defend 12/2009

Kostas Athanasoglou, MSc, 2007

Undergraduate students supervised

Alexandros Georgogiannis



## Annual Activity Report

*For the period: Sept 1, 2008 to Aug 31, 2009*

**Name:** Michalis Zervakis

**Rank:** Professor

**Years in rank:** 10

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

**Division:** Telecommunications

**Lab affiliation:** 1) Digital Image and Signal Processing Lab,  
2) Lab of Automation

### A – Teaching

Undergraduate courses taught

- Digital Signal Processing
- Digital Image Processing
- Computer Vision

Graduate courses taught

- Pattern Recognition

○ Labs taught

- Digital Signal Processing
- Digital Image Processing
- Computer Vision

○ Curriculum & course development

- New courses / labs developed:
- Lecture notes / slides developed: Digital Image Processing, Digital Signal Processing, Pattern Recognition
- Authored textbooks: none

## B – Publications

### Publications in refereed journals

Submitted: those published/appeared (see below)

G. Giakos, S. Paturi, K. Valluru, P. Bathini, V. Adya, S. Sukumar, K. Ambadipudi, B. Mandadi, M. Becker, S. Athawale, P. Farajipour, D. Sheffer, G. Livanos and **M. Zervakis**, “Efficient Imaging Techniques using Optically Active Molecules”, *IEEE Trans. On Instrumentation and Measurement*, revised and submitted Sept. 2009, under 2<sup>nd</sup> review.

Sakkalis, T. Cassar, **M. Zervakis**, C. Giurcaneanu, C. Bigan, S. Micheloyannis, K. Camilleri, S. Fabri, E. Karakonstantaki, K. Michalopoulos, “A Decision Support Framework for the Diagnosis of Children with Mild Epilepsy based on EEG Analysis”, *Journal of Neuroengineering and Rehabilitation*, submitted july 2009, under review.

Accepted:

Published:

R. Grech, T. Cassar, J. Muscat, K.P. Camilleri, S.G. Fabri,, **M. Zervakis**, P. Xanthopoulos, V. Sakkalis and B. Vanrumste, "Review on solving the inverse problem in EEG source analysis", *Journal of Neuroengineering and Rehabilitation*, vol. 5, no. 1, p. 25, 2008 (DOI:10.1186/1743-0003-5-25).

**M. Zervakis**, M. E. Blazadonakis, Vasiliki Danilatu, Georgia Tsiliki, Manolis Tsiknakis, Dimitris Kafetzopoulos, “Outcome Prediction Based on Microarray Analysis: A Critical Perspective on Methods”, *BMC Bioinformatics* 2009, 10:53 (doi:10.1186/1471-2105-10-53).

S. K. Goumas, I. N. Dimou, **M. E. Zervakis**, “Combination of Multiple Classifiers for Post Placement Quality Inspection of Components: A Comparative Study”, *Journal of Information Fusion*, Elsevier, in press ([doi:10.1016/j.inffus.2009.06.009](https://doi.org/10.1016/j.inffus.2009.06.009)).

Gketsis Z., **Zervakis M.**, Stavrakakis G., “Detection and Classification of Winding Faults in Windmill Generators Using Wavelet Transform and ANN,” *Electric Power Systems Research*, Vol. 79, no 11, pp. 1483-1494, 2009, [doi:10.1016/j.epsr.2009.05.001](https://doi.org/10.1016/j.epsr.2009.05.001).

G. Giakos, K. Valluru, V. Adya, K. Ambadipudi, S. Paturi, P. Bathini, M. Becker, P. Farajipour, S. Marotta, J. Paxitzis, B. Mandadi, M. Zervakis and G. Livanos, “Stokes parameter imaging of multi-index of refraction biological phantoms utilizing optically active molecular contrast agents”, *Measurement Science and Technology*, Vol. 20, No. 10, Sept. 2009,

S. Sfakianakis, M. Blazantonakis, I. Dimou, M. Zervakis, M. Tsiknakis, G. Potamias, D. Kafetzopoulos and D. Lowe, "Decision Support Based on Genomics: Integration of Data and Knowledge



- Driven Reasoning", Int. J. Biomed. Eng. Tech. IJBET (accepted, Jan 2009, to appear).
- Dimou, B. Van Calster, S. Van Huffel, D. Timmerman, M. Zervakis, "Evaluation Of Imputation Methods In Ovarian Tumour Diagnostic Models Using Generalised Linear Models And Support Vector Machines", Journal of Medical Decision Making (accepted Jun 2009, to appear).
- Ardoino I., Ambrogi F., Iacobelli S., Boracchi P., Manikis G., Kounelakis M., Zervakis M., Lisboa P. J. G., Vignetti M., Starita A. and Biganzoli E., "Evaluation of Short and Long Term Response to Treatment in GIMEMA Protocol for Acute Myeloid Leukemia", Int. J. Biomed. Eng. Tech. IJBET, (accepted Feb 2009, to appear).
- P. Y. Ktonas, S. Golemati, P. Xanthopoulos, V. Sakkalis, M. D. Ortigueira, H. Tsekou, M. Zervakis, T. Paparrigopoulos, T. Bonakis, N. Economou, P. Theodoropoulos, S. Papageorgiou, D. Vasilopoulos and C.R. Soldatos, "Time-frequency analysis methods to quantify the time-varying microstructure of sleep EEG spindles: Possibility for dementia biomarkers", Journal of Neuroscience Methods, accepted Sept. 2009, in press.
- W. Jervis, S. Belal, T. Cassar, M. Besleaga, C. Bigan, K. Michalopoulos, M. Zervakis, K. Camilleri, and S. Fabri, "Waveform Analysis of Non-oscillatory Independent Components in Single-Trial Auditory Event-Related Activity in Healthy Subjects and Alzheimer's Disease Patients", Journal of Current Alzheimer Research, accepted Aug. 2009, in press.

#### Book chapters

- Ifeachor E., Hu P., Sun L., Hudson N. and **Zervakis M.**, "Bioprofiling over Grid for Personalized eHealthcare for AD", in *Computational Intelligence and Bioengineering*, IOS Press, vol. 196, pp. 155-168, The Netherlands, 2009.
- V. Sakkalis and **M. Zervakis**, "Linear and Nonlinear Synchronization Analysis and Visualization during Altered States of Consciousness", *Recent Advances in Biomedical Engineering*, ISBN 978-953-7619-X-X., IN-TECH, Vienna (accepted, to appear).

## C – Awards & Distinctions

## D – Funded Projects

- |           |   |
|-----------|---|
| 2009-2012 | TEMPUS IV project titled Curricula Reformation & Harmonisation in the Field of Biomedical Engineering (CRH-BME Tempus Project N° 144537-TEMPUS-2008-GR-JPCR |
|-----------|---|

Project proposals submitted:

- During the Calls of ICT and Health participated in the submission of four STREPs; One is in negotiation phase

## **E – Professional service**

Society Technical Committee duties

- Session Chair *ICANN-09*
- Special Session Organizer in *ICANN-09*: Data mining and modelling of brain activity: their use as tools for understanding attentional mechanisms

Conference Technical Program Committee service

Conference Organization (specify role)

Reviewing activities:

- Reviewer for “*IEEE Transactions on Image Processing*”, “*Image and Vision Computing*”, “*Pattern Recognition*”, “*Journal of Visual Communication and Image Representation*”, and many conferences in his fields of expertise.

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

Other

External reviewer for two PhD thesis from the University of Ioannina.

## **F – Service to the Department and the School**

Departmental responsibilities

- Lab Director: Digital Image and Signal Processing Laboratory
- Lab Director: Automation Laboratory

School-level responsibilities

- Member and vice-chair ELKE

## **G – Advising**

Completed PhDs

Active graduate students supervised

- Ph.D. and M.Sc. students supervised
  - Ioannis Dimou, PhD student
  - Michalis Kounelakis, PhD student
  - George Manikis, PhD student
  - Alexandros Roniotis, PhD Student
  - Kostantina Moirogiorgou, MASc student
  - George Livanos, MASc student
  - Kostas Michalopoulos, MASc student
- PhD. And M.Sc. degrees awarded



## Annual Activity Report

*For the period: Sept. 1, 2008 to Aug. 31, 2009*

**Name:** *George Karystinos*

**Rank:** Assistant Professor

**Years in rank:** 3

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

Undergraduate courses taught

TEL 201 – Signals and Systems (Fall 2008)

TEL 412 – Information Theory and Coding (Spring 2009)

Graduate courses taught

TEL 601 – Probability and Random Processes (Fall 2008)

- Labs taught
  - TEL 201 – Signals and Systems Lab (Fall 2008)
  - TEL 412 – Information Theory and Coding Lab (Spring 2009)
- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed
  - Authored textbooks
    - “Signals and Systems: Course Notes”, by A. P. Liavas and G. N. Karystinos

### B – Publications

Publications in refereed journals

Submitted

- D. S. Papailiopoulos and **G. N. Karystinos**, "Maximum-likelihood noncoherent OSTBC detection with polynomial complexity," *IEEE Transactions on Wireless Communications*, submitted Dec. 2008.
- A. P. Liavas and **G. N. Karystinos**, "High- and low-SNR diversity of the demodulate-and-forward cooperative protocol with binary input and hard decisions," *IEEE Transactions on Information Theory*, submitted May 2009.
- H. Ganapathy, D. A. Pados, and **G. N. Karystinos**, "New bounds and optimal binary signature sets - Part I: Periodic total squared correlation," *IEEE Transactions on Communications*, submitted July 2009.
- H. Ganapathy, D. A. Pados, and **G. N. Karystinos**, "New bounds and optimal binary signature sets - Part II: Aperiodic total squared correlation," *IEEE Transactions on Communications*, submitted July 2009.

Accepted

- G. N. Karystinos** and A. P. Liavas, "Efficient computation of the binary vector that maximizes a rank-deficient quadratic form," *IEEE Transactions on Information Theory*, accepted July 2008.
- D. S. Papailiopoulos and **G. N. Karystinos**, "Maximum-likelihood noncoherent OSTBC detection with polynomial complexity," *IEEE Transactions on Wireless Communications*, accepted Aug. 2009.

Publications in refereed conferences

Submitted: those accepted (see below)

Accepted:

- D. S. Papailiopoulos and **G. N. Karystinos**, "Optimal OSTBC sequence detection over unknown correlated fading channels," to appear in *Proc. 2009 Asilomar Conference on Signals, Systems, and Computers*, Pacific Grove, CA, Nov. 2009., accepted Aug. 2009.

Published

- D. S. Papailiopoulos and **G. N. Karystinos**, "Efficient maximum-likelihood noncoherent orthogonal STBC detection," in *Proc. 2008 Allerton Conference on Communication, Control, and Computing*, Allerton House, Monticello, IL, Sept. 2008, pp. 294-300.
- M. Gkizeli and **G. N. Karystinos**, "Noncoherent detection in amplify-and-forward relay systems," in *Proc. IEEE GLOBECOM 2008*, Comm. Theory Symp., New Orleans, LA, Dec. 2008.

## **C – Awards & Distinctions**

## **D – Funded Projects**

### Current projects

PI of FP6 MC-IRG project “Power and rate efficient modulation in UHF-SHF multicarrier communications.”

Participated in FP6 FET project “CoopCom,” led by Prof. A. P. Liavas.

### Project proposals submitted

“Low-complexity data detection and decoding in digital communications systems,” submitted to the Ministry of National Education and Religious Affairs of Greece, Heraclitus Program, Apr. 2009.

## **E – Professional service**

### Associate Editor duties

### Society Technical Committee duties

### Conference Technical Program Committee service

IEEE International Conference on Communications (ICC) 2009 - Communication Theory Symposium.

IEEE International Conference on Communications (ICC) 2010 - Wireless Communications Symposium

### Conference Organization (specify role)

### Reviewing activities

#### Reviewer for journals

- *IEEE Transactions on Vehicular Technology*
- *IEEE Transactions on Mobile Computing*
- *IEEE Transactions on Signal Processing*
- *IEEE Transactions on Wireless Communications*
- *IEEE Communications Letters*
- *Information Theory*
- *IEEE Trans. on Communications*
- *IEEE Signal Processing Letters*
- *Wireless Communications and Mobile Computing*

#### Reviewer for conferences

- *IEEE GLOBECOM 2009*
- *IEEE VTC 2009 (Fall)*

- *IEEE ISIT 2009*
- *IEEE ICASSP 2009*
- *IEEE ICC 2009*

Reviewer for books

- *“Space-time coding for non-coherent cooperative communication”, chapter in book titled “Cooperative Communications for Improved Wireless Network Transmission.”*

## **F – Service to the Department and the School**

Departmental responsibilities

Organized the 2008-2009 Telecommunications Division Seminar Series, Department of ECE, Technical University of Crete.

Member of the Graduate Studies Committee, Department of ECE, Technical University of Crete, Sept. 2008 - Aug. 2009.

School-level responsibilities

Member of the Senate of the Technical University of Crete, Sept. 2008 - Aug. 2009.

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

Dimitris Koupatsiaris, “Efficient techniques for the problem of channel decoding,” Ph.D. student.

Georgina Abou-Elkheir, “Finite-feedback beamforming under uniform transmit antenna power requirements with polynomial complexity,” M.Sc. student.

Anastasios Kyrillidis, “Polynomial-complexity computation of the M-phase vector that maximizes a rank-deficient quadratic form,” M.Sc. student.

Ph.D. and M.Sc. degrees awarded

Dimitris Papailiopoulos, “Maximum-likelihood noncoherent OSTBC detection with polynomial complexity,” M.Sc., awarded July 2009.

Undergraduate students supervised

Diploma theses in progress (supervisor)

Nikolaos Kolomvakis, “Zero-error varying-length distributed source coding.”

Anastasia Barkalaki, “Rank-deficient quadratic form maximization with a binary vector: Parallelization and implementation in C.”



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Polychronis Koutsakis

**Rank:** Assistant Professor (tenure-track)

**Years in rank:** 1

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

**Division:** Telecommunications

**Lab affiliation:** Information & Networks Laboratory

### A – Teaching

Undergraduate courses taught

Introduction to Modeling and Performance Evaluation of Communication Networks

- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed : Slides for the undergraduate course “Introduction to Modeling and Performance Evaluation of Communication Networks”
  - Authored textbooks

### B – Publications

Publications in refereed journals

**Submitted: those published/appeared (see below)**

- Lazaris and **P. Koutsakis**, “Pricing-Based Call Admission Control for Wireless MPEG-4 Traffic”, submitted to the *Computer Communications Journal*.
- A. M. Kholaiif, T. D. Todd, **P. Koutsakis** and A. Lazaris, “Energy Efficient Video Transmission for Power Saving

- Wireless LAN Infrastructure”, submitted to the *IEEE Transactions on Multimedia*.
- L. Qiao and **P. Koutsakis**, “Adaptive Bandwidth Reservation and Scheduling for Efficient Wireless Telemedicine Traffic Transmission”, submitted to the *IEEE Transactions on Mobile Computing*.
  - A. Lazaris and **P. Koutsakis**, “Modeling Multiplexed Traffic from H.264/AVC Videoconference Streams”, submitted to the *IEEE Transactions on Multimedia*.

#### Accepted:

- **P. Koutsakis**, M. Vafiadis and A. Lazaris, “A New Bandwidth Allocation Mechanism for Next Generation Wireless Cellular Networks”, accepted for publication in the *ACM Wireless Networks Journal*.
- **P. Koutsakis**, “Dynamic vs. Static Traffic Policing: A New Approach for Videoconference Traffic over Wireless Cellular Networks”, accepted for publication in the *IEEE Transactions on Mobile Computing*.

#### Published:

- **P. Koutsakis**, “On Modeling VBR Videoconferencing Traffic from H.263 Video Coders”, *Computer Communications Journal*, Elsevier Publ., Vol. 31, No. 1, 2008, pp. 1-4.
- **P. Koutsakis**, “A New Framework for Multiple Access and Call Admission Control in Wireless Cellular Networks”, *Computer Communications Journal*, Elsevier Publ., Vol. 31, No. 17, 2008, pp. 3978-3983.
- T. Drivas, **P. Koutsakis** and M. Paterakis, “Performance Evaluation of the Enhanced MI-MAC Protocol for Multimedia Integration over Wireless Cellular Networks”, *Wireless Personal Communications Journal*, Springer Publ., Vol. 50, No. 3, 2009, pp. 291-303.

#### Publications in refereed conferences

Submitted: those published/appeared (see below)

- **P. Koutsakis**, “Call Admission Control for Wireless Videoconference Traffic Based on the Users’ Willingness to Pay”, submitted to the *IFIP Wireless Days 2009*.

#### Published:

- L. Gadbois and **P. Koutsakis**, “Using Efficient Backlog Estimation to Achieve Near-Optimal Throughput for Integrated Multimedia Wireless Cellular Access”, to appear in *Proc. of the*



*5<sup>th</sup> IEEE International Symposium on Wireless Communication Systems (ISWCS) 2008*, Reykjavik, Iceland, October 2008.

- **P. Koutsakis**, “A New Call Admission and Medium Access Control Framework for Multimedia Traffic over GEO Satellite Networks”, to appear in *Proc. of the 11<sup>th</sup> IEEE International Conference on Communication Systems (ICCS)*, November 2008, Guangzhou, China (*Acceptance Ratio: 40%*).
- A. Lazaris and **P. Koutsakis**, “Modeling Video Traffic from Multiplexed H.264 Videoconference Streams”, to appear in *Proc. of the IEEE GLOBECOM 2008*, December 2008, New Orleans, USA (*Acceptance Ratio: 36%*).
- L. Qiao and **P. Koutsakis**, “Fair and Efficient Scheduling for Telemedicine Traffic Transmission over Wireless Cellular Networks”, to appear in *Proc. of the 69<sup>th</sup> IEEE Vehicular Technology Conference - spring, 2009*, Barcelona, Spain (*Acceptance Ratio: 53%*).

## **C – Awards & Distinctions**

## **D – Funded Projects**

Current projects:

*September 2009- August 2010*, Principal Investigator, Research grant from the Technical University of Crete: “Traffic control and resource allocation for wireless cellular networks”, 5000 € total funding.

March 2009-February 2012, Member of the Research Group of 15 university professors from 4 Canadian universities (University of Ottawa, University of Waterloo, McMaster University, Queen’s University) who wrote the research proposal titled: “WiSense: Wireless Heterogeneous Sensor Networks in the e-Society”. This research is being funded by the Ontario Research Fund Research Excellence (*ORF-RE*) and by the industry. Total budget: \$9223800, ORF funding: \$3074600. Industrial partners: Bell Canada, Alcatel-Lucent, IBM, RIM (Research in Motion), Freescale Semiconductor, PacketDNA, Wireless Network Design & EMC Services.

## **E – Professional service**

Associate Editor duties

*Computer Communications Journal* (Elsevier)

the *International Journal on Advances in Networks and Services*, published by IARIA (International Academy, Research and Industry Association).

the *International Journal on Advances in Telecommunications* (published by IARIA).

Society Technical Committee duties

Voting Member of the *IEEE Multimedia Communications Technical Committee (MMTC)*

Conference Technical Program Committee service

IEEE GLOBECOM 2008 Symposium on Wireless Networking

ACS/IEEE Workshop on Radio Resource Management in Wireless Mesh Networks 2008 (RRMinMesh'08)

ACM International Workshop on Performance and Analysis of Mobile and Wireless Networks 2008 (PAMWN 2008)

17<sup>th</sup> IEEE International Conference on Computer Communication and Networks (ICCCN) 2008 – Network Algorithms and Performance Evaluation Track

7<sup>th</sup> IEEE/ACIS International Conference on Computer and Information Science (ICIS 2008)

IEEE International Conference on Wireless Communications and Mobile Computing (IWCMC) 2008 – General Symposium

3<sup>rd</sup> International Conference on Pervasive Computing and Applications (ICPCA 08)

IEEE Conference on Local Computer Networks (LCN) 2008

IFIP International Conference on Embedded and Ubiquitous Computing (EUC) 2008 - Network Protocol Track

International Conference on Access Networks (AccessNets 2008)

IEEE CCNC 2009 – Short Papers Session

IEEE ICC 2009 – Wireless Networking Symposium

IEEE ICC 2009 – Wireless Communications Symposium

7<sup>th</sup> IEEE International Conference on Pervasive Computing and Communications (PerCom) 2009

8<sup>th</sup> International Conference on Networks (ICN 2009)

8<sup>th</sup> IEEE/ACIS International Conference on Computer and Information Science (ICIS 2009)

IEEE CCECE 2009

International Computer Science and Technology Conference (ICSTC) 2009

IEEE International Conference on Wireless Communications and Mobile Computing (IWCMC) 2009 – General Symposium

IEEE Workshop on Mobility and its Applications 2009 (in conjunction with the 5<sup>th</sup> IEEE International Conference on Wireless Communications and Mobile Computing (IWCMC) 2009)

Conference Organization (specify role)

Technical Program Co-Chair for the 4<sup>th</sup> ACM Workshop on Wireless Multimedia Networking and Performance Modeling (WMuNep, in conjunction with the ACM MSWiM), October 2008, Vancouver, Canada.

Reviewing activities

*IEEE Transactions on Mobile Computing*  
*IEEE Transactions on Broadcasting*  
*IEEE Transactions on Circuits and Systems for Video Technology*  
*ACM Wireless Networks Journal*  
*IET Signal Processing*  
*Wireless Personal Communications Journal (Springer Publ.)*  
*Computer Networks Journal (Elsevier Science Publisher)*  
*Computer Communications Journal (Elsevier Science Publisher)*  
*Journal of Network and Computer Applications (Elsevier Publ.)*  
*Journal of the Franklin Institute (Elsevier Publ.)*  
*Simulation Modelling Practice and Theory (Elsevier Publ.)*  
*EURASIP Journal on Wireless Communications and Networking (Hindawi Publ.)*  
*International Journal of Communication Systems (Wiley Publ.)*  
*Journal of Virtual Reality and Broadcasting (Duesseldorf University of Applied Sciences)*

## **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

Lu Qiao, “Adaptive Bandwidth Reservation and Scheduling for Efficient Telemedicine Traffic Transmission over Wireless Cellular Networks”, M. A. Sc Thesis, September 2008, Electrical and Computer Engineering Department, McMaster University, Canada.



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Athanasios Liavas

**Rank:** Associate Professor

**Years in rank:** 5 1/2

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

Undergraduate courses taught

Telecommunications Systems II  
Wireless Communications

Graduate courses taught

Information Theory

- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed
    - A. P. Liavas** and G.N. Karystinos Lecture Notes on “Signals & Systems”
  - Authored textbooks

### B – Publications

Publications in refereed journals

Submitted: those published/appeared (see below)

- D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the MIMO Tomlinson-Harashima precoder with respect to channel uncertainties,” submitted to the *IEEE Transactions on Signal Processing*, December 2008.

**A. P. Liavas** and G. N. Karystinos, “High and low SNR diversity of the demodulate-and-forward cooperative protocol with binary input and hard decisions,” submitted to the *IEEE Transactions on Information Theory*, May 2009.

Accepted:

D. Tsipouridou and **A. P. Liavas**, “On the sensitivity of the MIMO Tomlinson-Harashima precoder with respect to channel uncertainties,” *IEEE Transactions on Signal Processing*, accepted August 2009.

G. N. Karystinos and **A. P. Liavas**, “Efficient computation of the binary vector that maximizes a rank-deficient quadratic form,” originally accepted to the *IEEE Transactions on Information Theory*, June 2008.

## **C – Awards & Distinctions**

## **D – Funded Projects**

Current projects:

COOPCOM: FP6 FET Open project.(2006-2009) Coordinator and PI for TSI:  
**A. P. Liavas.**

## **E – Professional service**

Associate Editor duties

*IEEE Transactions on Signal Processing* (4 years of service in total)

Society Technical Committee duties

re-elected member of the *IEEE Signal Processing for Telecommunications and Networking* (IEEE SPCOM-TC) Technical Committee (re-elected December 2008).

Conference Technical Program Committee service

SPAWC 2009

Reviewing activities

*IEEE Transactions on Signal Processing*, *IEEE Transactions on Wireless Communications*, *ICASSP09*, *SPAWC09*.

## **F – Service to the Department and the School**

School-level responsibilities

Member of the Library Committee of the TUC.

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

Despoina Tsipouridou (Ph.D. Candidate, 3<sup>rd</sup> year in program)

Ioannis Kardaras (Msc Student, 1<sup>st</sup> year in program)

Emmanouil Matigakis (Msc Student, 1<sup>st</sup> year in program)

PhD. And M.Sc. degrees awarded

Undergraduate students supervised

Diploma theses in progress (supervisor)

Aleksios Balatsoukas

Despoina Georgiadou

Diploma theses completed (supervisor)

Emmanouil Matigakis



## Annual Activity Report

*For the period: September 1, 2008 to August 31, 2009*

**Name:** Michael Paterakis

**Rank:** Professor

**Years in rank:** 10

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

**Division:** Telecommunications

**Lab affiliation:** Information and Computer Networks Laboratory

### A – Teaching

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

### B – Publications

Publications in refereed journals

Published

T. Drivas, P. Koutsakis and **M. Paterakis**, “Performance Evaluation of the Enhanced MI-MAC Protocol for Multimedia Integration over Wireless Cellular Networks”, *Wireless Personal Communications Journal*, Springer Publ., Vol. 50, No. 3, pp. 291 – 302, August 2009.

### C – Awards & Distinctions

### D – Funded Projects

Current projects:

“Technical Consultant of the National Administrative Authority of the Information Society Program for the project: *Design, Development and Construction of Broadband Fiber Optic-Based Metropolitan Area*

*Networks (MANs) in the Region of Crete*” (MANs are built in six municipalities). Funded for the period 1/10/2004 – 31/12/2009, by the Information Society Program of the Third European Union Support Framework for Greece, PI: Prof. M. Paterakis. Budget: 635,5K €.

## **E – Professional service**

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

## **F – Service to the Department and the School**

School-level responsibilities

September 2005 – August 2012. Vice-Rector of Academic Affairs and Personnel, Technical University of Crete.

Associate Chairman of the Board, Company for the Management and Exploitation of the Property and for the Development, Management and Exploitation of the Technology Park of the Technical University of Crete.

Member of the Board, Telecommunication Systems Research Institute (T.S.I.), Technical University of Crete.

## **G – Advising**

Active graduate students supervised

M.Sc. degrees awarded

Moisis Vafiadis, M.Sc., ECE Dept., Tech. Univ. of Crete, Completion Time: Summer 2009, co-supervision with Assistant Prof. P. Koutsakis, ECE Dept., Tech. Univ. of Crete.

M.Sc. Thesis: A new Bandwidth Allocation Mechanism for Next Generation Wireless Cellular Networks.

Sotiris Bouros, M.Sc., ECE Dept., Tech. Univ. of Crete, Completion Time: Fall 2009.

*M.Sc. Thesis:* Service Level Agreement Implementation Mechanisms for Virtual Private Networks across different Service Providers.

M.Sc. students supervised

Sotiris Bouros

Moisis Vafiadis, co-supervision with Assistant Prof. P. Koutsakis.





## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** *Alexandros Potamianos*

**Rank:** Associate Professor

**Years in rank:** 6+1/2

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

**Division:** Telecommunications

**Lab affiliation:** Information and Computer Networks Laboratory

### A – Teaching

Undergraduate courses taught

TEL 411 – Natural Language Processing

TEL 303 – Statistical Modeling and Pattern Recognition

TEL 211 – Probability and Random Processes (with V. Digalakis)

Graduate courses taught

TEL 611 – Natural Language Processing

- Curriculum & course development
  - Notes for TEL 303

### B – Publications

Publications in refereed journals

Submitted

- P. Tsiakoulis, **A. Potamianos**, and D. Dimitriadis, "Spectral Moment Features Augmented by Low Order Cepstral Coefficients for Robust ASR," *IEEE Signal Processing Letters*, submitted, 2009.
- S. Yildirim, S. Narayanan, and **A. Potamianos**, "Detecting Emotional State of a Child in a Conversational Computer Game," *Computer, Speech and Language*, submitted, 2009.

#### Accepted

- D. Nion, K. Mokios, N. Sidiropoulos, **A. Potamianos**, "Batch and Adaptive PARAFAC-Based Blind Separation of Convolutional Speech Mixtures," *IEEE Transactions on Audio, Speech and Language Processing*, to appear, 2009.
- E. Iosif, and **A. Potamianos**, "Unsupervised Semantic Similarity Computation Between Terms Using Web Documents," *IEEE Transactions on Knowledge and Data Engineering*, to appear, 2009.

#### Published

- D. Dimitriadis, **A. Potamianos**, and P. Maragos, "A Comparison of the Squared Energy and Teager-Kaiser Operators for Short-Time Energy Estimation in Noise," *IEEE Transactions on Signal Processing*, vol. 57, no. 7, pp. 2569-2581, July 2009.
- E. Sanchez-Soto, **A. Potamianos**, and K. Daoudi, "Unsupervised stream weight computation in classification and detection tasks," *IEEE Transactions on Audio, Speech and Language Processing*, vol. 17, no. 3, pp. 436-445, Mar. 2009.

#### Publications in refereed conferences

##### Submitted/Accepted/Published

- S. Dimopoulos, C.H. Lee, E. Fosler-Lussier, and **A. Potamianos**, "Transition features for CRF-based recognition and boundary detection," in *Proc. Automatic Speech Recogn. and Underst. Workshop (ASRU-2009)*, Merano, Italy, Dec. 2009.
- P. Tsiakoulis, **A. Potamianos**, and D. Dimitriadis, "Short-time instantaneous frequency and bandwidth features for speech recognition," in *Proc. Automatic Speech Recogn. and Underst. Workshop (ASRU-2009)*, Merano, Italy, Dec. 2009.
- T. Kannetis, and **A. Potamianos**, "Towards Adapting Fantasy, Curiosity and Challenge in Multimodal Dialogue Systems for Preschoolers," in *Proc. Int'l Conf. on Multimodal Interfaces (ICMI-2009)*, Boston, MA, Nov. 2009.
- T. Kannetis, **A. Potamianos**, and G.N. Yannakakis "Fantasy, Curiosity and Challenge as Adaptation Indicators in Multimodal Dialog Systems for Preschoolers," in *Proc. Workshop of Child, Computer and Interaction (WOCCI-2009)*, Boston, MA, Nov. 2009.
- M. Gerosa, D. Giuliani, S. Narayanan, and **A. Potamianos**, "A Review of ASR Technologies for Children's Speech," in *Proc. Workshop of Child, Computer and Interaction (WOCCI-2009)*, Boston, MA, Nov. 2009.
- P. Tsiakoulis, and **A. Potamianos**, "Statistical Analysis of Amplitude Modulation in Speech Signals using an AM-FM Model," in *Proc. Intl. Conf. on Acoustics, Speech and Signal Processing (ICASSP-2009)*, Taipei, Taiwan, Apr. 2009.

- G. Evangelopoulos, A. Zlatintsi, G. Skoumas, K. Rapantzikos, **A. Potamianos**, P. Maragos, and Y. Avrithis "Video Event Detection and Summarization Using Audio, Visual and Text Saliency," in Proc. *Intl. Conf. on Acoustics, Speech and Signal Processing* (ICASSP-2009), Taipei, Taiwan, Apr. 2009.
- S. Dimopoulos, **A. Potamianos**, E. Fosler-Lussier, and C.-H. Lee, "Multiple Time Resolution Analysis of Speech Signals Using MCE Training with Application to Speech Recognition," in Proc. *Intl. Conf. on Acoustics, Speech and Signal Processing* (ICASSP-2009), Taipei, Taiwan, Apr. 2009.

## C – Awards & Distinctions

## D – Funded Projects

Current projects (Principal Investigator):

PENED: Aero-acoustic modeling of the vocal tract using Navier-Stokes equations with application to speech synthesis, GRST, Award Period: 11/2005–6/2009. PI: **A. Potamianos**, Funding level: 120K €.

Current projects (collaborator):

"Dicta-Sign: Sign Language Recognition, Generation and Modeling with Application in Deaf Communication" FP7-STREP, NTUA PI: P. Maragos, 2009 - 2011

Project proposals submitted:

CHANGE!, "Peripheral Technologies for Human Change", EU-IST FP7  
BabyExp, "Acquiring Commonsense Knowledge Like Children Do", EU-IST FP7

## E – Professional service

Conference Reviewer Committee

ICASSP 2009

Conference Organization

Reviewing activities

Reviewer for *IEEE Trans. on Speech and Audio Processing*, *IEEE Signal Proc. Letters*, *Speech Processing*

## **F – Service to the Department and the School**

School-level responsibilities

Alternate representative of Dept. of ECE to ELKE

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

Manolis Perakakis (Ph.D.), 2004-

Ilias Iosif (Ph.D.), 2007-

Pirros Tsiakoulis (Ph.D.) (co-supervised with Prof. Karagiannis), Natl. Tech. Univ. of Athens, 2005-

Ioannis Klasinas (Ph.D.) (co-supervised with Dr. Daoudi), IRIT-France, 2008-

Spyros Dimopoulos (M.Sc.), 2007-

Theodosios Moschopoulos (M.Sc.), 2008-

Nikos Malandrakis (M.Sc.), 2008-

Maria Giannoudaki (M.Sc.), 2008-

M.Sc. degrees awarded

Thanasis Tegos, (M. Sc.) 2009

Theofanis Kanetis (M.Sc.), 2009

Undergraduate students supervised

Diploma theses in progress (supervisor)

Vasiliki Kouloumenta

Afroditi Maragouli

Fani Tsapeli

Panagiotis Kerammidas

Stylianios Mammas

Giorgos Evgeniadis

Diploma theses completed (supervisor)

Vasso Farantouri

Alkis Bakaros

Georgia Tsakogianni

Theodosios Moschopoulos

Nikos Georgantonis

Isidoros Rodomagoulakis

Spyros Meliopoulos

Vaios Bakirtzoglou

Giorgos Skoumas



## Annual Activity Report

*For the period: Sep. 1, 2008 to Aug. 31, 2009*

**Name:** Nikos Sidiropoulos

**Rank:** Professor

**Years in rank:** 7+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 2008)

TEL 502 – Statistical Signal Processing for Communications (Spring 2009)

Graduate courses taught

TEL 60x – Convex Optimization (Spring 2009)

○ Labs taught

TEL 301 – Telecommunication Systems I Lab (Fall 2008)

○ Curriculum & course development

○ New courses / labs developed

○ Lecture notes / slides developed

○ Authored textbooks

### B – Publications

Publications in refereed journals

Submitted

A.B. Gershman, **N.D. Sidiropoulos**, S. Shahbazpanahi, M. Bengtsson,  
and B. Ottersten, "Convex Optimization-based Beamforming:

From Receive to Transmit and Network Designs", *IEEE Signal Processing Magazine*, special issue on Convex Optimization for Signal Processing, submitted Aug. 2009.

- A. Abdelkader, A.B. Gershman, and **N.D. Sidiropoulos**, "Multiple-Antenna Multicasting Using Channel Orthogonalization and Local Refinement", *IEEE Trans. on Signal Processing*, submitted July 10, 2009.
- A. Valyrakis, E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, "Stochastic Modeling and Particle Filtering Algorithms for Tracking a Frequency-Hopped Signal", *IEEE Trans. on Signal Processing*, 57(8):3108-3118, Aug. 2009.
- D. Nion, **N.D. Sidiropoulos**, "Adaptive Algorithms to Track the PARAFAC Decomposition of a Third-Order Tensor", *IEEE Trans. on Signal Processing*, 57(6):2299-2310, June 2009.

#### Accepted

- D. Nion, **N.D. Sidiropoulos**, "Adaptive Algorithms to Track the PARAFAC Decomposition of a Third-Order Tensor", *IEEE Trans. on Signal Processing*, 57(6):2299-2310, June 2009. [PDF](#)
- A. Valyrakis, E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, "Stochastic Modeling and Particle Filtering Algorithms for Tracking a Frequency-Hopped Signal", *IEEE Trans. on Signal Processing*, 57(8):3108-3118, Aug. 2009. [PDF](#)
- V. Ntranos, **N.D. Sidiropoulos**, L. Tassiulas, "On Multicast Beamforming for Minimum Outage", *IEEE Trans. on Wireless Communications*, 8(6):3172-3181, June 2009. [PDF](#)
- K.T. Phan, S.A. Vorobyov, **N.D. Sidiropoulos**, and C. Tellambura, "Spectrum Sharing in Wireless Networks via QoS-Aware Secondary Multicast Beamforming", *IEEE Trans. on Signal Processing*, 57(6):2323-2335, June 2009. [PDF](#)
- D. Nion, K. Mokios, **N.D. Sidiropoulos**, A. Potamianos, "Batch and Adaptive PARAFAC-Based Blind Separation of Convolutional Speech Mixtures", *IEEE Trans. on Audio, Speech and Language Processing*, to appear.
- E. Manskani, **N.D. Sidiropoulos**, Z.-Q. Luo, L. Tassiulas, "Efficient Batch and Adaptive Approximation Algorithms for Joint Multicast Beamforming and Admission Control", *IEEE Trans. on Signal Processing*, to appear. [PDF](#)

#### Published

- D. Nion, **N.D. Sidiropoulos**, "Adaptive Algorithms to Track the PARAFAC Decomposition of a Third-Order Tensor", *IEEE Trans. on Signal Processing*, 57(6):2299-2310, June 2009. [PDF](#)
- A. Valyrakis, E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, "Stochastic Modeling and Particle Filtering Algorithms for Tracking a

- Frequency-Hopped Signal'', *IEEE Trans. on Signal Processing*, 57(8):3108-3118, Aug. 2009. [PDF](#)
- V. Ntranos, **N.D. Sidiropoulos**, L. Tassiulas, ``On Multicast Beamforming for Minimum Outage'', *IEEE Trans. on Wireless Communications*, 8(6):3172-3181, June 2009. [PDF](#)
- K.T. Phan, S.A. Vorobyov, **N.D. Sidiropoulos**, and C. Tellambura, ``Spectrum Sharing in Wireless Networks via QoS-Aware Secondary Multicast Beamforming'', *IEEE Trans. on Signal Processing*, 57(6):2323-2335, June 2009. [PDF](#)
- E. Sayag, A. Leshem, **N.D. Sidiropoulos**, ``Finite Word Length Effects on Transmission Rate in Zero Forcing Linear Precoding for Multichannel DSL'', *IEEE Trans. on Signal Processing*, 57(4):1469-1482, Apr. 2009. [PDF](#)
- R. Bro, R.A. Harshman, **N.D. Sidiropoulos**, M.E. Lundy, ``Modeling Multi-Way Data with Linearly Dependent Loadings'', *J. Chemometrics*, July-August 2009 (DOI: 10.1002/cem.1206). [PDF](#)
- E. Tsakonas, **N.D. Sidiropoulos**, A. Swami, ``Optimal Particle Filters for Tracking a Time-Varying Harmonic or Chirp Signal'', *IEEE Trans. on Signal Processing*, 56(10):4598-4610, Oct. 2008.
- A. Ribeiro, **N.D. Sidiropoulos**, G.B. Giannakis, ``Optimal Distributed Stochastic Routing Algorithms for Wireless Multihop Networks'', *IEEE Trans. on Wireless Communications*, 7(11):4261-4272, Nov. 2008. [PDF](#)

#### Publications in refereed conferences

Submitted: same as published (see below)

Accepted: same as published (see below)

Published

- A. Abdelkader, I. Wajid, A.B. Gershman, **N.D. Sidiropoulos**, ``Transmit Beamforming for Wireless Multicasting Using Channel Orthogonalization and Local Refinement'', in *Proc. ICASSP 2009*, April 19-24, 2009, Taipei, Taiwan.
- D. Nion, **N.D. Sidiropoulos**, ``A PARAFAC-based Technique for Detection and Localization of Multiple Targets in a MIMO Radar System'', in *Proc. ICASSP 2009*, April 19-24, 2009, Taipei, Taiwan.

- Books and edited book chapters
- Patents

## C – Awards & Distinctions

- *IEEE Fellow* (Nov. 2008) *for contributions to signal processing for communications*
- *Distinguished Lecturer* of the IEEE Signal Processing Society for 2008-2009.
- Appointed member of the Greek National Research and Technology Council (ΕΣΕΤ), 2008-

## D – Funded Projects

Current projects:

Joint Transceiver Optimization and Scheduling / Admission Control in Wireless Networks, ERO, PI: N.D. Sidiropoulos. Funding level: 20K €.  
Participant in FP projects COOPCOM (PI: A. Liavas); N-CRAVE (PI: L. Tassioulas)

Project proposals submitted:

Submitted FP7/ICT SONET-ACORN proposal (passed threshold, but not funded), HERAKLEITOS-II proposal (results not out yet), TUC/ELKE proposal (funded), participated in REGPOT-II group proposal (passed threshold, but not funded)

## E – Professional service

- Associate Editor duties  
Member of the Editorial Board, *IEEE Signal Processing Magazine* (Jan. 2009 -)  
Associate Editor, Elsevier *Signal Processing* (Jan. 2009 -)  
*Guest Editor, IEEE Signal Processing Magazine: Special Issue on Convex Optimization in Signal Processing* (with Z.-Q. Luo, Y. Eldar, D. Palomar, K. Ma), to appear in Fall 2010.

Society Technical Committee duties

Chair, *Signal Processing for Communications Technical Committee, IEEE Signal Processing Society* (till Dec. 31, 2008).

Member, *Sensor Array and Multichannel Signal Processing Technical Committee, IEEE Signal Processing Society*

Conference Technical Program Committee service

IEEE ICASSP 2009

TRICAP 2009

IEEE CAMSAP 2009

Conference Organization (specify role)



Tutorials and student paper awards chair for ICASSP 2011 – Prague  
Publicity chair for ICASSP 2015 - Australia

Reviewing activities

Regular reviewer for *IEEE Trans. on Signal Processing*, *IEEE Trans. on Communications*, *IEEE Trans. on Wireless Communications*.

## **F – Service to the Department and the School**

Departmental responsibilities

Laboratory Director, Telecommunications Lab, Department of Electronic and Computer engineering, Technical University of Crete.

School-level responsibilities

Associate Director and Member of the Board, Telecommunication Systems Institute, Technical University of Crete.

Member, Επιτροπή Αναμόρφωσης Εσωτερικού Κανονισμού Πολυτεχνείο Κρήτης

## **G – Advising**

Active graduate students supervised

Ph.D. and M.Sc. students supervised

Evaggelia Matskani (Ph.D). Year of initial enrollment in program: 2007.

Dimitris Evaggelinakis (M.Sc). Year of initial enrollment in program: 2007.

Vassilis Ntranos (M.Sc.), “Marketing resource allocation in social networks”.

Ioannis Mitliagas (M.Sc.), “Distributed Admission and Power Control in Wireless Networks”.

PhD. And M.Sc. degrees awarded

Undergraduate students supervised

Diploma theses in progress (supervisor)

Vaggelis Papalexakis, “Reviewer profiling using factor analysis”.

Ioannis Sarris, “Social network analysis using multi-dimensional scaling”.

Konstantinos Apostolou, “Crosstalk onset detection and rate back-off in xDSL”.

Diploma theses completed (supervisor)

Vassilis Ntranos, “Multicast beamforming for minimum outage”.

Ioannis Mitliagas, “Joint Admission and Power Control in Wireless Networks”.