



**Technical University of Crete**

Department of  
Electronic and  
Computer Engineering

# **Annual Activity Report**

For the period Sep. 1, 2011 - Aug. 31, 2012

Chania, Crete

Nov. 1, 2012

[DRAFT v5.1]

Chania 2012

## **Computer Science Division**

### **Faculty Members:**

- Georgios Chalkiadakis, Assistant Professor
- Stavros Christodoulakis, Professor
- Antonios Deligiannakis, Assistant Professor
- Minos Garofalakis, Professor
- Michail G. Lagoudakis, Assistant Professor (tenured)
- Katerina Mania, Assistant Professor (tenured)
- Euripides G. M. Petrakis, Associate Professor
- Vasilis Samoladas, Assistant Professor (tenured)



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Georgios Chalkiadakis

**Rank:** Assistant Professor

**Years in rank:** ½

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory

### A – Teaching

- Undergraduate courses taught
  - COMP-201 Design and Development of Information Systems [Winter 2011]
  - COMP-517 Multiagent Systems [Spring 2012]
  
- Graduate courses taught
  - COMP-606 Multiagent Systems [Spring 2012]  
**Note: this is *not* a cross-listed course, but a distinct graduate-level course**
  
- Curriculum & course development
  - New courses / labs developed
    - COMP-606 Multiagent Systems [Spring 2012]
    - COMP-201 Design and Development of Information Systems [Winter 2011]  
**Note: though this was a pre-existing course (under the name Object-Oriented Programming), its structure and material was significantly modified**
  
  - Lecture notes / slides developed
    - For the courses I taught.

## B – Publications

- **Books**

**Published:**

Georgios Chalkiadakis, Edith Elkind, and Michael Wooldridge: Computational Aspects of Cooperative Game Theory. Morgan & Claypool Publishers, October 2011.

- Also, an article based on the book contents appeared in [IEEE Intelligent Systems 27\(3\): 86-90 \(2012\): Georgios Chalkiadakis, Edith Elkind, Michael Wooldridge, “Cooperative Game Theory: Basic Concepts and Computational Challenges”](#).

- **Publications in refereed journals**

**Published:**

1. Georgios Chalkiadakis and Craig Boutilier, “Sequentially Optimal Repeated Coalition Formation under Uncertainty”, Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS), vol. 24, no. 3, pp. 441-484, May 2012.
2. Georgios Chalkiadakis, E. Elkind, M. Wooldridge, “[Cooperative game theory: Basic concepts and computational challenges](#)”, IEEE Intelligent Systems, issue 3, 86-90, July 2012.

- **Publications in refereed conferences**

**Published (full papers):**

1. Athanasios Aris Panagopoulos, Georgios Chalkiadakis, and Eftichios Koutroulis: **Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region**. In Proc. of the 20<sup>th</sup> European Conference on Artificial Intelligence, Prestigious Applications of Intelligent Systems track (**ECAI-2012/PAIS-2012**), Montpellier, France, August 2012. **Best Student Paper Award winner**.
2. Ramachandra Kota, Georgios Chalkiadakis, Valentin Robu, Alex Rogers, and Nicholas R. Jennings: **Cooperatives for Demand Side Management**. In Proc. of the 20<sup>th</sup> European Conference on Artificial Intelligence, Prestigious Applications of Intelligent Systems track (**ECAI-2012/PAIS-2012**), Montpellier, France, August 2012.
3. Tim Matthews, Sarvapali Ramchurn, and Georgios Chalkiadakis: **Competing with Humans in Fantasy Football: Team Formation in Large Partially Observable Domains**. In Proc. of the 26<sup>th</sup> AAAI Conference on Artificial Intelligence (**AAAI-2012**), Toronto, ON, Canada, July 2012.
4. Valentin Robu, Ramachandra Kota, Georgios Chalkiadakis, Alex Rogers, and Nicholas R. Jennings: **Cooperative Virtual Power Plant Formation Using Scoring Rules**. In Proceedings of the 26<sup>th</sup> AAAI Conference on Artificial Intelligence (**AAAI-2012**), Toronto, ON, Canada, July 2012.
  - A preliminary version of this paper was also accepted as a short article (extended abstract) in AAMAS-2012.
5. Georgios Chalkiadakis, Evangelos Markakis, and Nicholas R. Jennings: **Coalitional Stability in Structured Environments**. In Proc. of the 11th International Conference on Autonomous Agents and MultiagentSystems (**AAMAS-2012**), Valencia, Spain, June 2012.
6. W.T. Luke Teacy, Georgios Chalkiadakis, Alessandro Farinelli, Alex Rogers, Nicholas R. Jennings, Sally McClean and Gerard Parr: **Decentralized Bayesian Reinforcement Learning for Online Agent Collaboration**. In Proceedings of the 11th International Conference on Autonomous Agents and MultiagentSystems (**AAMAS-2012**), Valencia, Spain, June 2012.

7. Yair Zick, Georgios Chalkiadakis, and Edith Elkind: Overlapping Coalition Formation Games: Charting the Tractability Frontier. In Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems (**AAMAS-2012**), Valencia, Spain, June 2012.

## **C – Awards & Distinctions**

1. **Best Student Paper Award at PAIS-2012 (Prestigious Applications of Intelligent Systems track ECAI-2012/PAIS-2012, Montpellier, France, August 2012):**
  - Athanasios Aris Panagopoulos, Georgios Chalkiadakis, and Eftichios Koutroulis: **Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region.**

## **E – Professional service**

- Conference Technical Program Committee service
  - Program Committee member: the 11<sup>th</sup> International Conference on Autonomous Agents and Multiagent Systems, Valencia, Spain, June 2012 (AAMAS-2012)
  - Program Committee member: the 3<sup>rd</sup> International Conference on Agents and Artificial Intelligence, Rome, Italy, January 2011 (ICAART-2011)
  - International workshops: CoopMAS2012, MSDM2012
- Conference Organization (specify role)
  - Tutorial Speaker: AAMAS-2012 (Valencia, Spain) June 2012
- Reviewing activities
  - Reviewer for the conferences and workshops I was a Program Committee member at (mentioned above)
  - Reviewer for the “International Journal on Artificial Intelligence Tools” (IJAIT)
  - Reviewer for the “Advances in Artificial Intelligence” (AAI) journal
  - Reviewer for the “Journal of Autonomous Agents and Multiagent Systems (JAAMAS)

## **G – Advising**

- Graduate students supervised
  - MSc theses in progress (supervisor)
    - Charilaos Akasiadis: interested in various aspects of AI, and in particular in intelligent agent technologies for the Smart Grid
    - Konstantinos Babas (MSc student): interested mainly in research in large multiagent domains, and also in information systems and software customization
    - Aris Kidonakis (MSc student): interested in applying multiagent systems technologies in social networks

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Thanos Panagopoulos: works on applying AI techniques in the Smart Grid domain
      - already published a paper in an international conference (PAIS-2012, which was awarded the Best Student Paper Award – see above)
    - Georgios Kastrinakis: works on team formation and learning in the Fantasy Football application domain
    - Orfeas Romaidis: works on employing reinforcement learning techniques for optimal sun-tracking
    - Dimosthenis Skipetaris: works on developing basic and advanced infrastructure for the operation of Virtual Power Plants, and the validation of various multiagent systems techniques in such environments
    - Joseph Bitzanakis: works on developing and verifying the applicability of various pricing mechanisms and algorithms for Virtual Power Plants
    - Juliana Peres Hernandez Sanches: works on the design and implementation of a Game Theory applications toolkit for handheld devices

### **Other Activities**

Georgios led a group of students as the manager of the “TUCTAC” Trading Agents Competition Ad Auctions team, which represented our institution at the TAC/Ad Auctions 2012 competition. TUCTAC qualified for the competition finals, which were held in Valencia, Spain, during the 2012 International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2012). “TUCTAC” eventually placed 6<sup>th</sup> in the competition (among 8 final participants). You can find more information on “TUCTAC” at <http://intellix.intelligence.tuc.gr/tuctac/index.html>.



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Stavros Christodoulakis

**Rank:** Professor

**Years in rank:** 23

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

**Division:** Computer Science

**Lab affiliation:** Distributed Multimedia Information Systems & Applications Lab

### A – Teaching

- Undergraduate courses taught
  - COMP 302: Data Bases (mandatory)
  - AIS 412: Human Computer Interaction
  - AIS 512: Design Development and management of Web Services
  
- Graduate courses taught
  - AIS 609: Human Computer Interaction  
(Offered jointly with AIS 412)
  - AIS 604: Design Development and management of Web Services  
(Offered jointly with AIS 512)

### B – Publications

#### Conference Publications

1. K. Makris, N. Bikakis, N. Gioldasis, S. Christodoulakis: SPARQL-RW: Transparent Query Access over Mapped RDF Data Sources, Proc. 15<sup>th</sup> International Conference on Extending Database Technology (EDBT), March 2012.
  
2. N. Tarantilis, C. Tsinaraki, F. Kazasis, N. Gioldasis, S. Christodoulakis: ENVISUGE: Event VISUalization on Google Earth, Proc. HDMS 2012.



3. K. Makris, G. Skevakis, V. Kalokyri, N. Gioldasis, F. Kazasis, S. Christodoulakis: Bringing Environmental Cultural Content Into Europeana.eu portal: The Natural Europe Digital Libraries Federation Infrastructure, Proc.Fifth Metadata and Semantics Research Conference (MTSR) Special Track on Metadata and Semantics for Cultural Collections, 2011.
4. M. Mylonakis, P. Arapi, N. Pappas, N. Moumoutzis, S. Christodoulakis: Metadata Management and Sharing in Multimedia Open Environment (MOLE), Proc. Of Metadata Semantic and Research Conference (MTSR2011), Oct. 2011.
5. L. Panteli, C. Tsinaraki, L. Ragia, F. Kazasis, S. Christodoulakis: Mobile Multimedia Event Capturing and Visualization, Proc. FTRA MUE 2011.
6. N. Pappas, P.Arapi, N. Moumoutzis, M. Mylonakis, S. Christodoulakis: The Multimedia Open Learning Environment (MOLE), Proc. EDEN2011 Open Classroom Conference, Oct. 2011.

## **D – Funded Projects**

- Projects running:
  1. Organic MedNet Developing the Skills for Organic Agricultural Trainers in Mediterranean (EU, 2009-2011).
  2. Natural Europe: Natural History and Environmental Cultural heritage in European Digital Libraries for Education (EU Project, 2010-2013).
  3. pSkills: Programming Skills Development in Secondary Education by means of Modern Education Programming Languages (EU Project, 2009-2011).
- Project proposals submitted:
  - Open Discovery Space: A Socially powered and Multilingual Open learning Infrastructure to Boost the Adoption of eLearning Resources, EU Project, 2012-2015
  - Alice: Adult's Learning for Intergenerational Learning Experience, EU project, 2011-2013

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

- Departmental responsibilities
  - Graduate Committee ECE.
  - Lab Director ECE (MUSIC).
- School – level responsibilities
  - Scientific Board, Institute of Telecommunications, TUC.

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Makris Konstantinos
    - Skevakis Giannis
    - Christoulakis Marios (MSc)
    - Stylianakis Giorgos (MSc)
    - Pitsiladis Andreas (MSc)
    - Kalokyri Varvara (MSc)
    - Trohatou Ioanna (MSc)
    - Arapi Xenia (PhD)
- Undergraduate students supervised
  - Diploma theses in progress
    - Troulidakis Apostolos
  - Diploma theses completed (supervisor)
    - Skevakis Ioannis
    - Kalokiri Varvara
    - Mathioudakis Theodoros
    - Kalabratsidou Vilelmini
    - Kolokotronis Emmanouil



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Antonios Deligiannakis

**Rank:** Assistant Professor

**Years in rank:** 4 ½

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

**Division:** Computer Science

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

### A – Teaching

- Undergraduate courses taught
  - Comp 102: 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

### B – Publications

- Publications in refereed journals
  - Submitted: those published/appeared (see below)
    - Nikos Giatrakos, Yannis Kotidis, Antonios Deligiannakis, Vasilis Vassalos, Yannis Theodoridis. In-network approximate computation of outliers with quality guarantees. *Inf. Syst.* 38(8): 1285-1308 (2013).
  - Published:
    - Antonios Deligiannakis and Yannis Kotidis. Detecting Proximity Events in Sensor Networks. *Information Systems*, Volume 36, Issue 7, Pages 1044-1063, November 2011.

- Publications in refereed conferences
  - Submitted: those published/appeared (see below)
    - Anastasios Arvanitis, Antonios Deligiannakis, Yannis Vassiliou. Efficient Influence-Based Processing of Market Research Queries. Submitted to ACM CIKM 2012.
    - Sabbas Burdakis, Antonios Deligiannakis. Detecting Outliers in Sensor Networks using the Geometric Approach. In Proceedings of the 28th International Conference on Data Engineering (ICDE), Washington DC, USA, April 2012.
    - Nikos Giatrakos, Antonios Deligiannakis, Minos Garofalakis, Izchak Sharfman, Assaf Schuster. Prediction-Based Geometric Monitoring over Distributed Data Streams. In Proc. of the ACM SIGMOD International Conference on Management of Data, Scottsdale, Arizona, USA, May 2012.
    - Odysseas Papapetrou, Minos Garofalakis, Antonios Deligiannakis. Sketch-based Querying of Distributed Sliding-Window Data Streams. In Proc. of VLDB 2012, Istanbul, Turkey, August 2012.
  - Accepted:
    - Sabbas Burdakis, Antonios Deligiannakis. Detecting Outliers in Sensor Networks using the Geometric Approach. In Proceedings of the 28th International Conference on Data Engineering (ICDE), Washington DC, USA, April 2012.
    - Nikos Giatrakos, Antonios Deligiannakis, Minos Garofalakis, Izchak Sharfman, Assaf Schuster. Prediction-Based Geometric Monitoring over Distributed Data Streams. In Proc. of the ACM SIGMOD International Conference on Management of Data, Scottsdale, Arizona, USA, May 2012.
    - Anastasios Arvanitis, Antonios Deligiannakis, Yannis Vassiliou. Efficient Influence-Based Processing of Market Research Queries. In ACM CIKM 2012. Maui, Hawaii, USA, October-November 2012.
    - Odysseas Papapetrou, Minos Garofalakis, Antonios Deligiannakis. Sketch-based Querying of Distributed Sliding-Window Data Streams. In Proc. of VLDB 2012, Istanbul, Turkey, August 2012.
  - Published:
    - Sabbas Burdakis, Antonios Deligiannakis. Detecting Outliers in Sensor Networks using the Geometric Approach. In Proceedings of the 28th International Conference on Data Engineering (ICDE), Washington DC, USA, April 2012.
    - Nikos Giatrakos, Antonios Deligiannakis, Minos Garofalakis, Izchak Sharfman, Assaf Schuster. Prediction-Based Geometric Monitoring over Distributed Data Streams. In Proc. of the ACM SIGMOD International Conference on Management of Data, Scottsdale, Arizona, USA, May 2012.
    - Odysseas Papapetrou, Minos Garofalakis, Antonios Deligiannakis. Sketch-based Querying of Distributed Sliding-Window Data Streams. In Proc. of VLDB 2012, Istanbul, Turkey, August 2012.
    - Antonios Deligiannakis and Yannis Kotidis. Detecting Proximity Events in Sensor Networks. Information Systems, Volume 36, Issue 7, Pages 1044-1063, November 2011.

## D – Funded Projects

- Current projects:
  - [2012 - 2015] LEADS: Large-scale Elastic Architecture for Data-as-a-Service (FP7 project, started Oct 2012, duration 3 years) Role: Partner.
  - [2012 - 2015] ΕΙΠΙΑΣ: ΕΠΑΓΡΥΠΙΝΗΣΗ ΙΑΤΡΟΤΕΧΝΟΛΟΓΙΚΩΝ ΠΡΟΪΟΝΤΩΝ ΚΑΙ ΑΣΦΑΛΕΙΑ ΑΣΘΕΝΟΥΣ. Ρόλος: Συνεργάτης.
  - [2012 - 2015] «ΕΙΚΟΣ»: Θεωρητική και αλγοριθμική θεμελίωση για Προσωποκεντρικά Συνεργατικά Πληροφοριακά Συστήματα. Ρόλος: Συνεργάτης
- Project proposals submitted:
  - [2012 - 2015] LEADS: Large-scale Elastic Architecture for Data-as-a-Service (FP7 project, started Oct 2012, duration 3 years). Role: Partner.
  - [2012 - 2015] ΕΙΠΙΑΣ: ΕΠΑΓΡΥΠΙΝΗΣΗ ΙΑΤΡΟΤΕΧΝΟΛΟΓΙΚΩΝ ΠΡΟΪΟΝΤΩΝ ΚΑΙ ΑΣΦΑΛΕΙΑ ΑΣΘΕΝΟΥΣ. Role: Partner.
  - [2012 - 2015] «ΕΙΚΟΣ»: Θεωρητική και αλγοριθμική θεμελίωση για Προσωποκεντρικά Συνεργατικά Πληροφοριακά Συστήματα. Ρόλος: Συνεργάτης.
  - [2013 - 2015] Aquanet: Διαχείριση Ύδατος για μία Πόλη με Έξυπνο, Αυτόνομο και Χαμηλού-κόστους Ασύρματο Δίκτυο Αισθητήρων. Ρόλος: Συνεργάτης.

## E – Professional service

- Conference Technical Program Committee service
  - VLDB
  - IEEE ICDE
  - CIKM
  - International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing 2012)
- Conference Organization (specify role)
- Reviewing activities
  - VLDB Journal

## F – Service to the Department and the School

- Departmental responsibilities
  - Consultant in undergraduate studies (2<sup>nd</sup> semester courses).
- School-level responsibilities
  - Department's representative to the synglitos since September 2011.

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Stelios Mammias
    - Yannis Flouris
    - Konstantinos Tsakonas
    - Stergios Charalambopoulos
    - Antonios Igglezakis
    - Sabbas Bourdakis

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Yannis Papadakis
    - Yannis Xarxaros
    - Evina Zografou
    - Emmanouil Vogiatzis
    - Soyias Eleftherios
    - Kostas Zarifis
    - Marina Mavrikoy
  - Diploma theses completed (supervisor)
    - Antonios Igglezakis
    - Sabbas Bourdakis
    - Smalis Sklavos
    - Giorgo Palolli
    - Sofia Georgiakaki
    - Dionysios Kalogiropoulos
    - Pougardis Antonios
    - Christina Christodoulaki



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**Name:** Minos Garofalakis

**Rank:** Professor

**Years in rank:** 4

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

**Division:** Computer Science

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

### A – Teaching

- Undergraduate courses taught
  - COMP 401: Algorithms and Complexity (Mandatory)
- Graduate courses taught
  - COMP 627: Approximate Methods for Massive Databases and Data Streams

### B – Publications

- Publications in refereed journals
  - Published:
    - Stavros Papadopoulos, Graham Cormode, *Minos Garofalakis*, Peter J. Haas, and Christopher M. Jermaine. "Synopses for Massive Data: Samples, Histograms, Wavelets, Sketches", *Foundations and Trends in Databases*, Vol. 4, No. 1-3, pp. 1-294, 2012.
- Publications in refereed conferences
  - Published:
    - Odysseas Papapetrou, *Minos Garofalakis*, and Antonios Deligiannakis. "Sketch-based Querying of Distributed Sliding-Window Data Streams",

Proceedings of VLDB'2012 (PVLDB, Vol. 5, No. 10), Istanbul, Turkey, August 2012.

- Nikos Giatrakos, Antonios Deligiannakis, *Minos Garofalakis*, Izchak Sharfman, and Assaf Schuster. "Prediction-based Geometric Monitoring over Distributed Data Streams", Proceedings of ACM SIGMOD'2012, Scottsdale, Arizona, May 2012.
  - Kalliopi D. Kalantzaki, Ekaterini S. Bei, *Minos Garofalakis*, and Michalis Zervakis. "Biological Interaction Networks Based on Sparse Temporal Expansion of Graphical Models", Proceedings of IEEE BIBE'2012, Larnaca, Cyprus, November 2012.
- Patents
    - Graham Cormode, Antonios Deligiannakis, *Minos Garofalakis*, and Andrew McGregor. "Methods and Apparatus for Representing Probabilistic Data using a Probabilistic Histogram", U.S. Patent No. 8,145,669, Issued December 11, 2011. (Filed December 2009)
    - *Minos Garofalakis* and Amit Kumar. "Deterministic Wavelet Thresholding for General Error Metrics", U.S. Patent No. 8,055,088, Issued November 8, 2011. (Divisional of U.S. Patent No. 7,693,335)

## C – Awards & Distinctions

- Elected *ACM Distinguished Scientist* (2011)

## D – Funded Projects

- Current projects:
  - FP7-ICT-2009-FET Open Collaborative STREP  
Project: “*LIFT – Using Local Inference in Massively Distributed Systems*”  
Duration: Oct. 2010 – Nov. 2013  
Total funding: 2.5Me, TUC budget: 482Ke  
Role: *Principal Investigator for TUC*
  - FP7-PEOPLE-2009-RG (Marie-Curie International Reintegration Grant)  
PIRG05-GA-2009-249217  
“*HeisenData: Towards a Next-Generation Uncertain-Data Management System*”  
Duration: Apr. 2010 – Mar. 2014  
Role: *Fellow & Scientist-in-Charge*. (Total funding: 100Ke)



## **E – Professional service**

- Associate Editor duties
  - Foundations and Trends in Databases: Editorial Board Member (2006 -- present)
  - Statistical Analysis and Data Mining (SAM): Associate Editor (2010 -- present)
  - Knowledge and Information Systems: An International Journal (KAIS): Editorial Board Member (2010 -- present)
  
- Conference Technical Program Committee service
  - VLDB'2012, EDBT'2012, ASONAM'2012, ADBIS'2012
  
- Conference Organization (specify role)
  - 2012 ACM SIGMOD International Conference on Management of Data (SIGMOD'2012), Scottsdale, Arizona: PC Group Leader
  - 28th IEEE International Conference on Data Engineering (ICDE'2012), Washington, DC: Area PC Vice-Chair (Uncertain and Probabilistic Data) and Best Paper Award Chair
  - 2012 ACM International Conference on Information and Knowledge Management (CIKM'2012), Maui, Hawaii: Senior PC Member (Database Track & Knowledge Management Track)
  - 2012 IEEE International Conference on Data Mining (ICDM'2012), Brussels, Belgium: PC Vice-Chair
  - 11th Hellenic Data Management Symposium (HDMS'2012), Chania, Greece: General Chair

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

- Departmental responsibilities
  - ECE Department Chair

## **G – Advising**

### **Undergraduate students supervised**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Kostas Athanasoglou (MSc)
    - Vazaios Evangelos (MSc)
  
  - Ph.D. and M.Sc. Degrees (committee member)
    - Michail Kounelakis (PhD, TUC)
    - Sotirios Batsakis (PhD, TUC)

- Iris Miliaraki (PhD, U of Athens)
- Kostas Tzoumas (PhD, Aalborg U)
- Undergraduate students supervised
  - Diploma theses in progress
    - Ioakeim Perros
    - Vasiliki Prokopi
    - Lefteris Soulas
    - Georgios Komninos
  - Diploma theses completed (supervisor)
    - Stylianos Papagrigoriou



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**Name:** Michail G. Lagoudakis

**Rank:** Assistant Professor (tenured)

**Years in rank:** 7

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory

### A – Teaching

- Undergraduate courses taught
  - COMP 513 – Autonomous Agents [elective] (Fall 2011)
  - COMP 402 – Theory of Computation [mandatory] (Spring 2012)
  - COMP 417 – Artificial Intelligence [elective] (Spring 2012)
- Graduate courses taught
  -
- Labs taught
  - COMP 513 – Autonomous Agents Laboratory (Fall 2011)
- Curriculum & course development
  - New courses / labs developed
    - Added new laboratory exercises to Autonomous Agents
  - Lecture notes / slides developed
    - Updated lecture slides for Theory of Computation
    - Updated lecture slides for Autonomous Agents
    - Updated lecture slides for Artificial Intelligence

### B – Publications

- Publications in refereed conferences
  - Published:
    - Angeliki Topalidou-Kyniazopoulou, Nikolaos Spanoudakis, and **Michail G. Lagoudakis**, “A CASE Tool for Robot Behavior Development,” Proceedings of the 16<sup>th</sup> RoboCup International Symposium (RCS), Mexico City, Mexico, June 2012.

- Alexandros Paraschos, Nikolaos Spanoudakis, and **Michail G. Lagoudakis**, “Model-Driven Behavior Specification for Robotic Teams,” Proceedings of the 11<sup>th</sup> International Conference on Autonomous Agents and Multiagent Systems (AAMAS), Valencia, Spain, June 2012, pp. 171–178.

## C – Awards & Distinctions

- Invited Speaker
  - “RoboCup: A Challenge Problem for Artificial Intelligence”, Keynote Talk, 5th Conference of ECE Students (SFHMMY 5), Xanthi, Greece, April 2012.

## D – Funded Projects

- Current projects:
  - “Kouretes: TUC RoboCup Team”, *Sponsoring Program*, Molto-Chipita S.A., January 2010 – December 2012, Contracts: 80128, 80484, PI: M. G. Lagoudakis, Budget: 37,000€.
  - “NOPTILUS: autonomous, self-learning, optimal, and complete underwater systems”, *Integrated Project, Information and Communication Technologies (ICT)*, Seventh Framework Programme (FP7), European Commission, April 2011 – April 2015, Contract: INFISO-ICT-270180, PIs: N. Sidiropoulos and M. G. Lagoudakis, Budget: 524,300€ (for TSI/TUC).
- Project proposals submitted:
  - “ATLANTAS: Development of a Prototype Real 3-D Forming Touch Table for Interactive 3-D Geographical Information System ”, Principal Investigator for TUC: Panagiotis Partsinevelos (School of Min. Res. Eng.), *Synergasia 2011*, General Secretariat for Research and Technology, Hellenic Ministry of Education .

## 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
- Conference Technical Program Committee service
  - *Intl Conf on Pattern Recognition Applications and Methods 2012*
  - *Intl Conf on Autonomous Agents and Multiagent Systems (AAMAS 2012)*
  - *AAMAS Workshop on Multi-Agent Sequential Decision Making 2012*
  - *16th International RoboCup Symposium (RCS 2012)*
  - *IEEE Intl Conf on Intelligent Robots and Systems (IROS 2012)*
  - *29th International Conference on Machine Learning (ICML 2012)*
  - *10th European Workshop on Reinforcement Learning (EWRL'12)*
- Reviewing activities
  - *Proposal Reviewer*, Swiss National Science Foundation (FNSF)
  - *Proposal Reviewer*, German-Israeli Foundation for Scientific Research & Development
  - *Reviewer*, Journal of Intelligent and Robotic Systems (JINT)
  - *Reviewer*, Journal of Robotics and Autonomous Systems (JRAS)

## F – Service to the Department and the School

- Departmental responsibilities
  - *Editor*, Undergraduate Program Guide (Greek and English)
- School-level responsibilities
  - *Departmental Representative*, TUC Library Committee

## G – Advising

- Graduate students
  - Ph.D and M.Sc. theses completed (supervisor)
    1. Jason Pazis (M.Sc. program), “Reinforcement Learning in Multidimensional Continuous Action Spaces”, Defended Mar 2012
  - Ph.D. and M.Sc. theses in progress (supervisor)
    1. Rexakis Ioannis (Ph.D program), “Reinforcement Learning via Supervised Learning”, Enrollment: 2006 – part-time
    2. Eleftherios Chatzilaris (M.Sc. program), “Coordinated Action and Learning in RoboCup”, Enrollment: 2009
    3. Ioannis Skoulakis (M.Sc. program), “Efficient Reinforcement Learning in Alternating Games”, Enrollment: 2010
  - Ph.D and M.Sc. theses completed (committee member)
    1. Ioannis Christodoulou (M.Sc. program), “An Interactive 3D Lighting System for fMRI Rendering Fidelity Experiments”, ECE, TUC. Defended Feb 2012.
  - Ph.D and M.Sc. theses in progress (committee member)
    1. Anestis Fachantidis (Ph.D. program), “Knowledge Transfer in Reinforcement Learning”, Department of Informatics, Aristotle University of Thessaloniki, Greece.
- Undergraduate students
  - Diploma theses completed (supervisor)
    1. Emmanuil Orfanoudakis, “Reliable Object Recognition for the RoboCup Domain”
    2. Angeliki Topalidou-Kyniazopoulou, “A CASE Tool for Robot-Team Behavior-Control Development”
    3. Astero-Dimitra Tzanetatou, “Interleaving of Motion Skills for Humanoid Robots”
    4. Iris Kyranou, “Path Planning for NAO Robots using an Egocentric Polar Occupancy Map”
    5. Nikolaos Kofinas, “Forward and Inverse Kinematics for the NAO Humanoid Robot”
    6. Georgios Methenitis, “Player Behavior and Team Strategy for the RoboCup 3D Simulation League”
  - Diploma theses in progress (supervisor)
    1. Nikolaos Pavlakis, “Cooperative Global Game State Estimation for the RoboCup Standard Platform League”
    2. Aggelos Aggelidakis, “Learning Strategies for Network Fault Detection and Remediation”
    3. Vasilis Papadimitriou, “Error-Correcting Encoding for Self-Assembly with DNA Tiles”
    4. Georgios Georgakis, “Field Landmark Recognition and Localization for the RobotStadium Online Soccer Competition”

5. Maria Karamitrou, “Local and Global State Estimation and Representation for the RoboCup SPL League”
  6. Georgios Koukoubedakis, “Development of an Educational Graphical Tool for Finite State Machine Simulation”
  7. Stylianos Tsigdinos, “Systematic Search and Reinforcement Learning for the Board Game Backgammon”
- Diploma theses completed (committee member)
    1. Savvas Bourdakis, “Comparison of Algorithms for Outlier Detection in Sensor Networks”
    2. Theodoros Mathioudakis, “Customization of Functionality and Mobile Support (Smartphones and Tablets) for TUC's Educational Platform M.O.L.E (Multimedia Open Learning Environment)”
    3. Leonidas Partas, “4D-Fluents Plug-In”
    4. Alexandros Preventis, “Chronos: A Tool for Handling Temporal Ontologies in Protege”
    5. Athanasios Peristeropoulos, “Development of a System for Scheduling Intelligent Agents using Nature-Inspired Methods”
    6. Christina Christodoulakis, “A rich media mobile web application for visitors and the community of the Technical University of Crete”
    7. Vilemini Kalabratsidou, “Design and Implementation of a Virtual and Augmented Reality System with a Single Button”
- Student team projects
    - Founder and leader of the RoboCup team Kouretes ([www.kouretes.gr](http://www.kouretes.gr)), the first and only Greek team participating in the RoboCup competition. Kouretes 2011-2012 consisted of five undergraduate ECE students working on their diploma theses.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Katerina Mania

**Rank:** Assistant Professor (tenured)

**Years in rank:** 7

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

**Division:** Computer Science

**Lab affiliation:** Distributed Multimedia Information Systems & Applications Lab

### A – Teaching

- Undergraduate courses taught
  - PLH 101 – Introduction to Computers and Computer Science (Winter 2011)
  - On sabbatical March 2012-September 2012
- Graduate courses taught
  - On sabbatical March 2012-September 2012
- Curriculum & course development
  - Updated laboratory exercises, lecture material and slides for PLH 101

### B – Publications

- Books
  - Accepted
    - Coxon, M., **Mania, K.** (2012). Measuring memories for objects and their locations in immersive virtual environments: the subjective component of memorial experience. *Springer book on Human centric visualization: Theories, methodologies and case studies.*

- Publications in refereed journals
  - Submitted
    - Sylaiou, S., **Mania, K.**, Liarokapis, F., White, M., Walczak K., Wojciechowski R., Wiza W. (submitted 2012). Evaluation of a Cultural Heritage Augmented Reality Game. Simulation and Gaming, special issue on ‘Serious Games: Analysis and Case Studies’, SAGE Publications.
  - Accepted
    - **Mania, K.**, Medford, N., Christodoulou, G., Watten, P., Radulescu, E., Critchley, H. (2012, one of best papers of IEEE VSGames 2011). An Interactive Lighting System for fMRI Rendering Fidelity Experiments, *International Journal of Interactive Worlds (IJIW)*, Volume 2012, IBIMA Publishing.
  - Published
    - Mourkoussis, N., Rivera, F., Troscianko, T., Dixon, T., Hawkes, R., **Mania, K.** (2012). Slant Perception based on Gait in Real and Virtual Environments, *Human Computer Studies* 70(2012), 781-793 Elsevier.
- Publications in refereed conferences
  - Submitted
    - Paraskeva, C., Koulieris, G.A., Coxon, M., **Mania, K.** (2012). Gender Differences in Spatial Awareness in Immersive Virtual Environments: A Preliminary Investigation, *ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry*, Singapore.
  - Published
    - Radulescu, E., Christodoulou, J., **Mania, K.**, Critchley, H., Watten, P.L., Seth, A., Medford, N. (2012). Simulated artificial illumination influences neural and behavioural correlates of presence in virtual environments: an fMRI study. Poster in the *16th annual meeting of the Association for the Scientific Study of Consciousness*, Brighton, UK.
    - Papadakis, G., **Mania, K.**, Koutroulis, E. (2011). A System to Measure, Control and Minimize End-to-End Tracking Latency in Immersive Simulations. *ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry 2011*, 581-584, Hong Kong China.
    - Papadakis, G., **Mania, K.**, Coxon, M., Koutroulis, E. (2011). The Effect of Tracking Delay on Awareness States in Immersive Virtual Environments: An Initial Exploration. *ACM SIGGRAPH International Conference on Virtual Reality Continuum and its Applications in Industry 2011*, 475-482, Hong Kong China.
    - McNamara, A., **Mania, K.**, Gutierrez, D. (2011). Perception in Graphics, Visualization, Virtual Environments and Animation. Half-day course, *ACM SIGGRAPHASIA*, Hong Kong, China.
  - Other
    - **Mania, K.**, McNamara, A. (2011). Human-centered VR, AR and Gaming. Workshop proposal. *10th ACM Siggraph Conference on Virtual Reality Continuum and Its Applications in Industry (VRCAI 2011)*, Hong-Kong, China.



## C – Awards & Distinctions

## D – Funded Projects

- Current projects (at the Technical University of Crete, Greece):
  - ‘Selective Rendering Algorithms based on Human Perception (Memory Schemas, HRAKLEITOS II, 2011-2014. PhD candidate Giwrgos Koulieris. Collaborators: Dr George Drettakis, INRIA Sophia Antipolis, Prof. Douglas Cunningham, Technical University of Cottbus, Germany.
  - ‘Exploring Behavioural Fidelity of Lighting Simulations through Neuroscientific and Clinical Imaging Science Metrics for Normal and Patient Populations’, Budget 15.000, Basic Research Funding from the Basic Research Committee of TUC, 2011-2013, Collaborators: Brighton and Sussex Medical School.
  - ‘CYBERSENSORS: High Frequency Monitoring System for Integrated Water Resources Management of Rivers’, THALIS, PI Prof. Nikos Nikolaidis, TUC ECE team Prof. Michalis Zervakis, Dr Euripides Petrakis, Dr Katerina Mania.
- Project proposals submitted as PI:
  - ‘Ανάδειξη της Επιρροής της Κλιματικής Αλλαγής στη Διαμόρφωση της Πρώιμης Πολιτιστικής Κληρονομιάς της Κρήτης, Λέσβου και Κύπρου με Τεχνολογίες Αιχμής’, INTERREG 2012.

## 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).
- Editorial board
  - International journal of Interactive Worlds, IBIMA Publishing (since spring 2010).
  - Springer book on Human centric visualization: Theories, methodologies and case studies.
- Steering Committee
  - ACM Siggraph Symposium on Applied Perception (previously ACM Siggraph Symposium on Applied Perception in Graphics and Visualization).
- Conference Technical Program Committee service - membership
  - International conference on Virtual Systems and Multimedia 2012, Italy
  - ACM Symposium on Applied Perception 2012, Los Angeles, USA.
  - ACM Multimedia 2012, Workshop on On User Experience in e-Learning and Augmented Technologies in Education, Nara, Japan.
  - Euromed 2012 conference: International Conference on Cultural Heritage, Octob. 2012 Lemessos, Cyprus.
  - International conference on Virtual Systems and Multimedia (VSMM) 2012.
  - IADIS Computer Graphics and Visualization 2012.

- Novel Gaze-Controlled Applications 2011, ACM sponsored, Karlsrona, Sweden.
  - Eurographics Symposium on Rendering 2011 (EGSR), Prague.
  - Computational Aesthetics 2011, 2012 sponsored by Eurographics, Canada.
  - [3rd IEEE International Conference in Games and Virtual Worlds for Serious Applications](#) 2011, Greece.
  - ACM Siggraph Symposium on Applied Perception in Graphics and Visualisation, APGV 2011, France.
  - [2nd IEEE International Conference in Games and Virtual Worlds for Serious Applications](#) 2010, Portugal.
- Workshop - Program Organization
    - Program co-chair, 'Human Centred AR, VR and Gaming', workshop organized as part of the *10th ACM Siggraph Conference on Virtual Reality Continuum and Its Applications in Industry (VRCAI 2011)*, Hong-Kong, China.
  - Reviewing activities
    - Various international conferences and journals.

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

- Departmental responsibilities
  - Regular member of the Graduate Studies committee of ECE, 2011-2012.
  - Studies' advisor for the Dept. of ECE, 2011-2012.

## **G – Advising**

- Active graduate students supervised
  - Graduate students completed (at the University of Sussex)
    - Maria Sifniotis 'Mathematical Modelling and 3D Visualization of Archaeological Uncertainty' (Ph.D, Year of initial enrollment in Ph.D program 2003), submitted PhD thesis September 2011.
  - Graduate students completed (at the Technical University of Crete)
    - Giannis Christodoulou 'A 3D Interactive Lighting System for fMRI Rendering Fidelity Experiments' (M.Sc. candidate, year of enrollment Sept. 2008, defended February 2012)
  - Graduate students supervised (at the Technical University of Crete)
    - Giwrgos Alexandros Koulieris 'Selective Rendering Algorithms based on Human Perception Memory Schemas' (Ph.D candidate, accepted for admission to PhD program, April 2011)
    - Katerina Malisova '3D Conceptual Visualization' (M.Sc. candidate, year of enrollment July 2011)
    - Giwrgos Papadakis 'Minimizing Head Tracking Latency in Immersive Virtual Environments and Exploring its Impact on Spatial Cognition' (M.Sc. candidate, year of enrollment Dec. 2007, written-up)
    - Nick Zervoudakis 'Perceptually motivated visualization schemes' (M.Sc. candidate, year of enrollment March 2010)

- Undergraduate students
  - Diploma theses supervised (completed)
    - In sabbatical March 2012-September 2012
  - Diploma theses supervised (in progress)
    - Giannis Giakoumidakis 'A Methodology towards the photorealistic visualization of tsunamis applied to the past tsunami in Heraklion, Crete' (in progress).
    - Grigoris Kondidakis 'Development of a 3D game populated by smart opponents' (in progress).
    - Christos Paraskevas 'Investigating the effect of gender on spatial cognition' (in progress).
    - Stefan Petrovski 'Implementing 3D Smart TUC Campus' (in progress).
- Diploma theses (among others, committee member)
  - In various committee memberships



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

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

**Rank:** Associate Professor

**Years in rank:** 10

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory

### A – Teaching

- Undergraduate courses taught
  - Multimedia Data Management
  - Computer Vision
  - Data Structure and File Structures
  
- Graduate courses taught
  - Computer Vision
  - Special Topics in Information Systems
  
- Labs taught
  - Multimedia Data Management
  - Computer Vision
  - Data Structure and File Structures
  
- Curriculum & course development
  - labs developed for all courses taught
  - slides developed/updated for all courses taught

## 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:
    - Evanthia Tripoliti, Antonios Sakellarios, Michael Peroulis, Euripides G.M. Petrakis, Jan Berends, Erick Tinsson, “Training Scenarios for Vascular Surgeons of Peripheral Arteries”, Modeling of Patient Safety Workshop, VPH2012 Conference, Sept. 18-20 2012, London, UK.
    - Sotiris Batsakis, Euripides G.M. Petrakis, “Imposing Restrictions Over Temporal Properties in OWL: A Rule-Based Approach”, 6th International Symposium on Rules: Research Based and Industry Focused (RuleML 2012), August 27-29, 2012. Montpellier, France.
    - Evanthia E. Tripoliti, Antonis I. Sakellarios, Michael Peroulis, Euripides G.M. Petrakis, Michalis Zervakis, "Real-Time Simulation for Safer Vascular Stenting – The Training Application", 34th Annual International Conference of the IEEE in Medicine and Biology Society (EMBC'2012), August 28 - September 1, 2012, San Diego, California.
    - Antonios Dimas, Pyrros Koletsis, Euripides G.M. Petrakis, "DOG: An Annotation System for Images of Dog Breeds", 9th International Conference on Image Analysis and Recognition (ICIAR'2012), June 25-27, 2012, Aveiro, Portugal.
    - Evanthia Tripoliti, Antonios Sakellarios, Michael Peroulis, Euripides G.M. Petrakis, “The Vascular Medicine Training Application”, Computer Assisted Radiology and Surgery - 26th International Congress and Exhibition (CARS'2012), 16th International Congress and Exhibition, June 27-30, 2012, Pisa, Italy.
    - Angelos Hliaoutakis, **Euripides G.M. Petrakis**, "*Automatic Document Categorization by User Profile in Medline.*", 15<sup>th</sup> International Symposium on Health Information Management Research (ISHIMR'2011), pp. 46-55, 8-9 September 2011, Zurich, Switzerland.
    - Sotiris Batsakis, Kostas Stravoskoufos, **Euripides G.M. Petrakis**, "*Temporal Reasoning for Supporting Temporal Queries in OWL 2.0*", 15<sup>th</sup> International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, 12-14 September 2011, Kaiserslautern, Germany.
  
- Books and edited book chapters
  - S. Batsakis, **E.G.M. Petrakis**, “Integrated Ontologies for Spatial Scene Descriptions”, Qualitative Spatio-Temporal Representation and Reasoning: Trends and Future Directions, IGI Global (book chapter), S. M Hazarika (Eds), 2011.

## D – Funded Projects

- Current projects:
  - **e-TRAWELSPA: “e- TRAINING FOR WELLNESS IN SPA SERVICES” (2012-2014)**
    - **Funding Agency:** Education, Audiovisual and Culture Executive Agency, Lifelong Learning: Comenius, ICT and Languages
    - **Participants:** UNIVERSITATEA DIN PITEȘTI, UNIVERSITATEA DIN CRAIOVA, Telecommunications Inst. Of Crete (TSI), Burgas Free University, Institut für gesellschaftswissenschaftliche Forschung, Bildung und Information
    - **Co-Principal Investigator for TUC:** [Euripides G.M. Petrakis](#)
  - **MEDEVIPAS: “Medical Devices Vigilance and Patient Safety” (2012-2015)**
    - **Funding Agency:** THALIS, Greek GSRT
    - **Participants:** Univ. of Patras, TUC, National Technical University of Athens
    - **Principal Investigator for TUC:** [Euripides G.M. Petrakis](#)
  - **YPERTHEN: Computational Tools and Services for Diagnosis and Personalized Treatment of Cancer (2011-2013)**
    - **Funding Agency:** INTERREG Greece-Cyprus
    - **Participants:** Univ. of Cyprus, FORTH, TUC
    - **Co-Principal Investigator for TUC:** [Euripides G.M. Petrakis](#)
  - **RT3S: Real Time Simulation for Safer Vascular Stenting (2011-2014)**
    - **Funding Agency:** FP7-ICT-STREP, Theme ICT-2009.5.2 (Patient Safety)
    - **Participants:** Politecnico di Milano, INVATEC, SCS Srl, Univ. of Bedfordshire, ANSYS FR, Univ. of Sheffield, TUC, AUSEBA S.L., GLOBO S.A.
    - **Co-Principal Investigator for TUC:** [Euripides G.M. Petrakis](#)
  - **POTRAIN: Postive Thninking Training (2011-2012)**
    - **Funding Agency:** Education, Audiovisual and Culture Executive Agency, Lifelong Learning: Comenius, ICT and Languages
    - **Participatnts:** DIAN Greece, INSPECTORATUL SCOLAR AL MUNICIPII, TUC, Colegiul Tehnic "Media", State Institute of Vocational Education, 138мо COY "Проф. Васил Златарски, The Moraitis School
    - **Principal Investigator for TUC:** [Euripides G.M. Petrakis](#)
- Project proposals submitted: Several in FP7, Lifelong Learning: Comenius, THALIS, SYNERGASIA.

## E – Professional service

- Conference Technical Program Committee service
  - Program committee member and Session chair - session on Clinical Informatics, 15th International Symposium on Health Information Management Research (ISHIMR 2011).
  - *Program committee member “International Symposium on Visual Computing (ISVC)” 2011, 2012.*
  - Program committee member and Session chair - session 6 on Feature Extraction and Pattern Recognition στο Intern. Conference on Image Analysis and Recognition (ICIAR2011, ICIAR'2012).
- Reviewing activities
  - In several Conferences & Journal in Information Systems, Semantic Web, Computer Vision.

## F – Service to the Department and the School

- Departmental responsibilities
  - Laboratory Director

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - A. Hliaoutakis, Ph.D. Student, “A Framework for Handling Medical Information in the Semantic Web”.
  - Ph.D. And M.Sc. degrees awarded
    - Sotirios Batsakis, “SOWL: A Framework for Handling Spatio-Temporal Information in OWL”, PhD thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Greece, December 2011.
  - Post. Doct. Supervised
    - Sotirios Batsakis, Semantic Web.
    - Kleanthi Lakiotaki, Medical Information Systems, Recommender Systems.
    - Katerina Bei, Medical Information Systems.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor):
    - 4 diploma theses, in progress.
  - Diploma theses completed (supervisor):
    - G. Hristodoulou, “CHOROS: A Reasoning and Query Engine for Qualitative Spatial Information, Feb. 2012.
    - A. Preventis, “Chronos: A Tool for Handling Temporal Ontologies in Protégé”, Feb. 2012.
    - Partas L.: 4D-fluents: A Plugin for crafting ontologies in Protégé, Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, Feb. 2012.



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Vasilis Samoladas

**Rank:** Assistant Professor (tenured)

**Years in rank:** 8

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

**Division:** Computer Science

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

### A – Teaching

- Undergraduate courses taught
  - PLH 301 Operating Systems, Fall 2011 (mandatory course).
  - PLH 420 Principles of Distributed Software Systems, Spring 2012.
  - PLH 416 Computational Geometry, Spring 2012.
- Graduate courses taught
  - PLH 607 Principles of Distributed Software Systems, Spring 2012.
  - PLH 616 Computational Geometry, Spring 2012.
- Labs taught
  - PLH 420 Principles of Distributed Software Systems, Spring 2012.
  - PLH 301 Operating Systems, Fall 2011 (mandatory course).

### B – Publications

- Publications in refereed journals
  - George Tsatsanifos, Vasilis Samoladas, “A novel robust on-line protocol for load-balancing in structured peer-to-peer systems”. *Computing* 94(8-10): 731-762 (2012).
- Publications in refereed conferences
  - George Tsatsanifos, Vasilis Samoladas: “Towards Balanced Allocations for DHTs”. *DEXA* (2) 2011: 485-492.



## **C – Awards & Distinctions**

## **D – Funded Projects**

- Current projects:
  - WSN-DPCM: Wireless Sensor Network – Development, Planning, Commissioning and Maintenance. 2011-2015 (4 yrs). TUC budget: 253.000 Euro.

## **E – Professional service**

- Associate Editor duties
- Society Technical Committee duties
- Conference Organization (specify role)
- Reviewing activities

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

- TUC representative in EDET Open Source Initiative.

## **G – Advising**

- Active graduate students supervised
  - M.Sc. theses in progress (supervisor)
    - 2 Students.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - 6 Students.

## **Electronics and Computer Architecture Division**

### **Faculty Members:**

- Costas Balas, Associate Professor
- Matthias Bucher, Assistant Professor (tenured)
- Apostolos Dollas, Professor
- Kostas Kalaitzakis, Professor
- Eftichios Koutroulis, Assistant Professor
- Ioannis Papaefstathiou, Associate Professor
- Dionisios Pnevmatikatos, Professor
- George Stavrakakis, Professor



Technical University of Crete  
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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Costas Balas

**Rank:** Associate Professor

**Years in rank:** 10 ½

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Electronics Laboratory

### A – Teaching

- Undergraduate courses taught
  - **Electronics I (Fall 11)**
  - **Electronics I (Spring 12)** – offered again, due to Department’s syllabus change
  - **Biomedical Engineering (with Prof. M. Zervakis)**
  
- Graduate courses taught
  - **Advanced Topics & Applications in Electronic Imaging**
  
- Labs taught
  - **Electronics I**
  
- Curriculum & course development
  - Lecture notes / slides developed
    - **Lectures for the new Biomedical Engineering course**

### B – Publications

- Publications in refereed journals
  - Published:
    - A.A. Zaal, J.A. Louwers, J. Berkhof, M. Kocken, W.A. ter Harmsel, G.C.M. Graziosi, J.W.M. Spruijt, C. Balas, E. Papagiannakis, P.J.F. Snijders, C.J.L.M. Meijer, F.J. van Kemenade and R.H.M. Verheijen, “*Agreement between*

*colposcopic impression and histological diagnosis among human papillomavirus type 16-positive women: a clinical trial using dynamic spectral imaging colposcopy*”, An International Journal of Obstetrics & Gynaecology, Vol. 119, Issue 5, pp. 537–544, April 2012.

- Publications in refereed conferences
  - Published:
    - G. Papoutsoglou, A. Anastasopoulou, G. Stavrakakis, W.P. Soutter and C. Balas, “*In vivo Dynamic Imaging, in silico Modeling and Global Sensitivity Analysis for the Study and the Diagnosis of Epithelial Neoplasia*” 33rd Annual International Conference of the IEEE EMBS Boston, Massachusetts USA, August 30 - September 3, 2011.
    - G. Papoutsoglou, M. Stamatiadou, C. Balas, “*In silico modeling and global optimization of dynamic bio-optical processes for probing, in vivo, biological features of neoplasia*”, IEEE International Conference on Biomedical Engineering and Biotechnology (iCBEB), pp. 332 – 335, May 2012, Macau, Macao.

## D – Funded Projects

- Current projects:
  - “**OncoSeed Diagnostics: Biology of Circulating Tumour Cells, Distant Metastasis & Development of Liquid Biopsy Methods**”. *Funding source: «COOPERATION»-SUB-ACTION II:«Large Scale Cooperative Projects».*

## E – Professional service

- Reviewing activities
  - **Journal of Biophotonics, Optical Engineering, Optics express.**

## F – Service to the Department and the School

- Departmental responsibilities
  - **Member of student advisor committee.**

## 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)
    - Iliou Dimitris (MSc)

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Abatzi Fani
    - Rossos Christos
    - Nikos Tsoulidis



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Matthias Bucher

**Rank:** Assistant Professor (tenured)

**Years in rank:** 8 ½

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Electronics Laboratory

### A – Teaching

- Undergraduate courses taught
  - ECE 416 – Design of CMOS Analog Integrated Circuits (Fall 2011)
  - ECE 311 – Electronics II (Spring 2012)
- Graduate courses taught
  - ECE 604 – Special Themes of Analog Integrated Circuit Design (Fall 2011)
- Labs taught
  - ECE 416 – Design of CMOS Analog Integrated Circuits (Fall 2011)
  - ECE 311 – Electronics II (Spring 2012)

### B – Publications

- Publications in refereed journals
  - Submitted:
    - N. Mavredakis, **M. Bucher**, R. Friedrich, A. Bazigos, F. Krummenacher, J.-M. Sallese, T. Gneiting, W. Pflanzl, E. Seebacher, “Measurement and Compact Modeling of 1/f Noise in HV-MOSFETs”, *IEEE Trans. on Electron Devices*.
    - N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, I. Pappas, K. Papathanasiou, **M. Bucher**, G. Ghibauda, C. A. Dimitriadis, “Compact Capacitance Model of Undoped or Lightly Doped Ultra-scaled Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*.

- R. K. Sharma, **M. Bucher**, “Device Design Engineering for Optimum Analog/RF Performance of Nanoscale DG MOSFETs”, *IEEE Trans. on Nanotechnology*.
- N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, I. Pappas, K. Papathanasiou, **M. Bucher**, G. Ghibaudo, C. A. Dimitriadis, “Compact Model of Drain Current in Short-Channel Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*.
- Accepted:
  - R. K. Sharma, **M. Bucher**, “Device Design Engineering for Optimum Analog/RF Performance of Nanoscale DG MOSFETs”, *IEEE Trans. on Nanotechnology*. [ieeexplore](#)
  - N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, I. Pappas, K. Papathanasiou, **M. Bucher**, G. Ghibaudo, C. A. Dimitriadis, “Compact Model of Drain Current in Short-Channel Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*.
  - M.-A. Chalkiadaki, C. Valla, F. Poullet, **M. Bucher**, ”Why – and How To – Integrate Verilog-A Compact Models in SPICE Simulators”, *Int. Journal of Circuit Theory and Applications*.
  - A. Bazigos, F. Krummenacher, J.-M. Sallese, **M. Bucher**, E. Seebacher, W. Posch, K. Molnar, M. Tang, “RF Compact Modeling of High-Voltage MOSFETs”, *IETE Journal of Research*.
  - K. Papathanasiou, C. G. Theodorou, A. Tsormpatzoglou, D. H. Tassis, C. A. Dimitriadis, **M. Bucher**, G. Ghibaudo, ”Symmetrical unified compact model of short-channel double-gate MOSFETs”, *Solid-State Electronics*.
- Published:
  - N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, I. Pappas, K. Papathanasiou, **M. Bucher**, G. Ghibaudo, C. A. Dimitriadis, “Compact Model of Drain Current in Short-Channel Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*, Vol. 59, N° 7, pp. 1891-1897, July 2012. [ieeexplore](#)
  - A. Bazigos, F. Krummenacher, J.-M. Sallese, **M. Bucher**, E. Seebacher, W. Posch, K. Molnar, M. C. Tang, “RF Compact Modeling of High-voltage MOSFETs,” *IETE Journal of Research*, Vol. 58 N° 3, p. 214-221, 2012. [online](#)
  - K. Papathanasiou, C. G. Theodorou, A. Tsormpatzoglou, D. H. Tassis, C. A. Dimitriadis, **M. Bucher**, G. Ghibaudo, ”Symmetrical unified compact model of short-channel double-gate MOSFETs”, *Solid-State Electronics*, Vol. 69, N° 3, pp. 55-61, 2012. [doi](#)
  - A. Bazigos, **M. Bucher**, J. Assenmacher, S. Decker, W. Grabinski, Y. Papananos, “An Adjusted Constant-Current Method to Determine Saturated and Linear Mode Threshold Voltage of MOSFETs”, *IEEE Trans. on Electron Devices*, Vol. 58, N° 11, pp. 3751-3758, Nov. 2011. [ieeexplore](#)
- Publications in refereed conferences
  - R. K. Sharma, **M. Bucher**, “Optimization of the device design technologies for analog/RF performance of Nanoscale DG MOSFETs”, *Proc. TechConnectWorld – Nanotech Conference*, Vol. 2, pp. 27-30, Santa Clara, California, June 18-21, 2012. [online](#)
  - N. Makris, **M. Bucher**, “Temperature Scaling of Analog CMOS Design Parameters”, *Proc. 16<sup>th</sup> IEEE Mediterranean Electrotechnical Conference*

(MELECON), pp. 187-190, Yasmine Hammamet, Tunisia, Mar. 25-28, 2012.  
[ieeexplore](#)

- K. Kostopoulos, **M. Bucher**, M. Kayambaki, K. Zekentes, “A Compact Model for Silicon Carbide JFET”, *Proc. 2<sup>nd</sup> Panhellenic Conference on Electronics and Telecommunications (PACET)*, 4p., Thessaloniki, Greece, Mar. 16-18, 2012.  
[online](#)
- A. Antonopoulos, K. Papathanasiou, **M. Bucher**, K. Papathanasiou, “CMOS LNA Design at 30 GHz – A Case Study”, *Proc. 8<sup>th</sup> Int. Caribbean Conf. on Devices, Circuits and Systems (ICDCS)*, pp. 1-4, Playa Del Carmen, Mexico, Mar. 14-17, 2012. [ieeexplore](#)
- R. K. Sharma, A. Antonopoulos, N. Mavredakis, **M. Bucher**, “Analog/RF Figures of Merit of Advanced DG MOSFETs”, *Proc. 8<sup>th</sup> Int. Caribbean Conf. on Devices, Circuits and Systems (ICDCS)*, pp. 1-4, Playa Del Carmen, Mexico, Mar. 14-17, 2012. [ieeexplore](#)
- Workshop presentations
  - **M. Bucher**, “[Analog performance of advanced CMOS and EKV3 model](#)”, *The Nano-Tera Workshop on the Next Generation MOSFET Compact Models*, EPFL, Lausanne, Switzerland, Dec. 15-16, 2011.
  - D. Tomaszewski, J.-M. Sallese, N. Chevillon, F. Prégaldiny, C. Lallement, A. Yesayan, J. Alvarado, D. Flandre, U. Monga, T. Fjeldly, A. Bazigos, **M. Bucher**, T. Gneiting, E. Seebacher, T. Sadi, F. Schwierz, G. Depeyrot, M. Yakupov, R. Ritzenhaler, W. Grabinski, B. Iñiguez, "COMON – The European Compact Modelling Network and Verilog-A Compact Model Standardization", *Int. Conf. Simulation of Semiconductor Processes and Devices (SISPAD) – Companion Workshop*, Osaka, Japan, Sept. 7, 2011.

## D – Funded Projects

- Current projects:
  - COMON, COMpact MOdelling Network, FP7-PEOPLE-2007-3-1-IAPP, Grant Nr. 218255, Marie Curie Industry Academia Partnership & Pathways, <http://www.compactmodelling.eu/> of the European Community. Duration: Dec. 2008 – Nov. 2012.
  - NANOsympraxis, Multigate MOSFET nanotransistors: compact models for current and noise – development of automated design tools for nanoelectronics, “Synergasia 2009” Project Nr. 09ΣYN-42-998, General Secretariat of Research and Technology (GSRT). Duration: 2011 – 2014.
  - ANTI-SiC, Development of new transistors and inverter for photovoltaic systems based on Silicon Carbide, “Synergasia 2009” Project Nr. 09ΣYN-32-1181, General Secretariat of Research and Technology (GSRT). Duration: 2010 – 2013.
  - NexGenMiliWave, Next Generation Millimeter Wave Backhaul Radio, “Corallia” Hellenic Technology Cluster Initiative in Microelectronics, Phase 2, Project Nr. MIKPO2-ΣE-B/E-II. Duration: 2009 – 2013.
  - Nanoscale RF CMOS Transceiver Design, “Heracleitus II” Project Nr. 17/050/6, PhD scholarship for A. Antonopoulos. Greek Ministry of Education. Duration: 2010-2013.



- Development of Electronics Laboratory infrastructure:
  - Keithley SCS 4200 Semiconductor Characterization System, with 3 SMU, 3 PA.
  - Agilent 6651A, 50A, 8V high performance programmable DC power supply.
  - Picoprobe Model 40 GSG RF probes, 40 GHz.
  - Cadence IC & System software.
  - Agilent ADS and ICCAP software packages.

## **E – Professional service**

- Conference Technical Programme Committee service
  - *TPC member, 19<sup>th</sup> International Conference on Mixed Design of Integrated Circuits and Systems (MIXDES) 2012.*
  - *TPC member, 2<sup>nd</sup> Panhellenic Conference on Electronics and Telecommunications (PACET) 2012.*
- Reviewing activities
  - *IEEE Trans. on Electron Devices*
  - *Solid-State Electronics*
  - *IET Journal on Circuits, Devices and Systems*

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

- Departmental responsibilities
  - Director, Electronics Laboratory (- 1/2012).
  - Member, Postgraduate Studies committee.
  - Member, Examinatory committee for the admission of undergraduate students.

## **G – Advising**

- Graduate students supervised
  - Ph.D. students supervised (supervisor):
    - Angelos Antonopoulos, Design of nanoscale RF CMOS transceivers, Enrollment: June 2008. Phone 28210 37269. aanton “at” electronics.tuc.gr
    - Nikos Mavredakis, Noise in high-voltage MOSFETs (HVMOSFETs), Enrollment: July 2010. Phone 28210 37269. nmavredakis “at” isc.tuc.gr
    - Maria-Anna Chalkiadaki, Compact modelling of multiple gate MOS transistors, Enrollment: March 2011.
    - George Rozakis, Non-linearity analysis in CMOS power amplifiers, Enrollment: Oct. 2008.

- M.Sc. students supervised (supervisor):
  - Athanasios Dimakos, Low voltage analog design techniques, Enrollment: Oct. 2009. Phone 28210 37269.
  - Konstantinos Kostopoulos, Modelling of High-Voltage MOSFETs, Enrollment: Oct. 2010. Phone 28210 37269.
  - Konstantinos Papathanasiou, Design and layout techniques in analog/RF integrated circuits, Enrollment: Feb. 2011. Phone 28210 37269.
  
- Undergraduate students supervised
  - Diploma theses completed (supervisor):
    - Yannis Kyriakopoulos, Design of a common-gate RF Low-Noise Amplifier (LNA), July 2012.
    - Apostolos Spanos, RF Noise in advanced CMOS, June 2012.
    - George Smaragdos, Design of integrated filters based on current-mode OPAMPs, May 2012.
    - Vassilis Mylonakis, Design of CMOS variable gain amplifier (VGA), Dec. 2011.
    - Apostolos Tsivitis, Study of 1/f noise in MOS transistors, Dec. 2011.
  
  - Diploma students (supervisor):
    - Yannis Deriziotis, Design of a CMOS VCO at 5-6 GHz.
    - Vassilis Psaltopoulos, 1/f noise modeling in advanced CMOS.
    - George Gyroukis, Compact modeling and of nano-scale MOSFETs.
    - Xenofon Manarolis, Coding of compact HV-MOSFET model in a SPICE circuit simulator.
    - Stelios Anthoulis, System for the implementation of compact MOSFET models in SPICE circuit simulators.
    - Konstantinos Fellas, Study of low-frequency noise in HVMOSFETs.
    - Dimitrios Kokkonas, Experimental and analytical study of scaling in advanced CMOS technologies.
    - Dimitris Sideris, Characterization and compact modeling of SiC JFET.
    - Nikos Pappas, TCAD investigation of analog properties of multi-gate CMOS transistors.
    - Nicolas Gegios, RF CMOS modeling.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Apostolos Dollas

**Rank:** Professor

**Years in rank:** 11

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware Laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 101 - Logic Design (mandatory)
  - HRY 203 - Advanced Logic Design (mandatory)
  - HRY 591 – Special Topics on Reconfigurable Computing (elective, cross-listed with HRY – 631)
  
- Graduate courses taught
  - HRY 631 – Special Topics on Reconfigurable Computing
  
- Labs taught
  - Supervised the labs of HRY 101
  - Supervised the labs of HRY 203, which I had completely re-written three years earlier on a different platform than the one previously used, introducing mandatory hands-on lab exercises with Xilinx Spartan FPGA's and downloaded complete designs. The laboratory exercises were completely re-written from the previous year to discourage usage of existing codes.
  
- Curriculum & course development
  - Lecture notes / slides developed: Revised the HRY 203 (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, P. Dagrizikos, I. Papaefstathiou, A. Dollas: HC-CART: A parallel system implementation of data mining classification and regression tree (CART) algorithm on a multi-FPGA system, submitted to the *ACM Transactions on Architecture and Code Optimization (TACO)* (Special Issue on High-Performance Embedded Architectures and Compilers).
  - Published
    - G. Chrysos, A. Dollas, N. Bourbakis, An Embedded Software-Reconfigurable Color Segmentation Architecture for Image Processing Systems, *Microprocessors and Microsystems*, Vol. 36, Issue 3, Pages 215-231, May 2012 Elsevier Press.
    - K. Papadimitriou, A. Dollas, S. Hauck, Performance of Partial Reconfiguration in FPGA Systems: A Survey and a Cost Model, *ACM Transactions on Reconfigurable Technology and Systems (TRETTS)*, vol. 4, no. 4, December, 2011.
- Publications in refereed conferences
  - Accepted
    - G. Chrysos, E. Sotiriades, C. Rousopoulos, A. Dollas, A. Papadopoulos, I. Kirmitzoglou, V. Promponas, T. Theocharides, G. Petihakis, J. Lagnel, P. Vavylis, G. Kotoulas, “Opportunities from the Use of FPGAs as Platforms for Bioinformatics Algorithms”, Proceedings, *12<sup>th</sup> IEEE International Conference on Bioinformatics and Bioengineering (BIBE 2012)*, Larnaca, Cyprus, November 11-13, 2012.
    - A. Balatsoukas-Stimming, A. Dollas, "FPGA-based Design and Implementation of a Multi-Gbps LDPC Decoder," 22nd International Conference on Field Programmable Logic and Applications, FPL 2012, pp. 262-269, September 2012, Oslo, Norway.
  - Published (all papers fully refereed)
    - A. H. Gholamipour, K. Papadimitriou, F. Kurdahi, A. Dollas, A. Eltawil, “Area, Reconfiguration Delay and Reliability Trade-Offs in Designing Reliable Multi-Mode FIR Filters”, *IEEE International Design and Test Workshop (IDT), in conjunction with the IEEE International Conference on Electronics, Circuits and Systems (ICECS)*, pp. 82-87, Beirut, Lebanon, December 2011.
    - G. Chrysos, P. Dagrizikos, I. Papaefstathiou, A. Dollas, "Novel and Highly Efficient Reconfigurable Implementation of Data Mining Classification Tree," Field Programmable Logic and Applications (FPL), 2011 International Conference on Field Programmable Logic and Applications, vol., no., pp.411-416, Chania, Greece, Sept. 2011.
    - M. Lakka, E. Koutroulis, A. Dollas, “An FPGA-based SPWM Generator for High-Frequency DC/AC Inverters”, accepted for presentation at the 2<sup>nd</sup> Panhellenic Conference on Electronics and Telecommunications (PACET 2012), March 16-18, 2012.
    - I. Papaefstathiou, E. Sotiriades, S. Apostolakis, A. Dollas, P. Karamolegkos, ROTA: An Archipelago-Wide Area Network for High Speed Communication to Ships, Proceedings of the 16th Panhellenic Conference on Informatics (PCI), pp. 271-275, 2012.

- K. Papadimitriou, D. Pnevmatikatos, A. Dollas, C. Koulamas, S. Aggelidakis, et al., Developing RFID-Based Systems for Security in Marine Transportations, Proceedings of the 16th Panhellenic Conference on Informatics (PCI), pp. 50-55, 2012.
- M. Lakka, E. Koutroulis, A. Dollas, “Design of a High Switching Frequency FPGA-based SPWM Generator for DC/AC Inverters”, 21<sup>st</sup> International Conference on Field Programmable Logic and Applications (FPL 2011), pp. 15-19, 2011.

## C – Awards & Distinctions

- General co-Chairman (w/ Prof. Manfred Glesner from TU Darmstadt) of the 21<sup>st</sup> International Conference on Field Programmable Logic (FPL), which was held in Greece for the first time in its 21-event history (Chania, Crete), Sept 5-7, 2011.

## D – Funded Projects

- Current projects:
  - Principal Investigator for the Project EVAGORAS: “Reconfigurable Logic Based Supercomputer for Biological, Ecological and Medical Data and Algorithms”, Interregional Cooperation Program Greece-Cyprus - INTERREG (Total Funding 779.940 Euros, TUC Funding 444.440 Euros), 2011 (2-year project).
  - Project “*ROTA- Design and Development of a Novel System for the Telemangement of Ships with High-Speed Internet Bidirectional Communications*”, Greek Secretariat of Research and Technology GSRT under program Synergasia, funded at 300,000 Euros (Telecommunication Systems Institute - TSI Budget 66,378 Euros), 2010 (3-year project).
  - Principal investigator for the entire Technical University of Crete in the student’s practical training program, coordinating the project “Practicum at the Technical University of Crete”, funded by the Greek Ministry of Education and Religious Affairs at 697,364 Euros for three years (2009-2012).
  - Participation in several EU and GSRT funded projects as Workpackage Leader, Scientific Collaborator, etc. (SAFEMETAL, SMART, FASTCUDA, MERIT etc.)

## E – Professional service

- Conference Technical Program Committee service
  - ◆ Program Committee Member 20th IEEE Symposium on Field Programmable Custom Computing Machines (FCCM), April 29-May 1, Toronto, Canada.
  - ◆ General Co-Chairman and Program Committee Member, IEEE/ACM 21<sup>st</sup> International Symposium on Field Programmable Logic (FPL), Chania, Greece, Sept. 5-7, 2011..
  - ◆ Program Committee Member, International Conference on Field Programmable Technology (FPT, IEEE Sponsored), New Delhi, India, December 12-14, 2011.
- Member of the recommendation committee and the election board towards a faculty election at the University of Ioannina, September, 2011.
- External reviewer and examiner in a Ph.D. dissertation defense (Dr. Michailov) at the Tallinn University of Technology, Talinn, Esthonia, January 20, 2012.
- Member of the Examination Committee (Dr. G. Giannakas), University of Thessaly, March, 9, 2012.

*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, plus international conferences such the *ACM Transactions on Reconfigurable Technology (TRETs)*, *The IEEE Transactions on CAD (TCAD)*, *The IEEE Transactions on VLSI Systems (TVLSI)*, etc.

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

- Departmental responsibilities
  - Faculty Advisor to the 1<sup>st</sup> semester students.
  - Member, Undergraduate Studies Committee.
  - Member of the Student Placement Committee, supervising the examination in the subject of Logic Design for graduates from other Departments who want to enroll at ECE.
  - Member of faculty recommendation committees in faculty elections, member of the election board and participation in the election process of several faculty elections, including elections towards tenure and elevation to Full Professor.
- School-level responsibilities
  - TUC Senate – appointed, TUC-wide principal investigator for the student’s practical training program, coordinating the 697,363 Euro project “Practicum at the Technical University of Crete” for three years (2009-2012).
  - Active participation in the preparation towards external evaluation of the DASTA TUC-wide project by a committee of international experts (faculty in institutions abroad) on January 9-10, 2012.
  - Member of Several Purchasing Committees, requiring the supervision of informal as well as national and international formal bidding processes (as applicable by Law), evaluation of the results, and recommendations to the TUC Senate.

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised (advisor, completed)
    - Meidanis, Dimitrios (PhD)
    - Papademetriou, Kyprianos (PhD) (co-supervisor w/ Prof. K. Kalaitzakis)
    - Malakonakis, Pavlos (MS)
    - Lakka, Matina (MS)
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Chrysos, Grigorios (PhD)
    - Efstathiou, Dionissios (MS)
    - Smerdis, Miltiadis (MS)
    - Ilias, Anargyros (MS)
    - Nikoloudakis, George (MS)

- PhD. And M.Sc. degrees awarded (committee member)
  - Mavroidis, Ioannis (PhD)
  - Dagritzikos, Panagiotis (MS)
  
- PhD and M.Sc. Degrees (committee member)
  - Mavroidis, Iakovos (PhD)
  - Kornaros, George (PhD)
  - Nikitakis, Antonios (PhD)
  - Kornaros, George (PhD)
  - Kartsonakis, Ioannis (MS)
  - Agadakos, Ioannis (MS)
  
- Undergraduate students supervised
  - Diploma theses completed (supervisor)
    - Apostolakis, Stavros
    - Noulas, Georgios
    - Thomas, Sotirios
    - Vastarouchas, Georgios
  
  - Diploma theses in progress (supervisor)
    - Kouinis, Konstantinos
    - Koukousoulas, Pantelis
    - Maragos, Konstantinos
    - Rousopoulos, Christos
  
  - Diploma theses in progress (committee member)
    - (Several, in progress)
  
  - Diploma theses completed (committee member)
    - Miteloudi, Konstantina
    - Tsamasiotis, D.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Kostas Kalaitzakis

**Rank:** Professor

**Years in rank:** 9

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

**Division:** Electronics and Computer Architecture

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

### A – Teaching

- Undergraduate courses taught
  - **HRY 414 - Electric Measurements and Sensors (8<sup>th</sup> semester)**
  - **HRY 202 – Electric Circuits Analysis (3<sup>rd</sup> semester)**
  
- Graduate courses taught
  - **HRY 602 – Special topics on Electric Measurement Systems**
  
- Labs taught
  - **HRY 414 - Electric Measurements and Sensors (8<sup>th</sup> semester)**
  - **HRY 202 – Electric Circuits Analysis (3<sup>rd</sup> semester)**

### B – Publications

- Publications in refereed journals
  - Published:
    - Kolokotsa D., Rovas D., Kosmatopoulos E., Kalaitzakis K., "A Roadmap Towards Intelligent Net Zero- and Positive-Energy Buildings", Solar Energy, Volume 85, Issue 12, Dec. 2011, pp. 3067-3084.



- Publications in refereed conferences
  - Published:
    - Sergaki A., Kalaitzakis K., "A Knowledge Management Platform for Supporting Smart Grids Based on Peer to Peer and Service Oriented Architecture Technologies", Proc. IEEE Int. Conf. on Smart Measurements for Future Grids (SMFG), pp. 154-159, 14-16 Nov. 2011, Bologna, Italy.
    - Loukarakis, E., Kalaitzakis, K., Koutroulis, E., Stavrakakis, G., "Investment Perspectives on the Interconnection of Isolated Systems with the Mainland Grid: Crete Case Study", Proc. IASTED Int. Conf., Power and Energy Systems (EUROPES 2011), 22-24 June, 2011, Crete, Greece.
    - Sergaki A., Kalaitzakis K., "A Decision Support System for Smart Grid Energy Management", Proc. 4th Int. Scientific Conf. on Energy and Climate Change, 6-7 October, 2011, Athens, Greece.

## **D – Funded Projects**

- Current projects:
  - "Positive-Energy Building thru Better Control Decisions (PEBBLE)", project number 248537, project coordinator Technical University of Crete, funded by EE in the framework FP7-ICT-2009.6.3: ICT FOR ENERGY EFFICIENCY, 2010-2012.
  - "Analytical Mathematical Model of an Innovative Solar Thermal System for Electric Energy Production", funded by the Research Committee of the Technical University of Crete, 2010-2011.
  - "Detailed environmental impact assessment for the preparation of the Environmental Impact Study for installation of a solar thermal power plant of 50 MW in Akrotiri, Chania", contract between Enolia Co. and Technical Univ. of Crete, 2011-2012.
  - "Siting study for the sustainable establishment of wind farms in the region of Crete", contract between Region of Crete and Technical Univ. of Crete, 2012-2013.
  - "GREEN@Hospital: Web-based energy management system for the optimization of the energy consumption in hospitals", funded by the E.U., 2012-2015.

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

- Departmental responsibilities
  - Organization, design and purchase of equipment for the Electric Energy Laboratory

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - A. Vasilomichelaki, year of initial enrollment in M.Sc. program: 2010.
    - G. Perrakis, year of initial enrollment in M.Sc. program: 2010.
  - PhD. And M.Sc. degrees awarded
    - V. Bakirtzoglou, year of initial enrollment in M.Sc. program: 2009.

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Various theses under supervision.
  - Diploma theses completed (supervisor)
    - 4 Diploma Theses completed as main supervisor.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Eftichios Koutroulis

**Rank:** Assistant Professor

**Years in rank:** 1

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

**Division:** Electronics and Computer Architecture

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

### A – Teaching

- Undergraduate courses taught
  - *ACE 511 - VLSI and ASIC System Design (Fall semester 2011)*
  - *ACE 102 - Basic Circuit Theory (Spring semester 2012)*
- Graduate courses taught
  - *ACE 635 – Special Topics on Electronic Energy Management Systems (Spring semester 2012)*
- Labs taught
  - *ACE 511 - VLSI and ASIC System Design (Fall semester 2011)*
  - *ACE 102 - Basic Circuit Theory (Spring semester 2012)*
- Curriculum & course development
  - New courses / labs developed
    - *ACE 635 – Special Topics on Electronic Energy Management Systems (Spring semester 2012)*
  - Lecture notes / slides developed
    - *ACE 511 -VLSI and ASIC System Design (Fall semester 2011): updated the existing slides (440 slides)*
    - *ACE 102 - Basic Circuit Theory (Spring semester 2012): updated the existing slides (442 slides)*

## B – Publications

- Publications in refereed journals
  - Submitted:
    - M. Lakka, **E. Koutroulis**, A. Dollas, “Development of an FPGA-based SPWM Generator for High Switching Frequency DC/AC Inverters”, submitted for review at *IEEE Transactions on Power Electronics*.
    - **E. Koutroulis**, F. Blaabjerg, “Methodology for the optimal design of transformerless grid-connected PV inverters”, *IET Power Electronics*, Vol. 5, No. 8, pp. 1491-1499, 2012.
    - **E. Koutroulis**, F. Blaabjerg, “Design Optimization of Transformerless Grid-Connected PV Inverters Including Reliability”, *IEEE Transactions on Power Electronics*, Vol. 28, No. 1, pp. 325-335, 2013.
    - T. Kerekes, **E. Koutroulis**, D. Sera, R. Teodorescu, M. Katsanevakis, “An Optimization Method for Designing Large PV Plants”, accepted for publication at *IEEE Journal of Photovoltaics*.
  - Accepted:
    - **E. Koutroulis**, F. Blaabjerg, “A New Technique for Tracking the Global Maximum Power Point of PV Arrays Operating under Partial Shading Conditions”, *IEEE Journal of Photovoltaics*, Vol. 2, No. 2, pp. 184 – 190, 2012.
    - **E. Koutroulis**, F. Blaabjerg, “Methodology for the optimal design of transformerless grid-connected PV inverters”, *IET Power Electronics*, Vol. 5, No. 8, pp. 1491-1499, 2012.
    - **E. Koutroulis**, F. Blaabjerg, “Design Optimization of Transformerless Grid-Connected PV Inverters Including Reliability”, *IEEE Transactions on Power Electronics*, Vol. 28, No. 1, pp. 325-335, 2013.
    - T. Kerekes, **E. Koutroulis**, D. Sera, R. Teodorescu, M. Katsanevakis, “An Optimization Method for Designing Large PV Plants”, accepted for publication at *IEEE Journal of Photovoltaics*.
  - Published:
    - **E. Koutroulis**, F. Blaabjerg, “A New Technique for Tracking the Global Maximum Power Point of PV Arrays Operating under Partial Shading Conditions”, *IEEE Journal of Photovoltaics*, Vol. 2, No. 2, pp. 184 – 190, 2012.
    - **E. Koutroulis**, F. Blaabjerg, “Methodology for the optimal design of transformerless grid-connected PV inverters”, *IET Power Electronics*, Vol. 5, No. 8, pp. 1491-1499, 2012.
    - **E. Koutroulis**, F. Blaabjerg, “Design Optimization of Transformerless Grid-Connected PV Inverters Including Reliability”, *IEEE Transactions on Power Electronics*, Vol. 28, No. 1, pp. 325-335, 2013.
- Publications in refereed conferences
  - Submitted:
    - A.-A. Panagopoulos, G. Chalkiadakis, **E. Koutroulis**, “Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region”, *7<sup>th</sup> Conference on Prestigious Applications of Artificial Intelligence (PAIS)*, Montpellier, France, 2012.

- S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal design of NPC and Active-NPC transformerless PV inverters”, *2012 3<sup>rd</sup> IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*, pp. 106-113, 2012.
- Accepted:
  - **E. Koutroulis**, F. Blaabjerg, “Design Optimization of Transformerless Grid-Connected PV Inverters Including Reliability”, *27<sup>th</sup> Annual IEEE Applied Power Electronics Conference & Exposition (APEC)*, pp. 1959-1966, 2012.
  - A.-A. Panagopoulos, G. Chalkiadakis, **E. Koutroulis**, “Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region”, *7<sup>th</sup> Conference on Prestigious Applications of Artificial Intelligence (PAIS)*, Montpellier, France, 2012.
  - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal design of NPC and Active-NPC transformerless PV inverters”, *2012 3<sup>rd</sup> IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*, pp. 106-113, 2012.
- Published:
  - **E. Koutroulis**, F. Blaabjerg, “Design Optimization of Transformerless Grid-Connected PV Inverters Including Reliability”, *27<sup>th</sup> Annual IEEE Applied Power Electronics Conference & Exposition (APEC)*, pp. 1959-1966, 2012.
  - A.-A. Panagopoulos, G. Chalkiadakis, **E. Koutroulis**, “Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region”, *7<sup>th</sup> Conference on Prestigious Applications of Artificial Intelligence (PAIS)*, Montpellier, France, 2012.
  - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal design of NPC and Active-NPC transformerless PV inverters”, *2012 3<sup>rd</sup> IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG)*, pp. 106-113, 2012.

## C – Awards & Distinctions

- Best student paper award at the 7<sup>th</sup> Conference on Prestigious Applications of Artificial Intelligence (2012), for the paper: A.-A. Panagopoulos, G. Chalkiadakis, E. Koutroulis, “Predicting the Power Output of Distributed Renewable Energy Resources within a Broad Geographical Region”.
- Guest Lecture on “Design Optimization of Transformerless PV Inverters”, in the Department of Energy Technology, Aalborg University, Denmark, 24/8/2012.
- Presented a Webinar after invitation of the IEEE Power Electronics Society, entitled “Design optimization of NPC and Active-NPC transformerless Photovoltaic inverters”, 30/8/2012.

## D – Funded Projects

- Project proposals submitted:
  - *FP7 ICT call*
  - *Interreg Greece-Cyprus call*

- *ARISTEIA II call (member of the research team)*
- *Cooperation Greece-China 2012-2014 call (member of the research team)*

## **E – Professional service**

- Associate Editor duties:
  - *Member of the Editorial Board of the “Renewable Energy” journal (April 2011-present).*
- Conference Organization (specify role)
  - *Session Chair at the 2012 3<sup>rd</sup> IEEE International Symposium on Power Electronics for Distributed Generation Systems (PEDG).*
- Reviewing activities
 

*Reviewed 51 journal papers (including revisions) and 11 conference digests and full papers:*

  - *IEEE Transactions on Power Electronics*
  - *IEEE Journal of Photovoltaics*
  - *IEEE Transactions on Sustainable Energy*
  - *IEEE Transactions on Industrial Electronics*
  - *IEEE Transactions on Instrumentation & Measurement*
  - *IET Power Electronics*
  - *IET Renewable Power Generation*
  - *Electronics Letters*
  - *Renewable Energy*
  - *Energy*
  - *Measurement*
  - *Applied Energy*
  - *International Journal of Electrical Power & Energy Systems*
  - *27<sup>th</sup> Annual IEEE Applied Power Electronics Conference & Exposition (APEC 2012)*
  - *28<sup>th</sup> Annual IEEE Applied Power Electronics Conference & Exposition (APEC 2013)*

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

- *Departmental coordinator for the ERASMUS program.*
- *Editing of the Graduate Program Guide (in Greek).*

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - *Stefanos Saridakis (M.Sc. Student)*
    - *Yannis Mandourarakis (M.Sc. Student)*
    - *Dimitris Christeas (M.Sc. Student)*
  - PhD. And M.Sc. degrees awarded
    - *Matina Lakka (M.Sc. degree, co-supervised with Prof. A. Dollas)*

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    1. *Christos Koukouzas*
    2. *Nikos Petridis*
    3. *George Kimionis*
    4. *Nikos Vatsithianos*
    5. *Chris Constantopoulos*
    6. *Nikos Achilladelis*
    7. *Theodore Sotiris*
    8. *Nikos Fanioudakis*
    9. *Dimitris Zografos*
    10. *Alex Paraskeuas*
    11. *Charalambos Paravalos (co-supervised with Assistant Professor V. Samoladas)*
    12. *Lefteris Kyrousis*
    13. *Costas Dimitriadis*
    14. *Eleftherios Nikolakakis*



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Ioannis Papaefstathiou

**Rank:** Associate Professor

**Years in rank:** 1

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware Laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 411 – Embedded Systems Design (Fall 2011)
  - HPY 302 – Computer Organization (Spring 2012)
- Graduate courses taught
  - HRY 611 – Design of Special Purpose Computer Architecture (Fall 2011)
- Labs taught
  - HRY 411 – Embedded Systems Design (Fall 2011)
  - HPY 302 – Computer Organization (Spring 2012)
- Curriculum & course development
  - New courses / labs developed
    - Course material and exercises/projects for programming and design of highly parallel systems for HRY611

### B – Publications

- Publications in refereed conferences
  - Published
    - Maria Kalendarer, Dionisios N. Pnevmatikatos, Ioannis Papaefstathiou, Charalampos Manifavas, “*Breaking the GSM A5/1 cryptography algorithm with rainbow tables and high-end FPGAS*”, IEEE International Conference on Field Programmable Logic and Applications (FPL), 2012, Aug 29-21, Oslo, Norway.



- Andreas Brokalakis, Ioannis Papaefstathiou, “Using hardware-based forward error correction to reduce the overall energy consumption of WSNs”, IEEE Wireless Communications and Networking Conference (WCNC), April 2012, Paris, France.
- Georgios-Grigorios Mplemenos, Ioannis Papaefstathiou, “Fast and power-efficient hardware implementation of a routing scheme for WSNs”, IEEE Wireless Communications and Networking Conference (WCNC), April 2012, Paris, France.
- G. Chatziparaskevas, A. Brokalakis, I. Papaefstathiou, “An FPGA-based Parallel Processor for Black-Scholes Option Pricing Using Finite Differences Schemes”, IEEE Design, Automation and Test Europe Conference 2012 (DATE 2012), March 8-12 2012, Dresden, Germany.
- D. Meidanis, K. Georgopoulos, I. Papaefstathiou, “FPGA Power Consumption Measurements and Estimations Under Different Implementation Parameters”, IEEE International Conference on Field Programmable Technology 2011 (FPT’11), December 2011, New Delhi, India.
- P. Dagrizikos, G. Chrysos, I. Papaefstathiou, A. Dollas “Novel and Highly Efficient Reconfigurable Implementation of Data Mining Classification Tree”, IEEE International Conference on Field Programmable Logic and Applications (FPL), Sept. 2011, Chania, Greece.

## D – Funded Projects

- Current projects:
  - “FASTCUDA : Open Source FPGA Accelerator & Hardware-Software Codesign Toolset for CUDA Kernels”, Funding Source : “European Commission, SEVENTH FRAMEWORK PROGRAMME, SME”, Total Funding : € 436.400,00, Duration : Nov. 2011 – Oct. 2013
  - “nShield – New embedded Systems arcHitecturE for multi-Layer Dependable solutions”, National Strategic Reference Framework (NSRF 2007 - 2013), Sectoral Operational Programmes, Competitiveness and Entrepreneurship, Budget : € 453.600,00, Duration : Sep. 2011 – Aug. 2014
  - “Intelligent Vehicle Intercommunication System for Increased Security in Highways and Urban Environments”, Funding Source : “COOPERATION” - General Secretariat for Research and Technology Grant, Budget : € 57.699,26, Duration : Mar. 2011 – Jun. 2014
  - “R3-COP : Robust & Safe Mobile Co-operative Autonomous Systems”, Funding Source : “ARTEMIS Joint Undertaking / Advanced Research and Technology for Embedded Intelligence and Systems JU”, Total Funding : € 92.000,00, Duration : May 2010 – Oct. 2013.

## E – Professional service

- Conference Technical Program Committee service
  - IEEE FPL
  - IEEE ISWCS
  - IEEE ICEAC
  - IEEE ICNC
  - IEEE UCHPC

- Reviewing activities
  - Regular reviewer for *Elsevier Microprocessors and Microsystems Journal*,
  - Regular reviewer for *IEEE Transactions on Circuits and Systems for Video Technology*
  - Regular reviewer for *ACM Transactions on Reconfigurable Technology and Systems*
  - Regular reviewer for *IEEE Transactions on Parallel and Distributed Systems*
  - Regular Reviewer for *IEEE Design & Test*
  - Regular Reviewer for *IEEE Transactions on Circuits and Systems for Video Technology*

## G – Advising

- Active graduate students supervised
  - M.Sc. Theses completed (supervisor)
    - P. Dagritzikos, “Novel and highly efficient reconfigurable implementations of data mining algorithms”.
  - Ph.D. and M.Sc. students supervised
    - Kostas Fysarakis (Ph.D.), Year of initial enrollment in program: 2011
    - George Hatzivasilis (Ph.D.), Year of initial enrollment in program: 2011
    - Antonis Nikitakis (Ph.D.), Year of initial enrollment in program: 2008
    - Panagiotis Karkazis, (M.Sc.), Year of initial enrollment in program: 2010.
    - Ioannis Agadakos, (M.Sc.), Year of initial enrollment in program: 2010.
    - Ioannis Kartsonakis (M.Sc.), Year of initial enrollment in program: 2010.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - N. Pogkas
    - D. Daskalakis
    - D. Tsiamasiotis
    - A. Katsoulas
    - P. Papantonakis
    - M. Papadovasilakis
  - Diploma theses completed (supervisor)
    - A. Katsoulas, “Parallelizing Applications in Multi-core Architecture Systems with Emphasis on CUDA Architectures”.
    - K. Miteloudi, “Hardware Architectures for Price Calculation of Financial Derivatives and Implementation in Reconfigurable Logic”.



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Dionisios Pnevmatikatos

**Rank:** Professor

**Years in rank:** 3

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware Laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 201 – Digital Computers (Fall 2011)
  - HRY 415 – Computer Architecture (Spring 2012)
- Graduate courses taught
  - HRY 613 – Parallel and Distributed Computer Architecture (Spring 2012)
- Labs taught
  - HRY 201 – Digital Computers (Fall 2011)
  - HRY 415 – Computer Architecture (Spring 2012)
  - HRY 418 – Parallel and Distributed Computer Architecture (cross-listed with graduate HRY 613, Spring 2012)
- Curriculum & course development
  - New courses / labs developed
    - Parallel and Distributed Computer Architecture
  - Lecture notes / slides developed
    - Digital Computers (Update)
    - Computer Architecture (Update)

## B – Publications

- Publications in refereed journals
  - Submitted: those published/appeared (see below)
  - Accepted:
  - Published:
    - G. Passas, M. Katevenis, D. Pnevmatikatos, “Crossbar NoCs Are Scalable Beyond 100 Nodes”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 31, no. 4, April 2012.
  
- Publications in refereed conferences
  - Submitted: those published/appeared (see below)
  - Accepted:
  - Published:
    - George Kornaros, Dionisios N. Pnevmatikatos: Hardware-assisted dynamic power and thermal management in multi-core SoCs. ACM Great Lakes Symposium on VLSI 2011: 115-120.
    - Spyros Lyberis, George Kalokerinos, Michalis Lygerakis, Vassilis Papaefstathiou, Dimitris Tsaliagkos, Manolis Katevenis, Dionisios Pnevmatikatos, Dimitris Nikolopoulos, “Formic: Cost-efficient and Scalable Prototyping of Manycore Architectures” 20th IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM), April 2012.
    - Kyprianos Papadimitriou, Charalampos Vatsolakis, Dionisios N. Pnevmatikatos: Acceleration of computationally-intensive kernels in the reconfigurable era. Proceedings, ReCoSoC April 2012: 1-5.
    - Marco D. Santambrogio, Dionisios N. Pnevmatikatos, Kyprianos Papadimitriou, Christian Pilato, Georgi Gaydadjiev, Dirk Stroobandt, Tom Davidson, Tobias Becker, Tim Todman, Wayne Luk, Alessandra Bonetto, Andrea Cazzaniga, Gianluca Durelli, Donatella Sciuto: “Smart technologies for effective reconfiguration: The FASTER approach”. Proceedings, ReCoSoC April 2012: 1-7.
    - George Kornaros, Dionisios N. Pnevmatikatos: Real-Time Monitoring of Multicore SoCs through Specialized Hardware Agents on NoC Network Interfaces. IPDPS Workshops, May 2012: 248-255.
    - Maria Kalendarer, Dionisios N. Pnevmatikatos, Ioannis Papaefstathiou, Charalampos Manifavas: Breaking the GSM A5/1 cryptography algorithm with rainbow tables and high-end FPGAs. FPL August 2012: 747-753.
  
- Books and edited book chapters
  - «Embedded Systems Design with FPGAs», Athanas, Peter; Pnevmatikatos, Dionisios; Sklavos, Nicolas (Eds.), Springer, ISBN 978-1-4614-1362-2, 201

## D – Funded Projects

- Current projects:
  - Departmental Practical Training
  - Synergasia MERIT
  - FP7 FASTER
  - FP7 DESYRE

## E – Professional service

- Associate Editor duties
  - Guest Edit a Special Issue “**Reconfiguration for improved parallel computation**” for International Journal of Reconfigurable Computing (Hindawi)
- Conference Technical Program Committee service
  - International Conference on Field Programmable Logic and Applications (FPL) 2011
  - International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation (IC-SAMOS) 2011
  - IEEE International Conference On Computer Design (ICCD), 2012
  - International Conference on Supercomputing (ICS), 2012
  - Design and Test Europe (DATE), Architecture and Microarchitecture Track, 2012
  - EuroPar 2012 Track co-chair
  - Annual IEEE/ACM International Symposium on Microarchitecture (MICRO), 2011
- Conference Organization (specify role)
  - Co-Chair Workshop on Reconfigurable Computing, 2012
- Reviewing activities
  - Journal Reviewer:
    - IEEE TVLSI
    - IEEE TC
    - IJPP
    - ETRI
  - Conference Reviewer:
    - HiPEAC Conference 2012
  - Workshop Technical Committee Member:
    - ParaFPGA

## F – Service to the Department and the School

- Departmental responsibilities
  - Director, Microprocessor and Hardware (MHL) Laboratory
  - Undergraduate Program Committee Member
  - Graduate Program Committee Member
  - Responsible for the Department-wide practical training project
- School-level responsibilities
  - University Disciplinary committee
  - University Graduate committee

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - George Kornaros Ph.D.
    - S. Koidis M.Sc.
    - Ch. Vatsolakis M.Sc.
  - PhD. And M.Sc. degrees awarded
    - Ioannis Mavroidis Ph.D.

- Undergraduate students supervised
  - Diploma theses completed (committee member)
    - Rousopoulos
    - Katsoulas
    - Apostolakis
    - Noulas
    - Miteloudi
    - Bastaroyxas



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** George Stavrakakis

**Rank:** Professor

**Years in rank:** 17

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

**Division:** Electronic and Computer Architecture

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

### A – Teaching

- Undergraduate courses taught:  
NONE in ECE Dept.-TUC due to sabbatical leaving in the Faculty of Electrical Engineering, Technical University “Georghe Asachi”, Iasi-Romania.
- Graduate courses taught  
NONE for the same reason as above.
- Labs taught  
NONE for the same reason as above.
- Curriculum & course development:
  - New courses / labs developed already: Renewable Energy Sources (HRY 416)
  - Revision of courses already done: Basic Circuit Theory (HRY 202)
  - Lecture notes / slides developed already: Renewable Energy Sources (HRY 416)

### B – Publications

- **Publications in refereed conferences**
  - Submitted: 1
  - Accepted: 1

- Published: 1 (see below)
  - N. Panagiotidou, G. Stavrakakis, C. Venetis “Sustainable Waste Management Planning with the use of a Decision Support Software Tool based on the application of the PROMETHEE II method”, DSS2012 – 16th IFIP WG8.3 International Conference on Decision Support Systems, Anávisos, Greece, June 28-30 2012 (Full paper review Conference).
- **Publications in conferences on abstract review**
  - Submitted: 3
  - Accepted: 3
  - Published: 3 (see below)
    - N. Ardeleanu, V. Inglezakis, A. Zorpas, C. Venetis, N. Panagiotidou, G. Stavrakakis “Sustainable Waste Management planning by use of Decision Support Software Tool”, VIth edition of the International Symposium “Present Environment and Sustainable Development”, Iasi, Romania, 14-16 October 2011.
    - N. Ardeleanu, V. Inglezakis, C. Venetis, K. Moustakas, M. Loizidou, G. Stavrakakis, N. Panagiotidou, S. Dvorsak, L. Ilieva “Promotion of integrated decision tools in the Balkan Region and development of Waste Network for sustainable solid waste management planning”, ATHENS2012 International Conference on Sustainable Solid Waste Management, Greece, June 28-30 2012.
    - M. Ambăruș, N. Ardeleanu, V. Inglezakis, C. Venetis, G. Stavrakakis, N. Panagiotidou, K. Moustakas, M. Loizidou “Application of an innovative decision support software tool for assessing different waste management scenarios for the case of North-East Region in Romania”, ATHENS2012 International Conference on Sustainable Solid Waste Management, Greece, June 28-30 2012.
- **Books and edited book chapters with referees:**
  - STAVRAKAKIS G.S. (2012) «Electrical Parts of Wind Turbines». In: Sayigh A, (editor), Comprehensive Renewable Energy, Vol. 2, pp. 269–328. Oxford: Elsevier, May 2012.
- **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

- Elevation to senior membership grades in Professional Societies, Fellowships, **Visiting Professorships:** Faculty of Electrical Engineering, Technical University “Georghe Asachi”, Iasi-Romania.

## D – Funded Projects

### Current projects:

-LIFE FOREST CITIES-Local Authorities’ Alliance for Forest Fire Prevention LIFE+, 1-1-2010 to 31-12-2012. Project site: [www.forestcities.gr](http://www.forestcities.gr)



-E-GREENSHIP, An integrated system for monitoring ship's emissions and operating parameters with application to optimal management of the ship energy demands during operation, 2011-2014, General Secretary Research Technology - ΓΤΕΤ 09ΣΥΝ-51-871. Project site: [www.egreenship.com](http://www.egreenship.com)

## **E – Professional service**

- Society Technical Committee duties: International Committee of Electrical Machines- ICEM.
- Reviewing activities: in four international Journals
  - Permanent invited Reviewer of the Journal of Intelligent and Robotic Systems.
  - Permanent invited Reviewer of the IEEE Transactions on Energy Conversion.
  - Permanent invited Reviewer of the Electric Power Systems Research.
  - Reviewer on call basis International Journal of Distributed Sensor Networks.
- Participation in National Committees (e.g., ΕΔΕΤ) : “Permanent Committee of the Prefecture of Crete for the Energy Planning of Crete”.

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

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

## **G – Advising**

- Active graduate students supervised
  - Committee Member of PhD thesis already defended: 1  
Papadimitriou Kyprianos
  - PhD students supervised: 1  
Tripolitakis Evangelos
  - M.Sc Students supervised: 5  
Limneos Georgios  
Loukarakis Emmanouil  
Sytzanaki Athina  
Gobakis Konstantinos  
Panagiwtidou Natalia
  - M.Sc. degrees awarded: 3  
Limneos Georgios  
Loukarakis Emmanouil  
Gobakis Konstantinos
  - Committee Member of M.Sc. degrees awarded except the above: 5

- Undergraduate students supervised
  - Diploma theses in progress (supervisor): 8
  - Diploma theses completed (supervisor): 4
  - Diploma theses in progress (committee member): 11
  - Diploma theses completed (committee member): 5

## **Telecommunications Division**

### **Faculty Members:**

- Aggelos Bletsas, Assistant Professor
- Vassilis Digalakis, Professor
- George Karystinos, Assistant Professor (tenured)
- Polychronis Koutsakis, Assistant Professor
- Athanasios Liavas, Professor
- Michail Paterakis, Professor
- Michail Zervakis, Professor



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Aggelos Bletsas

**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 303 Telecommunication Systems II.  
TEL 412 Analysis & Design (Synthesis) of Telecom Modules.
- Graduate courses taught:  
TEL 603 Detection & Estimation Theory (26 lectures-graduate course).  
TEL 613 Analysis & Design (Synthesis) of Telecom Modules (meets with TEL 412).
  - Labs taught  
TEL 412 Analysis & Design (Synthesis) of Telecom Modules.

### B – Publications

- Publications in refereed **journals**
  - Published:  
A. C. Polycarpou, A. Dimitriou, **A. Bletsas**, P. Polycarpou, L. Papaloizou, G. Gregoriou, J.N. Sahalos, "On the Design, Installation, and Evaluation of a Radio Frequency Identification System for Healthcare Applications", *IEEE Antennas & Propagation Magazine (AP)[Wireless Corner]*, Vol. 54, Issue 4, pp. 255-271, Aug. 2012.

**A. Bletsas**, J. Kimionis, A.G. Dimitriou and G.N. Karystinos, "Single-Antenna, Coherent Detection of Collided FM0 RFID Signals", *IEEE Transactions on Communications (TCOM)*, Vol. 60, No. 3, pp. 756-766, March 2012.

**Extended version of second best student paper award, IEEE RFID Technologies and Applications 2011.**

**A. Bletsas**, A. Lippman and J.N. Sahalos, "Zero-Feedback, Collaborative Beamforming for Emergency Radio: Asymptotic Analysis", *Mobile Networks and Applications (MONET)*, Vol. 16, No. 5, pp. 589-599, October 2011. **Extended version of paper selected among 5 best papers of IEEE ISWCS 2009.**

- Publications in refereed **conferences**

- Published:

- J. Kimionis, **A. Bletsas** and J.N. Sahalos, "Design and Implementation of RFID Systems with Software Defined Radio", *IEEE European Conference on Antennas & Propagation (EUCAP)*, March, 2012, Prague, Czech Republic.

- A. G. Dimitriou, **A. Bletsas**, J.N. Sahalos, "Practical Considerations of ASK Modulated Passive Tags", *IEEE European Conference on Antennas & Propagation (EUCAP)*, March, 2012, Prague, Czech Republic.

- G. Sklivanitis and **A. Bletsas**, "Testing Zero-feedback Distributed Beamforming with a Low-Cost SDR Testbed", **invited paper**, Asilomar Conference on Signals, Systems and Computers (*ASILOMAR*), November 2011, Pacific Grove, California, USA.

- J. Kimionis, **A. Bletsas**, A. G. Dimitriou and G. N. Karystinos, "Inventory Time Reduction in Gen2 with Single-Antenna Separation of FM0 RFID Signals", *IEEE International Conference on RFID-Technologies and Applications (RFID-TA)*, September 2011, Sitges, Spain. **Received 2nd best student paper award.**

- Patents

- *GRANTED*

- A. Lippman, D.P. Reed, **A. Bletsas**, "Method for automatic signal routing in ad hoc networks", U.S. Patent 8089887, January 3, 2012.

## C – Awards & Distinctions

- 2<sup>nd</sup> Best Student Paper Award in IEEE RFID-TA 2011:  
J. Kimionis, **A. Bletsas**, A. G. Dimitriou and G. N. Karystinos, "Inventory Time Reduction in Gen2 with Single-Antenna Separation of FM0 RFID Signals", *IEEE International Conference on RFID-Technologies and Applications (RFID-TA)*, September 2011, Sitges, Spain.

- **2011 Best Diploma Thesis Award** from IEEE AES/VTS joint Greek Chapter for best 2009-2011 Diploma Thesis among all Greek Universities in the topic of “Advanced Wireless Systems” awarded to my student E. Kampianakis (see below).
- *Invited Talk:*  
 "Demonstration of a Backscatter Sensor Network with Commodity SDR Reader", RFIDs and RFID-enabled sensors: novel applications, energy harvesting and integration challenges **Short Course**, European Microwave Conference (EuMC), Manchester UK, October **2011**.

## D – Funded Projects

- Current projects:  
3 Projects funded through GSRT Thalys.
- Project proposals accepted  
1 Proposal to GSRT Synergasia (as PI).  
1 Proposal to Cyprus RPF.

## E – Professional service

- Associate Editor duties:  
IEEE Wireless Communication Letters.
- Conference Technical Program Committee (TPC) service:  
TPC Member of IEEE RFID-TA (Theory and Applications) 2012, IEEE ICC 2012 (Cognitive Radio & Networks Track), IEEE ICC 2012 (Ad-hoc & Sensor Networks Track), IEEE Globecom 2012 (Ad-hoc & Sensor Networks Track).
- Reviewing activities:  
Reviews for major Class A IEEE Journals (mostly for IEEE Transactions on Wireless Communications).

## F – Service to the Department and the School

- Presentations of the Department to several classes of Elementary and High school students (with Prof. Lagoudakis).

## G – Advising

- Active graduate students supervised
  - M.Sc. students supervised
    - G. Sklivanitis, “Disruptive technologies for Distributed Radio”.
    - E. Kampianakis, “Sensors and Testbed for Backscatter Sensor Networks”.
    - J. Kimionis, “Bistatic Backscatter Radio for Backscatter Sensor Networks”.

- Undergraduate students supervised
  - Diploma theses **completed** (supervisor)
    - Dimitris Dilis, “Introduction to Rooftop Networking”.
    - Ioannis Papametzelopoulos, “Implementation of CSMA Protocol for Wireless Sensor Networks in 8051 MCU”.
    - Eleftherios Kampianakis, “Custom Over The Air Programmable Embedded Radios”.  
**2011 Best Diploma Thesis Award** from IEEE AES/VTS joint Greek Chapter for best 2009-2011 Diploma Thesis among all Greek Universities in the topic of “Advanced Wireless Systems”, Aristotle Univ. of Thessaloniki, Thessaloniki, Greece.
    - John Kimionis, “Design and Implementation of Backscatter Radio Links with SDR for Wireless Sensor Network Applications”.  
**2011 Diploma Thesis Award Finalist** from IEEE AES/VTS joint Greek Chapter for best 2009-2011 Diploma Thesis among all Greek Universities in the topic of “Advanced Wireless Systems”.
  - Diploma theses **in progress** (supervisor)
    - Manolis Alibertis.
    - Nikos Agadakos.
    - Efthimios Vlachos.
    - Nikos Fassarakis-Hilliard.
    - Konstadinos Alexandris.
    - Panos Alevizos.
    - Manos Papagiannakis.



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## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Vassilis Digalakis

**Rank:** Professor

**Years in rank:** 12

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - *Statistical Modeling and Pattern Recognition*
  - *Probabilities and Random Signals*
  
- Graduate courses taught
  - *Machine Learning*

### B – Publications

- Publications in refereed conferences
  - Published
    - A. Georgogiannis and V. Digalakis, "Speech Emotion Recognition Using Non-Linear Teager Energy Based Features in Noisy Environments," 20th European Signal Processing Conference (EUSIPCO 2012), Bucharest, Romania, August 2012.*



## **D – Funding**

- Proposals submitted as Coordinator:
  - “*Linear Dynamical Models for Speech Synthesis*”, submitted to *Toshiba Research, Cambridge*.

## **E – Professional service**

- *Reviewer in several journals.*
- *ICASSP Reviewer*
- *Interspeech Reviewer*
- *Eusipco Reviewer and TPC member*

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

- Departmental responsibilities
  - *Director, Information and Computer Networks Lab*
- Director, Telecommunication Systems Institute of Crete (TSI)

## **G – Advising**

- Graduate students supervised
  - *Alex Georgogiannis, MSc*
- Undergraduate students defended
  - G. Fragiadakis, “Speaker Segmentation & Clustering on Greek Broadcast News”.
- Undergraduate students supervised
  - Various students.



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Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** George Karystinos

**Rank:** Assistant Professor

**Years in rank:** 6

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

- Undergraduate courses taught
  - TEL 201 – Signals and Systems (Fall 2011)
  
- Labs taught
  - TEL 201 – Signals and Systems Lab (Fall 2011)

### B – Publications

- Publications in refereed journals
  - Submitted
    - D. S. Papailiopoulos, G. Abou Elkheir, and **G. N. Karystinos**, “Maximum-likelihood noncoherent PAM detection,” *IEEE Transactions on Communications*, submitted June 2012.
  - Accepted: those published (see below)
  - Published
    - A. Bletsas, J. Kimionis, A. G. Dimitriou, and **G. N. Karystinos**, “Single-antenna coherent detection of collided FM0 RFID signals,” *IEEE Transactions on Communications*, vol. 60, pp. 756-766, Mar. 2012.

- Publications in refereed conferences
  - Submitted: those published (see below)
  - Accepted: those published (see below)
  - Published
    - J. Kimionis, A. Bletsas, A. G. Dimitriou, and **G. N. Karystinos**, “Inventory time reduction in Gen2 with single-antenna separation of FM0 RFID signals,” in *Proc. IEEE RFID-TA 2011 - Intern. Conf. RFID-Tech. Applic.*, Sitges, Spain, Sept. 2011, pp. 494-501 (Second Best Student Paper Award).
    - D. S. Papailiopoulos, G. Abou Elkheir, and **G. N. Karystinos**, “Maximum-likelihood blind PAM detection,” in *Proc. IEEE ICC 2012 - International Conference on Communications*, Ottawa, ON, June 2012, pp. 2283-2287.
- Books and edited book chapters
- Patents

## C – Awards & Distinctions

- IEEE RFID-TA 2011 Second Best Student Paper Award (IEEE Intern. Conf. RFID-Tech Applic.) for paper “Inventory time reduction in Gen2 with single-antenna separation of FM0 RFID signals” by J. Kimionis, A. Bletsas, A. G. Dimitriou, and G. N. Karystinos.

## D – Funded Projects

- Current projects
  - PI (%effort: 33%), “DISCO - Distributed wireless communications,” Thales Program, Ministry of Education, Greece, Jan. 1, 2012 - Sept. 30, 2015, 600.000 EUR.
  - Participant, “NOPTILUS,” FP7-INFOS-ICT-270180, European Commission, led by Prof. A. P. Liavas.
  - Participant, “RFID-CORE - Development of RF/RFID systems for control and registration of goods and personnel,” Thales Program, Ministry of Education, Greece, led by Prof. J. N. Sahalos.
  - Participant, “SWINCOM - Secure wireless nonlinear communications at the physical layer,” Thales Program, Ministry of Education, Greece, led by Prof. N. Kalouptsidis.
  - Participant, “AQUANET: Water management for a city with an intelligent, autonomous and low-cost wireless sensor network,” 2011 Cooperation Program, General Secretariat for Research and Technology, Greece, led by Prof. E. Koutroulis.

## **E – Professional service**

- Conference Technical Program Committee service
  - IEEE International Conference on Communications (ICC) 2012 - Wireless Communications Symposium.
- Reviewing activities
  - Reviewer for journals
    - *IEEE Transactions on Communications*
    - *IEEE Transactions on Wireless Communications*
    - *IEEE Transactions on Signal Processing*
    - *IEEE Communications Letters*
    - *IEEE Wireless Communications Letters*
    - *IEEE Signal Processing Letters*
    - *Entropy (MDPI)*
  - Reviewer for conferences
    - *IEEE GLOBECOM 2012*
    - *IEEE ICC 2012*

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

- Departmental responsibilities
- School-level responsibilities

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Dimitris Koupatsiaris, “Efficient techniques for channel decoding,” Ph.D. student.
  - Ph.D. and M.Sc. degrees awarded
    - Georgina Abou-Elkheir, “Maximum-likelihood noncoherent PAM detection,” M.Sc., awarded Dec. 2011.
    - Panagiotis Markopoulos, “Full-rate differential M-PSK Alamouti modulation with polynomial-complexity maximum-likelihood noncoherent detection,” M.Sc., awarded Aug. 2012.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Alexandros Sklikas, “An algorithm with complexity  $O(N^3 \log N)$  for rank-4 quadratic form maximization with a binary vector.”
  - Diploma theses completed (supervisor)
    - John Fountzoulas, “Selection of subsets of orientations for high-dimensional space-filling Latin hypercube sampling,” awarded Aug. 2012.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Polychronis Koutsakis

**Rank:** Assistant Professor

**Years in rank:** 4

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - Computer Networks I
  
- Graduate courses taught
  - Communication Networks Protocols
  
- Curriculum & course development
  - Lecture notes / slides developed:
    - Slides for both courses that I taught

### B – Publications

- Publications in refereed journals
  - Submitted
    - O.-S. Loizides and **P. Koutsakis**, “Not So Snap a Judgement: Discussing the PR metric”, revised for publication in the ACM SIGMOBILE Mobile Computing and Communications Review.

- E. Maratsolas and **P. Koutsakis**, “Activity-Based Video Traffic Policing: A New Paradigm”, under preparation for submission.
  - Published
    - **P. Koutsakis**, “Token and Self Policing-Based Scheduling for Multimedia Traffic Transmission over WLANs”, IEEE Transactions on Vehicular Technology, Vol. 60, No. 9, 2011, pp. 4520-4527.
- Publications in refereed conferences
  - Submitted
    - **P. Koutsakis** and I. Spanou, “Mapping Video Scene Activity to User QoE for Resource Allocation Over GEO Satellites”, under preparation for submission.
    - I. Spanou, A. Lazaris and **P. Koutsakis**, “Scene Change Detection-Based Discrete Autoregressive Modeling for MPEG-4 Video Traffic”, under preparation for submission.
  - Accepted
    - J. Sotiropoulos, A. Delimargas and **P. Koutsakis**, “Exploiting GoP Patterns for Video Traffic Control over Wireless Networks”, in Proc. of the IEEE WCNC 2012, Paris, France (*Acceptance Ratio: 44%*).
    - C. Stamos, D. Vasileiadou, G. Koutsandria, I. Spanou, A. Vlachaki, A. Lazaris and **P. Koutsakis**, “User-Satisfaction Based Resource Allocation for GEO Satellites”, in Proc. of the IEEE WoWMoM 2012, San Francisco, USA (*Work-in-Progress Paper Acceptance Ratio: 33.3%*).
- Patents
  - A. M. Kholaf, M. N. Smadi, **P. Koutsakis** and T. D. Todd, “Wireless Access Point Methods And Apparatus Using Dynamically-Activated Service Intervals”, U.S patent No: 8,194,576, published June 05, 2012, assigned to Research In Motion (RIM).

## D – Funded Projects

- Current projects:
  - *January 2012- December 2013*, Principal Investigator, Research grant from the Technical University of Crete: “Self-Policing for Energy Efficient Multimedia Traffic Transmission over Wireless Local Area Networks”, 15000€ total funding.
- Project proposals submitted:
  - ARISTEIA II (Principal Investigator)

## E – Professional service

- Associate Editor duties
  - IEEE Communication Surveys & Tutorials Journal
  - Computer Communications Journal (Elsevier)

- Society Technical Committee duties
  - Voting Member of the IEEE Multimedia Communications Technical Committee (MMTC)
  - Member of the IEEE MMTC "Green Multimedia Communications" Interest Group
  - Member of the IEEE MMTC "QoE for Multimedia Communications" Interest Group
  - Member of the IEEE MMTC "Wireless Technology for Multimedia Communications" Interest Group
  
- Conference Technical Program Committee service
  - IEEE Conference on Local Computer Networks (LCN) 2012
  - IEEE ICC 2012 – Wireless Networking Symposium
  - IEEE ICC 2012 Ad-Hoc and Sensor Networking Symposium
  - IEEE ICC 2012 - Symposium on Selected Areas in Communications (SAC), Satellite and Space Communications (SSC) Track
  - IEEE GLOBECOM 2012 Ad-Hoc and Sensor Networking Symposium
  - IEEE WCNC 2012 – Mobile and Wireless Networks Track
  - IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM 2012)
  - IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob) 2012
  - IEEE CCNC 2012 – Work in Progress Track
  - IEEE International Conference on Computing, Networking and Communications (ICNC) 2012 – Green Computing, Networking and Communications Symposium
  - IEEE International Conference on Multimedia and Expo (ICME) 2012
  - IEEE PIMRC 2012 – Mobile and Wireless Networks Track
  - ACM/IEEE International Conference on Connected Vehicles and Expo (ICCVE 2012)
  - International Conference on Networks (ICN) 2012
  - Queen's Biennial Symposium on Communications (QBSC) 2012
  
- Conference Organization (specify role)
  - Workshops' Co-Chair for the 14<sup>th</sup> IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), June 2013, Madrid, Spain
  - Session Chair for the “*Resource Management I*” Session, IEEE Wireless Communications and Networking Conference (WCNC) 2012, April 2012, Paris, France.
  
- Reviewing activities
  - IEEE Transactions on Mobile Computing
  - IEEE Transactions on Multimedia
  - IEEE Transactions on Broadcasting
  - IEEE Transactions on Circuits and Systems for Video Technology
  - IEEE Communications Letters

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

- Departmental responsibilities
  - *Substitute Member of the Undergraduate Curriculum Committee of the ECE Department, Technical University of Crete*
  - *Substitute Member of the Graduate Curriculum Committee of the ECE Department, Technical University of Crete*
  
- School-level responsibilities
  - *Substitute Member of the Senate of the Technical University of Crete*

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Konstantina Dimitriou (MSc student)
    - Dimitra Vasileiadou (MSc student)
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor). Students' Names:
    - Evangelos Maratsolas
    - Charis Stamos
    - Manolis Skevakis
    - Giorgos-Andreas Liagouras
    - Georgia Athanasopoulou
    - Greta Tzamicha
    - Orestis-Stavros Loizides
  
  - Student with Diploma theses completed (supervisor)
    - Dimitra Vasileiadou
    - Theodora Kouskouli
    - Thomas Hall
    - Aikaterini Vlachaki
    - Irimi Spanou
    - Georgia Koutsandria





Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Athanasios Liavas

**Rank:** Professor

**Years in rank:** 3

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

- Undergraduate courses taught
  - Telecommunications Systems I
  - Introduction to Optimization (X-listed with Convex Optimization)
- Graduate courses taught
  - Convex Optimization
  - Special Topics in Convex Optimization
- Labs taught
  - Telecommunications Systems I
  - Convex Optimization
  - Special Topics in Convex Optimization
- Curriculum & course development
  - New courses / labs developed
    1. Introduction to Optimization (X-listed with Convex Optimization)
    2. Special Topics in Convex Optimization
  - Lecture notes / slides developed
    1. A. P. Liavas, Lecture Notes on “Special topics in Convex Optimization”
    2. A. P. Liavas, Lecture Notes on “Introduction to Optimization”

## **B – Publications**

- Publications in refereed journals
  - Published:
    - A. P. Liavas and D. Tsipouridou, “ Single-carrier systems with MMSE linear equalizers: performance degradation due to channel and CFO estimation errors,” *IEEE Trans. Signal Proc. Vol. 60, no. 6, pp. 3328—3334, June 2012.*

## **D – Funded Projects**

- Current projects:
  - Noptilus: autoNomous self-Learning OPTImal, and compLete Underwater Systems, FP7-2009, PI for TSI. Project duration: 2011-2014.
- Project proposals submitted:
  - ΘΑΛΗΣ – SWINCOM
  - ΘΑΛΗΣ – DISCO

## **E – Professional service**

- Society Technical Committee duties
  - re-elected member of the *IEEE Signal Processing for Telecommunications and Networking* (IEEE SPCOM) Technical Committee (re-elected December 2008).
- Reviewing activities
  - *IEEE Transactions on Signal Processing, IEEE ICASSP2012, IEEE SPAWC12.*

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

- Departmental responsibilities
  - Vice Chair
- School-level responsibilities
  - Alternate Senate Member (as Department Vice Chair)

## **G – Advising**

- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Charitakis Georgios
    - Sapountzis Nikolaos



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Michael Paterakis

**Rank:** Professor

**Years in rank:** 13

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - *Wireless Communication Networks and Systems* (TEL 511), Advanced Senior Undergraduate Course, taught for first time (Fall 2011).
  - *Introduction to Modeling and Performance Evaluation of Computer Communication Networks* (TEL 414), Advanced Senior Undergraduate Course, taught for first time (Spring 2012).
- Graduate courses taught
  - *Modeling and Performance Analysis of Computer Communication Networks* (TEL 606), Graduate Course (Spring 2012). Offered independently from TEL 414.
- Curriculum & Course Development
  - New courses developed: *Wireless Communication Networks and Systems* (TEL 511) and *Introduction to Modeling and Performance Evaluation of Computer Communication Networks* (TEL 414). The development included the course material (from several books), and the homework assignments.

## **D – Funded Projects**

- Current projects:
  - “Provision of Techno - Economic Advisory Services for the National Project: Open Access, Optical Fiber based Broadband Network to the Home”. Funded for the period 7/2011 – 8/2013 by the Greek Ministry of Infrastructures, Transportation and Networks. PI: Prof. M. Paterakis, Budget: 100.000 €.
  - “Functional and Logical Design and Implementation of the Voice / Data Network of the Municipality of Chania to achieve Secure Information Transport and prevent Malicious Attacks – and - Design and Installation of the Wireless Network of the Municipality of Chania to cover Areas of Tourist Interest”. Funded for the period 1/06/2011 – 31/05/2012 by the Municipality of Chania. PI: Prof. M. Paterakis. Budget: 75.000 €.
  - “Social Network Aware Cognitive Radio Networks – SoCoNet”, funded by the GSRT Thales Program. This project is a collaborative effort of research teams from AUTH (ECE Dept.), TUC (ECE Dept.) and UTH (CET Dept.). Prof. M. Paterakis participates in the research team. Coordinator: Prof. Leonidas Georgiadis, ECE Dept., AUTH. Duration: 36 months. Total budget: 521.738 €.

## **E – Professional service**

- Conference Technical Program Committee service:
  - 1<sup>st</sup> IEEE WoWMoM Workshop on Video Everywhere (VidEv’12), June 25, 2012 - San Francisco, California, USA.
- Reviewing activities:
  - 1<sup>st</sup> IEEE WoWMoM Workshop on Video Everywhere (VidEv’12), June 25, 2012 - San Francisco, California, USA.

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

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

## **G – Advising**

- Undergraduate students supervised
  - Diploma theses in progress (supervisor):
    - Maria Theodorou, Thesis Title: “*Cache management policies for streaming proxies supporting complete and partial video playback*”. Expected Completion Time: Spring 2013.
    - Dimitris Bouzoukas, Thesis Title: “*Random Multiple Packet Access with Channel Sensing for an Energy Limited Cognitive Radio System*”. Expected Completion Time: Fall 2013.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2011 to August 31, 2012*

**Name:** Michalis Zervakis

**Rank:** Professor

**Years in rank:** 11

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - Digital Signal Processing
  - Digital Image Processing
  - Computer Vision
  - Biomedical Engineering
- Graduate courses taught
  - Computer Vision
- Labs taught
  - Digital Signal Processing
  - Digital Image Processing
- Curriculum & course development
  - Lecture notes / slides developed: Digital Image Processing, Digital Signal Processing, Biomedical Engineering.

## **B – Publications**

### **International Journals**

- [1] G. C. Giakos, S. Marotta, C. Narayan, J. Petermann, S. Shrestha, J. Baluch, D. Pingili, D. B. Sheffer, L. Zhang, M. Zervakis, G. Livanos and M. Kounelakis, “Polarimetric phenomenology of photons with lung cancer tissue”, *IOP Measurement Science & Technology*, vol. 22, 12 pp, 2011 *doi:10.1088/0957-0233/22/11/114018*
- [2] M.G. Kounelakis, M.E. Zervakis, G. C. Giakos, G. J. Postma, L. M. C. Buydens and Xenofon Kotsiakis, “Embedding filtering criteria into a wrapper marker selection method for brain tumors classification: An application on metabolic peak area ratios”, *IOP Measurement Science & Technology*, Vol. 22, 12 pp, 2011 *doi: 10.1088/0957-0233/22/114019*
- [3] Tsiliki G, Zervakis M, Ioannou M, Sanidas E, Stathopoulos E, Potamias G, Tsiknakis M, Kafetzopoulos D (2009), “Multi-platform Data Integration in Microarray Analysis”, *IEEE Transactions on Information Technology in Biomedicine* Vol. 15, No. 6, pp. 806-812, Nov. 2011.
- [4] Roniotis, G. Manikis, V. Sakkalis, M. Zervakis, I. Karatzanis and K. Marias, “High grade glioma diffusive modeling using statistical tissue information and diffusion tensors extracted from atlases”, *IEEE Trans. Inf. Tech. in Biomedicine*, Vol. 16, no. 2, pp. 255-263, 2012. *doi: 10.1109/TITB.2011.2171190*
- [5] A. Roniotis, V. Sakkalis, K. Marias, I. Karatzanis and M. Zervakis, “In-depth analysis and evaluation of diffusive glioma models”, *IEEE Trans. Inf. Tech. in Biomedicine*, Vol. 16, no. 3, pp. 299-307, 2012. *doi: 10.1109/TITB.2012.2185704*.
- [6] M.G. Kounelakis, M.E. Zervakis, G. C. Giakos, G. J. Postma, L. M. C. Buydens and X. Kotsiakis, “On the relevance of glycolysis process on brain gliomas”, *IEEE Trans. Inf. Tech. in Biomedicine*, accepted May 2012, in press.

### **Book Chapters**

- K. Michalopoulos, V. Iordanidou, M. Zervakis, “Application of Decomposition Methods in the Filtering of Event-Related Potentials in Data Mining for Biomarker Discovery” Ed. by P. Pardalos, P. Xanthopoulos and M. Zervakis, *Springer Optimization and Its Applications*, Vol. 65, 2012, *DOI: 10.1007/978-1-4614-2107-8*

## International Conferences

- L. Koumakis, G. Potamias, M. Zervakis, V. Moustakis, “Integrating microarray data and gene regulatory networks: Survey and critical considerations”, 10th International Workshop on Biomedical Engineering, Kos, 5-7 Oct. 2011.
- K. Michalopoulos, V. Iordanidou, G. Giannakakis, K. Nikita and M. Zervakis, “Characterization of evoked and induced activity in EEG and assessment of intertrial variability”, 10th International Workshop on Biomedical Engineering, Kos, 5-7 Oct. 2011.
- V. Iordanidou, K. Kanatsouli, K. Michalopoulos, S. Michelogiannis and M. Zervakis, “Investigation of both power and coherence differences of brain lobes in two mathematical thinking tasks”, 10th International Workshop on Biomedical Engineering, Kos, 5-7 Oct. 2011
- L. Koumakis, V. Moustakis, M. Zervakis, G. Potamias, “Coupling Regulatory Networks and Microarrays: Revealing Molecular Regulation of Breast Cancer Treatment Responses”, *7th Hellenic Conference on Artificial Intelligence (SETN 2012)*, May 2012, Lamia, Greece.
- Vigideli T, Bei ES, Zervakis M. Biological Evaluation of the Influence of Algorithmic Parameters on Marker Selection in Genomic Datasets. *5th International Conference on Medical Signal and Information Processing (MEDSIP 12)*, Liverpool, UK; July 5 – 6, 2012.
- Kalantzaki K, Bei ES, Garofalakis M, Zervakis M. Biological Interaction Networks based on Temporal expansion of Graphical Models. *5th International Conference on Medical Signal and Information Processing (MEDSIP 12)*, Liverpool, UK; July 5 – 6, 2012.
- Skreti G, Bei ES, Zervakis M. “Shape-Influenced Clustering of Dynamic Patterns of Gene Profiles”, *34<sup>th</sup> IEEE International Conference on Engineering in Medicine and Biology Society (EMBC 12)*, San Diego, California, USA; August 28-September 1, 2012.

## **C – Awards & Distinctions**

- Elevation to senior membership grades in Professional Societies (e.g., IEEE, ACM, ...):  
**IEEE Member**

## **D – Funded Projects**

- |           |   |
|-----------|---|
| 2012-2015 | Title: High frequency Monitoring System for integrated water resources management of rivers (CYBERSENSORS), GSRT Thales Programme |
| 2012-2015 | Title: e-TRAINING FOR WELLNESS IN SPA SERVICES (eTraWelSpa), LDV-Life Long Learning Programme (LLP-LdV-ToI-2011-RO-022)           |

- 2011-2013 Title: *Development of Research Infrastructure for Clinical Computational tools and Services for improved diagnosis and estimation of optimal therapy for oncological diseases (YPEROEN)*, INTERREG Cooperation Greece-Cyprus, Grant Agreement no.: K1\_01\_04
- 2010-2013 Title: *Real Time Simulation for Safer vascular Stenting (RT3S)*, ICT-2009.5.2 ICT for Patient Safety, Grant Agreement no.: 248801
- 2010-2015 Title: *OncoSeed Diagnostics: Biology of Circulating Tumour Cells, Distant Metastasis & Development of Liquid Biopsy Methods*, GSRT Cooperation Programme.
- 2010-2013 Title: *Osteoarthritis: Holistic and systemic analysis for targeted biomolecular therapy (OASYS)*, GSRT Cooperation Programme.

- Project proposals submitted:
  - During the Calls of ICT and Health participated in the submission of two STREP.

## **E – Professional service**

- Society Technical Committee duties
  - Session Chair BIBE-12 (International Conference on *BioInformatics and BioEngineering*).
  - International Programme Committee for IST 2012.
- Reviewing activities:
  - Reviewer for “IEEE Transactions on Image Processing”, “Image and Vision Computing”, “Pattern Recognition”, “Journal of Visual Communication and Image Representation” and many conferences in his fields of expertise.
- Other
  - External reviewer for one PhD thesis from University of Thessaly, Med School.

## **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 Ph.D.
  - Ioannis Dimou Ph.D., 2012
- Completed M.S.
  - Kostas Michalopoulos



- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Alexandros Roniotis PhD Student
    - Kostantina Moirogiorgou PhD student
    - George Livanos MASc student
    - Kalliopi Kalantzaki MASc student
- Undergraduate students supervised
  - Diploma theses completed (supervisor):
    - Antonis Lironis, “Visual surveillance to detect spatial characteristics in monuments”.