



**Technical University of Crete**

Department of  
Electronic and  
Computer Engineering

# **Annual Activity Report**

For the period Sep. 1, 2012 - Aug. 31, 2013

Chania, Crete

Nov. 1, 2013

[DRAFT v5.1]

Chania 2013

## **Computer Science Division**

### **Faculty Members:**

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



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Georgios Chalkiadakis

**Rank:** Assistant Professor

**Years in rank:** 1 ½

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

**Division:** Computer Science

**Lab affiliation:** Intelligent Systems Laboratory

### A – Teaching

- Undergraduate courses taught
  - COMP-517 Multiagent Systems [Winter 2012]
  - COMP-201 Design and Development of Information Systems [Winter 2012]
  - COMP-417 Artificial Intelligence [Spring 2013]
- Updated course material/slides for all aforementioned courses taught

### B – Publications

- **Publications in refereed conferences (full papers, thoroughly peer-reviewed)**

#### Accepted/Published (full papers):

1. Konstantinos Babas, Georgios Chalkiadakis, and Evangelos Tripolitakis: [You Are What You Consume: A Bayesian Method For Personalized Recommendations](#). In Proc. of the 7th ACM Conference on Recommender Systems (ACM RecSys 2013), Hong Kong, China, October 2013. To appear.
2. Charilaos Akasiadis and Georgios Chalkiadakis: [Agent Cooperatives for Effective Power Consumption Shifting](#). In Proc. of the 27<sup>th</sup> AAAI Conference on Artificial Intelligence (AAAI-2013), Bellevue, WA, USA, July 2013.

## C – Awards & Distinctions

1. **Editorial Board member for the Journal of Artificial Intelligence Research (JAIR) for a 3-year term: July 1, 2013-June 30, 2016.**

## E – Professional service

- Conference Technical Program Committee service
  - Program Committee member: the 27<sup>th</sup> AAAI Conference on Artificial Intelligence (AAAI-2013), Bellevue, WA, USA, July 2013.
  - Program Committee member: The 23<sup>rd</sup> International Joint Conference on Artificial Intelligence, Beijing, China, 2013 (IJCAI-13).
  
  - Program Committee member in the following international workshops:
    - The 8<sup>th</sup> Workshop on Multiagent Sequential Decision Making under Uncertainty (MSDM-2013).
    - The 4<sup>th</sup> Workshop on Cooperative Games in Multiagent Systems (CoopMAS-2013).
    - The 6<sup>th</sup> Workshop on Optimization in Multiagent Systems (OptMAS-2013).
    - The 2013 Information Sharing in Large Scale Multiagent Systems Workshop.
    - The Machine Learning and Data Mining for Sports Analytics ECML/PKDD 2013 Workshop (MLSA@ECML/PKDD 2013)
  
- Conference Organization (specify role)
  - **Organizer and Chair** for the 1<sup>st</sup> CretaMASSS International Multiagent Systems Summer School held in Crete / the 3<sup>rd</sup> Agents-themed version of the bi-annual Hellenic Artificial Intelligence Summer School (HAISS'13-Agents), Chania, July 2013. **CretaMASSS-2013/HAISS'13-Agents: <http://www.intelligence.tuc.gr/cretamass>**
  
- Reviewing activities
  - Reviewer for the conferences and workshops I was a Program Committee member at (mentioned above)
  - Reviewer for the “Journal of Autonomous Agents and Multiagent Systems (JAAMAS)
  - Reviewer for the “Journal of Artificial Intelligence Research” (JAIR)
  - Reviewer for the “Artificial Intelligence Journal” (AIJ)
  - Reviewer for The “Journal of the Brazilian Computer Society”

## G – Advising

- Graduate students supervised
  - MSc theses in progress (supervisor)
    - Charilaos Akasiadis: mechanism design, and intelligent agent technologies for the Smart Grid. **Defending December 2013.**
    - Konstantinos Babas (MSc student): recommendation systems. **Defending some time early 2014.**
    - Angelos Angelidakis (MSc student): intelligent agent technologies in the smart grid domain

- Undergraduate students supervised
  - Diploma theses completed (supervisor)
    - Thanos Panagopoulos: **A Novel Method for Predicting the Power Output of Distributed Renewable Energy Resources**, June 2013
      - published a paper in an international conference (PAIS-2012, which was awarded the Best Student Paper Award – please see the 2012 AAR)
      - already accepted as a PhD student at the University of Southampton
  - Diploma theses in progress (supervisor)
    - Konstantinos Panousis: works on reinforcement learning in multiagent game environments
    - Marios Asiminakis: works on applying machine learning and stochastic search techniques on solving the game of bridge
    - 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 **Expected defence date: Spring 2014**
    - 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 **Expected defence date: Spring 2014**
    - 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. **Expected defence date: Spring 2014**

### 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 international TAC/Ad Auctions 2013 competition, which was held during the AAI-2013 conference. This was the second time in the row that TUC was represented at the finals of the competition (after the TUTAC participation during 2012). You can find more information on “TUCTAC” at <http://intellix.intelligence.tuc.gr/tuctac/index.html>.



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*For the period: September 1, 2012 to August 31, 2013*

**Name:** Stavros Christodoulakis

**Rank:** Professor

**Years in rank:** 24

**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 419: Development of Web Information Systems
  - AIS 512: Information, Semantics, and Services in the Web
- Graduate courses taught
  - AIS 601: Web Information Systems  
(Offered jointly with AIS 419)
  - AIS 604: Information, Semantics, and Services in the Web  
(Offered jointly with AIS 512)

### B – Publications

- Book Chapters
  - Submitted: Interoperability between the XML and Semantic Web Worlds: A Survey of the State of the Art, Bikakis N., Tsinaraki C., Gioldasis N., Stavrakantonakis G., Christodoulakis S. In the "Semantic Hyper/Multimedia Adaptation" Springer series, pp. 319-360, 2013 2013 (Book Chapter)
  - Spatiotemporal Event Visualization on top of Google Earth: Tsinaraki C., Tarantilis N., Kazasis F., Gioldasis N., Christodoulakis S. in "Semantic Multimedia Analysis and Processing", CRC Press 2013 (Book Chapter)

- Publications in conferences (submitted/accepted/published)
  - Metadata Management and Interoperability Support for Natural History Museums: Makris K., Skevakis G., Kalokyri V., Arapi P., Christodoulakis S.: 17th International Conference on Theory and Practice of Digital Libraries (TPDL) 2013.
  - Elevating Natural History Museums' Cultural Collections to the Linked Data Cloud Publication Authors: Skevakis G., Makris K., Arapi P., Christodoulakis S. 3rd International Workshop on Semantic Digital Archives (SDA), In conjunction with the 17th International Conference on Theory and Practice of Digital Libraries (TPDL) 2013.
  - MoM-NOCS: Management of Mobile Multimedia Nature Observations using Crowd Sourcing: Tsinaraki C., Skevakis G., Trochatou I., Christodoulakis S.: In the proceedings of the 11th International Conference on Advances in Mobile Computing and Multimedia, MoMM 2013.
  - Federating Natural History Museums in Natural Europe: Makris K., Skevakis G., Kalokyri V., Arapi P., Christodoulakis S., Stoitsis J., Manolis N., Rojas S.: 7th Metadata Semantics and Research Conference (MTSR) 2013.
  - Contextual Geospatial Picture Understanding, Management and Visualization: Christodoulakis S., Foukarakis M., Tsinaraki C., Ragia L., Kanellidi E.: In the proceedings of the 11th International Conference on Advances in Mobile Computing and Multimedia, MoMM 2013.
  - CoLearn: Real Time Collaborative Learning Environment: Stylianakis G., Moumoutzis N., Arapi P., Christodoulakis S.: The Second International Conference on E-Learning and E-Technologies in Education (ICEEE2013), Sept. 23-25 Poland 2013.
  - Octopus: A Collaborative Environment Supporting the Development of Effective Instructional Design: Mylonakis M., Arapi P., Moumoutzis N., Christodoulakis S., Ampartzaki M.: The Second International Conference on E-Learning and E-Technologies in Education (ICEEE2013), Sept. 23-25 Poland 2013.
  - When eShadow met ALICE and Akritans: Christoulakis M., Pitsiladis A., Stergiopoulos P., Moumoutzis N., Moraiti A., Maragoudakis I., Christodoulakis S.: Adults learning for intergenerational creative experiences, ALICE International Conference, Bucharest, October 2013.

## **D – Funded Projects**

- Current projects:
  - “Natural Europe: Natural History & Environmental Cultural heritage in European Digital Libraries for Education”, Funding Source : “Seventh Framework Programme, FP7 Policies, Competitiveness and Innovation Framework Programme (CIP)”, Budget : € 250.000,00, Duration : Oct. 2010 – Oct. 2013.
  - “Open Discovery Space: A socially-powered and multilingual open learning infrastructure to boost the adoption of eLearning resources”, Funding Source : “Seventh Framework Programme, FP7 Policies, Competitiveness and Innovation Framework Programme (CIP)”, Budget : € 112.232,00, Duration : Apr. 2012 - Mar. 2015.



- ALICE: Adult's Learning for Intergenerational Learning Experience, EU Grundwik, 2011-2013, 45000.
- Project proposals submitted:
  - QONIAon, EU, Accepted, starting Oct 2013.

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

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

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Makris Constantinos (M.Sc.)
    - Skevakis Yannis (M.Sc.)
    - Christoulakis Marios(M.Sc.)
    - Stylianakis Giorgos(M.Sc.)
    - Pitsiladis Andreas(M.Sc.)
    - Kalokyri Varvara M.Sc.)
    - Trohatou Ioanna (M.Sc.)
    - Arapi Xenia (Ph.D.)
  - Ph.D. and M.Sc. Degrees (committee member)
    - Flouris Ioannis (M.Sc.)
- Undergraduate students supervised
  - Diploma theses in progress
    - Koutsouris Themistoklis
    - Makris Dimitrios – Ioannis
    - Xristodouloupoulos Christos
    - Kondogiannis Petros
    - Lidas Stefanos
    - Troulitakis Apostolos
  - Diploma theses completed (supervisor)
    - Moraiti Argiro
    - Kifonidis Charalampos



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*For the period: September 1, 2012 to August 31, 2013*

**Name:** Antonios Deligiannakis

**Rank:** Assistant Professor

**Years in rank:** 5 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)
    - Stavros Christodoulakis, Minos N. Garofalakis, Euripides G. M. Petrakis, Antonios Deligiannakis, Vasilis Samoladas, Ekaterini Ioannou, Odysseas Papapetrou, Stelios Sotiriadis: Data management research at the technical university of Crete. SIGMOD Record 42(4): 61-66 (2013)
  - Accepted:
    - 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)

- Stavros Christodoulakis, Minos N. Garofalakis, Euripides G. M. Petrakis, Antonios Deligiannakis, Vasilis Samoladas, Ekaterini Ioannou, Odysseas Papapetrou, Stelios Sotiriadis: Data management research at the technical university of Crete. SIGMOD Record 42(4): 61-66 (2013)
      - Published:
        - 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)
        - Stavros Christodoulakis, Minos N. Garofalakis, Euripides G. M. Petrakis, Antonios Deligiannakis, Vasilis Samoladas, Ekaterini Ioannou, Odysseas Papapetrou, Stelios Sotiriadis: Data management research at the technical university of Crete. SIGMOD Record 42(4): 61-66 (2013)
- Publications in refereed conferences
  - Submitted: those published/appeared (see below)
    - Stavros Papadopoulos, Graham Cormode, Antonios Deligiannakis, Minos N. Garofalakis: Lightweight authentication of linear algebraic queries on data streams. SIGMOD Conference 2013: 881-892
    - Daniel Keren, Guy Sagy, Amir Abboud, David Ben-David, Assaf Schuster, Izchak Sharfman, Antonios Deligiannakis: Monitoring Distributed, Heterogeneous Data Streams: The Emergence of Safe Zones. International Conference on Applied Algorithms (ICAA 2014)
  - Accepted:
    - Stavros Papadopoulos, Graham Cormode, Antonios Deligiannakis, Minos N. Garofalakis: Lightweight authentication of linear algebraic queries on data streams. SIGMOD Conference 2013: 881-892
  - Published:
    - Stavros Papadopoulos, Graham Cormode, Antonios Deligiannakis, Minos N. Garofalakis: Lightweight authentication of linear algebraic queries on data streams. SIGMOD Conference 2013: 881-892
    - Anastasios Arvanitis, Antonios Deligiannakis, Yannis Vassiliou. Efficient Influence-Based Processing of Market Research Queries. In ACM CIKM 2012. Maui, Hawaii, USA, October-November 2012.
- Books and edited book chapters
  - Graham Cormode, Ke Yi, Antonios Deligiannakis, Minos N. Garofalakis: Proceedings of the First International Workshop on Big Dynamic Distributed Data, Riva del Garda, Italy, August 30, 2013. CEUR Workshop Proceedings 1018, CEUR-WS.org 2013

## 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] ΕΙΠΑΣ: ΕΠΑΓΡΥΠΙΝΗΣΗ ΙΑΤΡΟΤΕΧΝΟΛΟΓΙΚΩΝ ΠΡΟΪΟΝΤΩΝ ΚΑΙ ΑΣΦΑΛΕΙΑ ΑΣΘΕΝΟΥΣ. Role: Partner.
  - [2012 - 2015] «ΕΙΚΟΣ»: Θεωρητική και αλγοριθμική θεμελίωση για Προσωποκεντρικά Συνεργατικά Πληροφοριακά Συστήματα. Role: Partner.

- [2013 - 2015] Aquanet: Διαχείριση Ύδατος για μία Πόλη με Έξυπνο, Αυτόνομο και Χαμηλού-κόστους Ασύρματο Δίκτυο Αισθητήρων. Role: Partner.
- Project proposals submitted:
  - [2014 - 2017] FERARI: Flexible Event pRocessing for big dAta aRchItecture (FP7 project, started Feb 2014, duration 3 years). Role: Partner.

## **E – Professional service**

- Conference Technical Program Committee service
  - VLDB
  - ACM SIGMOD
- Conference Organization (specify role)
  - General Chair at the First International Workshop on Big Dynamic Distributed Data, Riva del Garda, Italy, August 30, 2013.
- 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 senate (synglitos) since September 2011.

## **G – Advising**

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Yannis Flouris
    - Konstantinos Tsakonas
    - Stergios Charalambopoulos
    - Antonios Igglezakis
    - Sabbas Bourdakis
  - PhD. And M.Sc. degrees awarded
    - Stelios Mammias
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Yannis Papadakis
    - Yannis Xarxaros
    - Maropaki Stella
  - Diploma theses completed (supervisor)
    - Evina Zografou
    - Emmanouil Vogiatzis
    - Soylas Eleftherios
    - Kostas Zarifis
    - Marina Mavrikoy



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*For the period: September 1, 2012 to August 31, 2013*

**Name:** Minos Garofalakis

**Rank:** Professor

**Years in rank:** 5

**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 conferences
  - Published:
    - *Minos Garofalakis, Daniel Keren, and Vasilis Samoladas. "Sketch-based Geometric Monitoring of Distributed Stream Queries", Proceedings of VLDB'2013 (PVLDB, Vol. 6, No. 10), Trento, Italy, August 2013.*
    - *Stavros Papadopoulos, Graham Cormode, Antonios Deligiannakis, and Minos Garofalakis. "Lightweight Authentication of Linear Algebraic Queries on Data Streams", Proceedings of ACM SIGMOD'2013, New York, New York, June 2013. [\*\* Invited to ACM Transactions on Database Systems \*\*]*
    - *Kalliopi D. Kalantzaki, Ekaterini S. Bei, K. P. Exarchos, Michalis Zervakis, D. I. Fotiadis, and Minos Garofalakis. "Identification of altered MET network in Oral Cancer Progression based on Nonparametric Network Design", Proceedings of IEEE EMBC'2013, Osaka, Japan, July 2013.*

- Books and edited book chapters
  - Graham Cormode, Ke Yi, Antonios Deligiannakis, and *Minos Garofalakis* (Eds.). Proceedings of the First International Workshop on Big Dynamic Distributed Data (BD3) -- Co-located with VLDB'2013, Riva del Garda, Italy, August 30, 2013. (ISSN 1613-0073)
- Patents
  - Graham Cormode and Minos Garofalakis. "Methods and Apparatus to Construct Histogram and Wavelet Synopses for Probabilistic Data", U.S. Patent No. 8,386,412, Issued February 26, 2013. (Filed December 2008)

## C – Awards & Distinctions

- **Keynote speaker:** 6<sup>th</sup> International Conference on Scalable Uncertainty Management (SUM'2012)
- **Invited speaker:** 2013 Information Theory and Applications (ITA) Workshop; Big Data Analytics 2013 (Microsoft Research, Cambridge); 2012 Innovative Querying of Streams (INQUEST) Workshop (U of Oxford); 2012 NII-Shonan Meeting on Large-Scale Distributed Computation.
- **Board Member,** Information Society S.A. (Κοινωνία της Πληροφορίας, A.E.) (11/2012 – present)

## D – Funded Projects

- Current projects:
  - FP7-ICT-2011 Collaborative STREP  
Project: “*LEADS – Large-Scale Elastic Architecture for Data-as-a-Service*”  
Duration: Oct. 2012 – Sep. 2015  
Total funding: 2.9Me, TUC/TSI budget: 649Ke  
Role: *Principal Investigator for TUC/TSI*
  - 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
  - ACM SIGMOD'2013, VLDB'2013, KDD'2013, EDBT'2013 (Research Track & Industrial Track), UAI'2013, ICDM'2013, DEBS'2013, IEEE BigData'2013, ASONAM'2013
- Conference Organization (specify role)
  - 2013 ACM International Conference on Information and Knowledge Management (CIKM'2013), San Francisco, CA: Senior PC Member (Database Track & Knowledge Management Track)
  - 2013 Workshop on Big Dynamic Distributed Data (BD<sup>3</sup>'2013) -- in conjunction with VLDB'2013, Trento, Italy: 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, completed)
    - Kostas Athanasoglou (MSc)
    - Evangelos Vazaios(MSc)
  - Ph.D. and M.Sc. students supervised (advisor, in progress)
    - Ioakeim Perros (MSc)
    - Nikolaos Pavlakis (MSc)

- Ph.D. and M.Sc. Degrees (committee member)
  - Nikolaos Giatrakos (PhD, U of Piraeus)
- Undergraduate students supervised
  - Diploma theses in progress
    - Georgios Fragiadoulakis
    - Ioannis Demertzis
    -
  - Diploma theses completed (supervisor)
    - Ioakeim Perros
    - Vasiliki Prokopi
    - Lefteris Soulas
    - Georgios Komninos





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*For the period: September 1, 2012 to August 31, 2013*

**Name:** Michail G. Lagoudakis

**Rank:** Associate Professor

**Years in rank:** 1/4

**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 2012)
  - COMP 402 – Theory of Computation [mandatory] (Spring 2013)
- Graduate courses taught
  - COMP 625 – Probabilistic Robotics (Fall 2012)
- Labs taught
  - COMP 513 – Autonomous Agents Laboratory (Fall 2012)
- Curriculum & course development
  - New courses / labs developed
    - Developed lecture slides for Probabilistic Robotics
  - Lecture notes / slides developed
    - Updated lecture slides for Theory of Computation
    - Updated lecture slides for Autonomous Agents

### B – Publications

- Publications in refereed journals
  -
- Publications in refereed conferences
  - Published:
    - Nikolaos Kofinas, Emmanouil Orfanoudakis, **Michail G. Lagoudakis**, “Complete Analytical Inverse Kinematics for NAO”, Proceedings of the 13th

International Conference on Autonomous Robot Systems and Competitions (ROBOTICA), Lisbon, Portugal, April 2013, pp. 1–6. [**Best Paper Award**]

- Ioannis Skoulakis and **Michail G. Lagoudakis**, “Efficient Reinforcement Learning in Adversarial Games,” Proceedings of the 2012 IEEE International Conference on Tools with Artificial Intelligence (ICTAI), Athens, Greece, November 2012.
- Ioannis Rexakis and **Michail G. Lagoudakis**, “Directed Policy Search using Relevance Vector Machines,” Proceedings of the 2012 IEEE International Conference on Tools with Artificial Intelligence (ICTAI), Athens, Greece, November 2012. [**Best Student Paper Award**]

- Book chapters
  -

## C – Awards & Distinctions

- Paper Awards
  - Best Paper Award for article co-authored with M.Sc. student N. Kofinas, ROBOTICA 2013
  - Best Student Paper Award for article co-authored with Ph.D. student I. Rexakis, ICTAI 2012
- Invited Speaker
  - *RoboCup: Building a Competitive Robotic Soccer Team* , Research Talk, 1st Multiagent Systems Summer School, Chania, Greece, July 2013
  - *Robotics: Research, Innovation, Career* , Keynote Talk, Panorama of Entrepreneurship and Career Development, Athens, Greece, April 2013
  - *RoboCup: A Challenge Problem for Robotics* , Keynote Talk, Annual Convention of the Hellenic Mathematical Society, Chania, Greece, March 2013

## D – Funded Projects

- Current projects:
  - “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 . December 2012 – June 2015. Contract: 11SYN\_6\_1937, Budget: 247,900€ (for TUC).
  - “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: INFSO-ICT-270180, PIs: N. Liavas and M. G. Lagoudakis, Budget: 524,300€ (for TSI/TUC).
- Project proposals submitted:
  -

## 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
  - *17th International RoboCup Symposium (RCS 2013)*
  - *AAMAS Workshop on Multi-Agent Sequential Decision Making 2013*
  - *6th European Conference on Mobile Robots (ECMR 2013)*
- Reviewing activities
  - *Reviewer, IEEE Transactions on Automatic Control (TAC)*
  - *Reviewer, Journal of Machine Learning Research (JMLR)*
  - *Reviewer, Mediterranean Conference on Control and Automation 2013*

## 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)
    -
  - 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
    4. Emmanuil Orfanoudakis (M.Sc. program), “Event Recognition in Underwater Robot Team Missions”, Enrollment: 2012
    5. Stylianos Piperakis (M.Sc. program), “Predictive control for stable dynamic locomotion of real humanoid robots”, Enrollment: 2012
    6. Nikolaos Kofinas (M.Sc. program), “Grammatical inference for event recognition”, Enrollment: 2012
  - Ph.D and M.Sc. theses completed (committee member)
    1. Konstantinos Stravoskoufos (M.Sc. program), “SOWL QL : Querying Spatio-Temporal Ontologies In OWL 2.0”, ECE, TUC. Defended Apr 2013.
    2. Elias Iosif (Ph.D. program), “Network-Based Distributional Semantic Models”, ECE, TUC. Defended Apr 2013.
  - 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. 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”
- Diploma theses in progress (supervisor)
  1. Stylianos Tsigdinos, “Systematic Search and Reinforcement Learning for the Board Game Backgammon”
  2. Georgios Papadimitriou, “Extending Kouretes Statechart Editor for Executing Statechart-Based Robotic Behavior Models ”
  3. Nikolaos Makropoulos, “Hardware and Software Design for a Maze-Solving Robot ”
  4. Evangelos Michelioudakis, “Dynamic Multi-Robot Coordination for the RoboCup Standard Platform League”
  5. Nikolaos Kargas, “Robust Localization for the RoboCup Standard Platform League”
- Diploma theses completed (committee member)
  1. Konstantinos Spiliotis, “Methods for Automated Classification of Phono-ECGs”
  2. Andreas Liagouras, “A new location-aware Android application for automatic synchronization of business and life calendars”
  3. Emmanouil Alibertis, “Community RF Sensing”
  4. Ioakeim Perros, “Soft co-clustering in map-reduce using distributed sparse matrix regression”
  5. Chrysi Thermolia, “Prediction of the evolution of bipolar disorder using semantic web technologies”
  6. Christos Paraskeva, “Development of an eye-tracked 3D / stereoscopic interactive and photorealistic platform for spatial cognition experiments using the unreal game engine”
  7. Orestis-Stavros Loizides, “How good is your work? a new conference classification approach for judging the quality of a publication”
  8. Eleftherios Soulas, “Online machine learning algorithms for currency exchange prediction”
  9. Charalabos Kyfonidis, “Development of a Graphic Shell for the C Programming Language to Support Programming Instruction”
  10. Aris-Athanasios Panagopoulos, “A novel method for predicting the power output of distributed renewable energy resources”
  11. Grigorios Kontadakis, “Development of a 3D action role playing game”

■ 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 2012-2013 consisted of two graduate and three undergraduate ECE students working on their master's/diploma theses.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Katerina Mania

**Rank:** Associate Professor

**Years in rank:** 1/4

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

**Division:** Computer Science

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

### A – Teaching

- Undergraduate courses taught
  - PLH 418 - Computer Graphics (Spring 2013)
  - PLH 101 – Introduction to Computers and Computer Science (Winter 2012)
- Graduate courses taught
  - PLH 612 – Visualization and Virtual Reality (Spring 2013)
- Curriculum & course development
  - Updated laboratory exercises for PLH 101
  - Updated large project work for PLH 418 and PLH 612
  - Updated laboratory lectures to be based on WEBGL PLH 418
  - Updated lecture slides for PLH 101, PLH 418 and PLH 612

## B – Publications

- Chapter in Books
  - Published
    - 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
  - Accepted
    - Sylaiou, S., **Mania, K.**, Liarokapis, F., White, M., Walczak K.5, Wojciechowski R. 5, Wiza W. (accepted 2013). Evaluation of a Cultural Heritage Augmented Reality Game. Simulation and Gaming, special issue on ‘Serious Games: Analysis and Case Studies’, SAGE Publications.
  
  - Published
    - **Mania, K.**, Medford, N., Christodoulou, G., Watten, P., Radulescu, E., Critchley, H. (2012, invited as 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.
  
- Publications in refereed conferences
  - Submitted
    - Koulieris, G., Drettakis, G., Cunningham, D., **Mania, K.** (submitted 2013). An Automated High Level Saliency Predictor for Smart Game Balancing. Eurographics 2014, Strasbourg France.
  
    - Koulieris, G., Drettakis, G., Cunningham, D., **Mania, K.** (submitted 2013). An Automated High Level Saliency Predictor for Smart Game Balancing. ACM Transactions on Applied Perception.
  
    - Ragia, L., **Mania, K.**, Sarri, F. (submitted 2013) 3D Reconstruction of Neoria, Greece using Geodetic Measurement and Computer Graphics Techniques. Graduate Archaeology Oxford Annual Conference 2014 UK.
  
  - Published
    - Ragia, L., **Mania, K.**, Sarri, F. (2013). 3D Reconstruction of Neoria, Crete, Greece, using Geodetic Measurement and Computer Graphic Techniques. In Proc. 18th conference on Cultural Heritage and New Technologies 2013, Vienna, Austria.
  
    - Sylaiou S., **Mania K.**, Paliokas Y., Killintzis V., Liarokapis F., Patias P. (2013). Exploring the Effect of Diverse Technologies incorporated in Virtual Museums on Visitors’ Perceived Sense of Presence, Museums and Intelligent Environments

(MasIE). In *Workshop co-located with the 9th International Conference on Intelligent Environments - IE'13*, organized by IEEE, Greece, IOS Press.

- 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, 95-98.

## C – Awards & Distinctions

## D – Funded Projects

- Current projects (at the Technical University of Crete, Greece):
  - ‘Selective Rendering Algorithms based on Human Perception (Memory Schemas, HRACLEITOS 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:
  - ‘Opportunistic Mobile Gaming’ submitted to the Research for the Benefit of SME Associations call, FP7.
  - ‘Transference: Research About Neural Substitution using fMRI Enabled Neurofeedback for Subjective Enrichment’, submitted to FET Open XTRACK call, FP7.
  - ‘UNCERTAIN 3D – Mathematical Modelling and 3D Visualization of Uncertainty’, ARISTEIA II call.
  - ‘Smart neighborhoods: energy efficient solutions in technology and design’, submitted to the Greece-Israel call 2013.

## 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
  - Games and Learning Alliance conference 2013, Paris
  - IEEE Systems Man and Cybernetics 2013: Human Machine Systems, Manchester, Perceptual Factors in Graphics
  - ACM Symposium on Applied Perception 2012, 2013.
  - IEEE Int. Conf. in Games and Virtual Worlds for Serious Applications 2013, 2014
  - International conference on Virtual Systems and Multimedia 2012, Italy
  - 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.
  
- 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, 2012-2013.
  - Studies' advisor for the Dept. of ECE, 2012-2013

## **G – Advising**

- Active graduate students supervised
  - Graduate students completed (at the Technical University of Crete)
    - 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, defended winter 2013).
  - 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).
    - Stefan Petrovski (MEng TUC, admitted 2013): '3D Architectural Visualization'.
    - Grigorios Kontadakis (MEng TUC, admitted 2013): 'Pedagogically-driven Interactive 3D Applications'.
    - Evangelia Mavromixelaki (MEng TUC, admitted 2012): 'Neuroscientific fidelity metrics for immersive simulations'.
  
- Undergraduate students
  - Diploma theses supervised (completed)
    - In sabbatical March 2012-September 2012



- Diploma theses supervised (completed)
  - Grigoris Kondadakis ‘Development of a 3D game populated by smart opponents’.
  - Christos Paraskevas ‘Investigating the effect of gender on spatial cognition’.
  - Stefan Petrovski ‘Implementing 3D Smart TUC Campus’.
  
- Diploma theses supervised (in progress)
  - Panagiotis Kotsarinis ‘Classification of Historical Monuments in Crete through a Web-based Scaleable 3D Platform’ (in progress).
  - Nikos Sidorakis ‘Eye tracking Evaluation of a High-Level Visual Saliency Predictor’ (in progress).
  - Froso Sarri ‘3D Photorealistic Reconstruction of Neoria based on Geodetic Measurements and Computer Graphics Techniques’ (in progress).
  - Kostas Ioannou ‘Development of an Indie Game on a Mobile Platform’ (in progress).
  - Eleni Verikokidi ‘Development of a 3D game on Mobile Platforms with Autonomous Interactive Characters’ (in progress).
  - Dimitris Gkoros ‘Extraction of building data from IFC files via BimServer platform and their processing for the generation of thermal simulation elements’ (in progress).
  - Konstantinos Chatzipetrou ‘Development of a Smart Racing Game’ (in progress).
  - Marianna Dimitriou ‘Interactive storytelling for pre-school children’ (in progress).
  - Giannis Giakoumidakis ‘A Methodology towards the photorealistic visualization of tsunamis applied to the past tsunami in Heraklion, Crete’ (in progress).
  
- Diploma theses (among others, committee member)
  - In various committee memberships.



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

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

**Rank:** Professor

**Years in rank:** 1

**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 Structures 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)
  
- Publications in refereed conferences
  - Submitted: those published/appeared (see below)
  - Published:
    - Spyros Argyropoulos, Euripides G.M. Petrakis, Panos Milios, "[Positive Training Thinking](#)", 1st International Conference on Technological Ecosystems for Enhancing Multiculturality, Nov. 14-15, 2013, Salamanca, Spain.
    - Spyros Argyropoulos, Euripides G.M. Petrakis, "[Applying Information Technology in Education: Two Applications on the Web](#)", 24<sup>th</sup> EAEEIE Annual International Conference, May 30-31 2013, Chania, Greece.
    - Kleanthi Lakiotaki, Angelos Hliaoutakis, Serafim Koutsos, Euripides G.M. Petrakis, "[Towards Personalized Medical Document Classification by Leveraging UMLS Semantic Network](#)", 2<sup>nd</sup> International Conference on Health Information Science, Mar 26 - 27, 2013, London, UK.
    - Dionisis Kontominas, Paraskevi Raftopoulou, Christos Tryfonopoulos, and Euripides G.M. Petrakis, "[DS<sup>4</sup>: A Distributed Social and Semantic Search System](#)", 35<sup>th</sup> European Conference on Information Retrieval (ECIR 2013), March 24-27, 2013, Moscow, Russia (demo session).
    - Rena Peraki, Euripides G.M. Petrakis, Angelos Hliaoutakis, "[An Information Retrieval System for Expert and Consumer Users](#)", IEEE 12th International Conference on Bioinformatics and Bioengineering, (BIBE 2012), November 11-13, 2012, Larnaca, Cyprus.
    - George Christodoulou, Euripides G.M. Petrakis, Sotirios Batsakis, "[Qualitative Spatial Reasoning using Topological and Directional Information in OWL](#)", 24<sup>th</sup> International Conference on Tools with Artificial Intelligence (ICTAI 2012), November 7-9, 2012, Athens, Greece.
    - Alexandros Preventis, Polyxeni Marki, Euripides G.M. Petrakis, Sotirios Batsakis, "[CHRONOS: A Tool for Handling Temporal Ontologies in Protege](#)", 24<sup>th</sup> International Conference on Tools with Artificial Intelligence (ICTAI 2012), November 7-9, 2012, Athens, Greece.
    - 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](#)", 6<sup>th</sup> International Symposium on Rules: Research Based and Industry Focused (RuleML 2012), Montpellier, France, August 28-31, 2012
    - Evanthia E. Tripoliti, Antonis I. Sakellarios, Michael Peroulis, Euripides G.M. Petrakis, Michalis Zervakis, "[Real-Time Simulation for Safer Vascular Stenting – The Training Application](#)", 34<sup>th</sup> Annual International Conference of the IEEE in Medicine and Biology Society (EMBC'2012), San Diego, California, August 28 - September 1, 2012.

## D – Funded Projects

- Current projects:
  - Principal Investigator for “*FI-STAR: Future Internet Social and Technological Alignment Research*” (2013-2015), FP7-IP, Duration 30 months, Project budget □ 13,500,000, Budget for TUC □ 508,500.
  - Project coordinator for “*AI-CARE, Advanced Knowledge Management Systems with Inference Computational Intelligence and Applications in Health Care*”, (2013-2015), Ministry of Development, Greek Secretariat for Research and Technology, Project Budget □ 343.875 ευρώ, Budget for TUC □ 126,000.
  - Principal Investigator for “*Medical Devices Vigilance for Patient Safety*” (2012-2015), Ministry of Development, Greek Secretariat for Research and Technology, Project Budget □ 600,000, Budget for TUC □ 112,000.
  - Principal Investigator (with Prof. Zervakis): “*YPERTHEN: Computational Tools and Services for Diagnosis and Personalized Treatment of Cancer (2011-2013)*”, INTERREG, European Regional Development Fund, Project Budget □ 1,597,000, Budget for TUC □ 362,000.
  - Principal Investigator (with Prof. Zervakis) for “*RT3S: Real Time Simulation for Safer Vascular Stenting*” (2010-2013), FP7-STREP, Project Budget □ 4,918,000, Budget for TUC □ 390,000.
- Project proposals submitted: Several in FP7, Lifelong Learning: Comenius, THALIS, SYNERGASIA.

## E – Professional service

- Conference Technical Program Committee service
  - *Program committee member “International Symposium on Visual Computing (ISVC) 2013.*
  - Program committee member and Session chair - session 6 on Feature Extraction and Pattern Recognition) στο Intern. Conference on Image Analysis and Recognition (ICIAR'2013).
- Conference Organization (specify role)
- 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.
  - Member of the committee by the dean.

## G – Advising

- Active graduate students supervised
- Ph.D. and M.Sc. students
  - a) A. Hliaoutakis, PhD Student, “A Framework for Handling Medical Information in the Semantic Web” (in progress)
  - b) Kostantinos Stravoskoufos, PhD Student, “Service Discovery in Cloud Infrastructures”, in progress (in progress).
  - c) Chryssi Thermolia, MSc Student “An Ontological-Based Monitoring System for Patients with Bipolar I Disorder” (in progress).
  - d) Alexandros Preventis, MSc Student “Service Deployment on the Cloud” (in progress).
  - e) Stravoskoufos K: “SOWL QL : Querying Spatio-Temporal Ontologies In OWL 2.0”, Master's Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, April 2013 (completed).
  
- Post Docs (all completed)
  - a) Dr. Stelios Sotiriadis (2013 – 2015), Cloud Computing, PhD Dept. of Computer Science, Univ. of Durby, UK.
  - b) Dr. Kleanthi Lakiotaki (2011-2013), Medical Information Systems, Recommendation Systems, Technical University of Crete (TUC).
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - 4 diploma theses.
  
  - Diploma theses completed (supervisor)
    - a) Koutsos S.: **Medical Document Classification based on user profile**, Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, July 2013.
    - b) Georgakis G.: **Field Landmark Recognition and Localization for the RobotStadium Online Soccer Competition**, Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, October 2012.
    - c) Thermolia C.: **Prediction of the Evolution of Bipolar Disorder using Semantic Web Technologies**, Diploma Thesis, Department of Electronic and Computer Engineering, Technical University of Crete, October 2012.



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Vasilis Samoladas

**Rank:** Assistant Professor (tenured)

**Years in rank:** 9

**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 2012 (mandatory course).
- Labs taught
  - PLH 301 Operating Systems, Fall 2012.

*On Sabbatical leave at Luxembourg Center for System Biology, Spring 2013.*

### B – Publications

- Publications in refereed journals
  - Stavros Christodoulakis, Minos N. Garofalakis, Euripides G. M. Petrakis, Antonios Deligiannakis, Vasilis Samoladas, Ekaterini Ioannou, Odysseas Papapetrou, Stelios Sotiriadis: “Data management research at the Technical University of Crete”. SIGMOD Record 42(4): 61-66 (2013).
  - Minos N. Garofalakis, Daniel Keren, Vasilis Samoladas: “Sketch-based Geometric Monitoring of Distributed Stream Queries”. PVLDB 6(10): 937-948 (2013).

## **D – Funded Projects**

- Current projects:
  - WSN-DPCM: Wireless Sensor Network – Development, Planning, Commissioning and Maintenance. 2011-2015 (4 yrs). TUC budget: 253.000 Euro.
  - GSRT Program Thalix: EICOS, 2012-2015.
  - GSRT Program Thalix: Geometric Computing, 2012-2015.

## **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**

- M.S. Theses complete (supervisor)
  - Michail Argiriou, “Branch-and-bound nearest neighbor searching over unbalanced trie-structured overlays”.
- Diploma Theses complete (supervisor)
  - 5 Theses completed as main supervisor.

## **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





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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Costas Balas

**Rank:** Associate Professor

**Years in rank:** 11 ½

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Electronics Laboratory

### A – Teaching

- Undergraduate courses taught
  - **Electronics II (Fall 12)**
  - **Electronics I (Spring 13)**
  - **Biomedical Engineering (with Prof. M. Zervakis)**
  
- Graduate courses taught
  - **Optoelectronics**
  - **Advanced Topics & Applications in Electronic Imaging**
  
- Labs taught
  - **Electronics I**
  - **Electronics II**
  - **Optoelectronics**
  
- Curriculum & course development
  - Lecture notes / slides developed

## B – Publications

- Publications in refereed journals
  - Published:
    - G.S. Papoutsoglou, C. Balas, “Estimation of Neoplasia-Related Biological Parameters Through Modeling and Sensitivity Analysis of Optical Molecular Imaging Data”, IEEE Transactions on Biomedical Engineering, Vol. 60, No. 5, pp. 1241 – 1249, May 2013.
  
- Publications in refereed conferences
  - Published:
    - V. Kavvadias, C. Balas, “Quantitative assessment of the pupillary photomotor response dynamics to tunable, narrow band stimuli”, IEEE 12th International Conference on Bioinformatics & Bioengineering (BIBE), pp. 328 – 332, Nov. 2012, Larnaca, Cyprus.
    - V. Kavvadias, G. Epitropou, N. Georgiou, F. Grozou, M. Paschopoulos, C. Balas, “A novel endoscopic spectral imaging platform integrating k-means clustering for early and non-invasive diagnosis of endometrial pathology”, 35th Annual IEEE International Engineering Conf. in Medicine and Biology Society (EMBC), pp. 4442 – 4445, July 2013, Osaka, Japan.
    - G. Papoutsoglou, T.-M. Giakoumakis, C. Balas, “Dynamic contrast enhanced optical imaging of cervix, in vivo: A paradigm for mapping neoplasia-related parameters”, 35th Annual IEEE International Engineering Conf. in Medicine and Biology Society (EMBC), pp. 3479 - 3482, July 2013, Osaka, Japan.
    - G. Epitropou, V. Kavvadias, D. Iliou, E. Stathopoulos, C. Balas, “A real-time spectral mapper as an emerging diagnostic technology in biomedical sciences”, 35th Annual IEEE International Engineering Conf. in Medicine and Biology Society (EMBC), pp. 1422 - 1425, July 2013, Osaka, Japan.

## C – Awards & Distinctions

- 1<sup>st</sup> Winner of the **2013 Applied Research & Innovation Competition “Greece Innovates”**, organized by the Hellenic Federation of Enterprises (SEV) & Eurobank. Particularly the evaluation committee granted to him the 1st award in applied research, in a country-scale competition and with 220 proposals submitted from almost all Academic and Industrial institutions of Greece.

## 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.**

## 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)
    - Various Students.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Matthias Bucher

**Rank:** Assistant Professor (tenured)

**Years in rank:** 9 ½

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Electronics Laboratory

### A – Teaching

- On Sabbatical leave at Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland.

### B – Publications

- Publications in refereed journals
  - Submitted:
    - A. Antonopoulos, **M. Bucher**, K. Papathanasiou, N. Mavredakis, N. Makris, R. K. Sharma, P. Sakalas, M. Schroter, “CMOS Small-Signal and Thermal Noise Compact Modeling at High Frequencies”, *IEEE Trans. on Electron Devices*.
    - N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, K. Papathanasiou, **M. Bucher**, G. Ghibaudo, C. A. Dimitriadis, “Compact Modeling of Nanoscale Trapezoidal FinFETs”, *IEEE Trans. on Electron Devices*.
    - R. K. Sharma, C. A. Dimitriadis, **M. Bucher**, “Analog/RF Performance: Are SOI FinFETs better than DG SOI MOSFETs?”, *IEEE Trans. on Nanotechnology*.
    - A. Antonopoulos, **M. Bucher**, K. Papathanasiou, N. Makris, N. Mavredakis, R. K. Sharma, P. Sakalas, M. Schroter, “Modeling of High

Frequency Noise of Silicon CMOS Transistors for RFIC Design”, *Int. J. of Numerical Modelling: Electronic Networks, Devices and Fields*.

- W. Grabinski, M. Brinson, P. Nenzi, F. Lannutti, N. Makris, A. Antonopoulos, **M. Bucher**, “Open source circuit simulation tools for RF compact semiconductor devices modeling”, Invited paper, *Int. J. of Numerical Modelling: Electronic Networks, Devices and Fields*.
- Accepted:
  - 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. Ghibaudo, C. A. Dimitriadis, “Compact Capacitance Model of Undoped or Lightly Doped Ultra-scaled Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*.
  - A. Antonopoulos, **M. Bucher**, K. Papathanasiou, N. Makris, N. Mavredakis, R. K. Sharma, P. Sakalas, M. Schroter, “Modeling of High Frequency Noise of Silicon CMOS Transistors for RFIC Design”, *Int. J. of Numerical Modelling: Electronic Networks, Devices and Fields*.
  - W. Grabinski, M. Brinson, P. Nenzi, F. Lannutti, N. Makris, A. Antonopoulos, **M. Bucher**, “Open source circuit simulation tools for RF compact semiconductor devices modeling”, Invited paper, *Int. J. of Numerical Modelling: Electronic Networks, Devices and Fields*.
- Published:
  - 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*, Vol. 60, N° 2, pp. 670-676, Feb. 2013. [ieeexplore](#)
  - N. Fasarakis, A. Tsormpatzoglou, D. H. Tassis, I. Pappas, K. Papathanasiou, **M. Bucher**, G. Ghibaudo, C. A. Dimitriadis, “Compact Capacitance Model of Undoped or Lightly Doped Ultra-scaled Triple-Gate FinFETs”, *IEEE Trans. on Electron Devices*, Vol. 59, N° 12, pp. 3306-3312, Dec. 2012. [ieeexplore](#)
  - R. K. Sharma, **M. Bucher**, “Device Design Engineering for Optimum Analog/RF Performance of Nanoscale DG MOSFETs”, *IEEE Trans. on Nanotechnology*, Vol. 11, N° 5, pp. 992-998, Sept. 2012. [ieeexplore](#)
  - 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*, [doi](#) (published online 2012, assignment to printed version pending).

- Publications in refereed conferences
  - A. Antonopoulos, **M. Bucher**, K. Papathanasiou, N. Makris, R. K. Sharma, P. Sakalas, M. Schroter, “CMOS RF Noise, Scaling, and Compact Modeling for RFIC Design”, *Proc. IEEE Radio Frequency Integrated Circuits Symposium (IEEE RFIC)*, pp. 53-56, Seattle, Washington, June 2-4, 2013. [ieeexplore](#)
  - R. K. Sharma, A. Antonopoulos, N. Mavredakis, **M. Bucher**, “Impact of Design Engineering on RF linearity and Noise Performance of Nanoscale DG SOI MOSFETs”, *14<sup>th</sup> Int. Conf. on Ultimate Integration of Silicon (ULIS)*, pp. 145-148, Warwick, UK, March 19-21, 2013. [ieeexplore](#)
  - A. Dimakos, **M. Bucher**, R. K. Sharma, I. Chlis, “Ultra-Low Voltage Drain-Bulk Connected MOS Transistors in Weak and Moderate Inversion“, *Proc. 19<sup>th</sup> IEEE Int. Conf. on Electronics, Circuits and Devices (IEEE ICECS)*, pp. 17-20, Sevilla, Spain, Dec. 9-12, 2012. [ieeexplore](#)
  - R. K. Sharma, **M. Bucher**, “Comparison of Analog Performance of Advanced MOSFETs”, *5<sup>th</sup> Int. Conf. on Micro – Nanoelectronics, Nanotechnology and MEMS (Micro&Nano)*, Heraklion, Crete, Greece, Oct. 7-10, 2012.
  
- Workshop presentations
  - **M. Bucher**, “Compact modelling of low frequency noise in silicon transistors”, IEEE CAS, ED & SSC Swiss Chapters Meeting, EPFL, Lausanne, Switzerland, May 29, 2013.
  - **M. Bucher**, N. Mavredakis, A. Bazigos, F. Krummenacher, J.-M. Sallese, “Compact modelling of HV-MOSFETs”, MOS-AK Workshop, Technical University of Munich, Munich, Germany, April 11-12, 2013.
  - **M. Bucher**, R. K. Sharma, K. Kostopoulos, “Compact Modelling of Power JFETs”, *MOS-AK Workshop, Int. Conf. ESSDERC-ESSCIRC*, Bordeaux, France, Sept. 17-21, 2012.

## 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” 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” Project Nr. 09ΣYN-32-1181, General Secretariat of Research and Technology (GSRT). Duration: 2010 – 2014.
- NexGenMiliWave, Next Generation Millimeter Wave Backhaul Radio, “Corallia” Hellenic Technology Cluster Initiative in Microelectronics, Phase 2, Project Nr. MIKPO2-ΣE-B/E-II. Duration: June 2009 – July 2013.
- Nanoscale RF CMOS Transceiver Design, “Heracleitus II” Project Nr. 17/050/6, PhD scholarship for A. Antonopoulos. Greek Ministry of Education, European Social Fund. Duration: 2010 – 2014.
- Project proposals submitted:
  - COST Action, Sept. 2012.
  - Cypriot – Greek bilateral cooperation 2007 – 2013, April 2013.
  - German – Greek bilateral R&D cooperation 2013 – 2015, GSRT, June 2013.
  - Research Infrastructure project, GSRT, June 2013.
- Development of Electronics Laboratory infrastructure:
  - 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) 2013.*
- Reviewing activities
  - *IEEE Trans. on Electron Devices*
  - *Solid-State Electronics*
  - *IET Journal on Circuits, Devices and Systems*
- Expert for PhD examination
  - *Universitat Rovira y Virgili (URV), Department of Electronic Engineering, Tarragona, Spain, February 2013.*

## **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.
  - M.Sc. theses completed (supervisor):
    - Athanasios Dimakos, Low voltage analog design techniques, Sept. 2012.
  - M.Sc. students supervised (supervisor):
    - 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.
    - George Gyroukis, Compact Modeling of Multi-gate MOSFETs, Enrollment: Feb. 2011. Phone 28210 37269.
- Undergraduate students supervised
  - Diploma theses completed (supervisor):
    - Dimitris Sideris, Characterization and compact modeling of SiC JFET.
    - Yannis Deriziotis, Design of a CMOS VCO at 5-6 GHz, Sept. 2012.
    - Vassilis Psaltopoulos, Characterization and modeling of 1/f noise of MOS transistors, Sept. 2012.
    - George Gyroukis, Compact modeling of multi-gate MOSFETs, Sept. 2012.
  - Diploma students (supervisor):
    - Konstantinos Fellas, Study of low-frequency noise in HVMOSFETs.
    - 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.
    - Dimitrios Kokkonas, Experimental and analytical study of scaling in advanced CMOS technologies.
    - Nikos Pappas, TCAD investigation of analog properties of multi-gate CMOS transistors.
    - Nicolas Gegios, RF CMOS modeling.
  - Diploma theses completed (committee member):
    - *Philippos Ineglis, Design of a HiFi Audio amplifier, May 2013.*





Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Apostolos Dollas

**Rank:** Professor

**Years in rank:** 12

**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, E. Sotiriades, C. Rousopoulos *et al.*, Reconfiguring the Bioinformatics Computational Spectrum: Challenges and Opportunities of FPGA-Based Bioinformatics Acceleration Platforms, *IEEE Design and Test*, Special Issue on Hardware Acceleration for Computational Biology.
  - Accepted
    - M. Lakka, E. Koutroulis, A. Dollas, Development of an FPGA based SPWM Generator for High Switching Frequency DC/AC Switching Inverters, *IEEE Transactions on Power Electronics*.
  - Published
    - 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, *ACM Transactions on Architecture and Code Optimization (TACO)* Vol. 9, Issue 4, article no. 47 (25 pages), January 2013 (Special Issue on High-Performance Embedded Architectures and Compilers).
- Publications in refereed conferences
  - Submitted
    - G. Rematska, K. Papadimitriou, A. Dollas, A Low-Cost Embedded Real-Time 3D Stereo Matching System for Surveillance Applications, Proceedings, 13<sup>th</sup> International Conference on Bioinformatics and Bioengineering (BIBE 2013), Chania, Greece, November, 2013.
  - Accepted
    - S. Thomas, K. Papadimitriou, A. Dollas, Architecture and Implementation of 3D Stereo Vision on a Xilinx FPGA, Proceedings of the 21st IFIP/IEEE International Conference on Very Large Scale Integration (VLSI-SoC) 2013, Istanbul, Turkey.
  - Published (all papers fully refereed)
    - G. Chrysos, E. Sotiriades, C. Rousopoulos, A. Dollas, A. Papadopoulos, I. Kirmizoglou, V. Promponas, T. Theocharides, G. Petihakis, J. Lagnel, P. Vavylis, G. Kotoulas, “Opportunities from the Use of FPGAs as Platforms for Bioinformatics Algorithms”, Proceedings, 12th 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.

## C – Awards & Distinctions

- First Prize in the most innovative use of FPGA category, *ALTERA Pan-European Design Competition*, project on fractal flame rendering, June, 2013, TUC Undergraduate student team G. Mantakos, D. Skarlatos, A. Stratikopoulos, Faculty Advisor: A. Dollas (Award was given at FPL in September, 2013).

## 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. (HERMES, 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), Seattle, Washington, April 28-30, 2013.
  - ◆ Program Committee Member, IEEE/ACM 22<sup>nd</sup> International Symposium on Field Programmable Logic (FPL), Oslo, Norway, Aug. 29-31, 2012.
  - ◆ Program Committee Member, International Conference on Field Programmable Technology (FPT, IEEE Sponsored), Seoul, S. Korea, December 10-12, 2012.
- External reviewer and examiner in a Ph.D. dissertation defense (Dr. N. Alachiotis) at the Technical University of Munich, November 21, 2012.
- Member of the election board towards a faculty election (Full Professor) at the University of Peloponese, January 17, 2013.
- Member of the PhD Examination Committee (Dr. G. Athanasiou), University of Patras, May 14, 2013.
- Member of the PhD Examination Committee (Dr. P. Mathaiakis), University of Crete, July 15, 2013.

*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, such as the *IEEE Transactions on Computers*,

*ACM Transactions on Reconfigurable Technology (TRETs), The IEEE Transactions on VLSI Systems (TVLSI), etc.*

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

- Departmental responsibilities
  - 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 the rank of tenured Associate 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).
  - 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, in progress)
    - Chrysos, Grigorios (PhD)
    - Malakonakis, Pavlos (PhD)
    - Smerdis, Miltiadis (MS)
    - Ilias, Anargyros (MS)
    - Nikoloudakis, George (MS)
    - Rousopoulos, Christos (MS)
  
  - PhD and M.Sc. Degrees (committee member)
    - Kornaros, George (PhD)
    - Nikitakis, Antonios (PhD)
    - Kornaros, George (PhD)
    - Agadakos, Ioannis (MS)
    - Kampianakis, Lefteris (MS)
    - Miteloudi, Konstantina (MS)
    - Vatsolakis, Charalampos (MS)
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Drosopoulos, Andreas
    - Filos, Vasileios
    - Foteinopoulos, Giorgos
    - Gardelakos, Argyris
    - Giakoumakis, Pavlos
    - Kouinis, Konstantinos

- Koukkoulis, Andreas
  - Koukousoulas, Pantelis
  - Maragos, Konstantinos
  - Nikolakaki, Sophia
  - Rematska, Georgia
  - Stratikopoulos, Athanasios
  - Sotiropoulos, Andreas
  - Xeni, Orestis
  - Veremi, Christina
- Diploma theses in progress (committee member)
    - (Several, in progress)
  - Diploma theses completed (committee member)
    - Charitopoulos, George
    - Gyroukis
    - Fanioudakis
    - Paganos
    - Skitsas, Marios



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Kostas Kalaitzakis

**Rank:** Professor

**Years in rank:** 10

**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 conferences
  - Published:
    - Tsoutsos T., Tsitoura I., Kokologos D., Kalaitzakis K., "Sustainable Siting Process in Large Wind Farms: Case Study in Crete", Prov. World Renewable Energy Congress - Int. Conf. on Renewable Energy for Sustainable Development and Decarbonization, Perth, Australia, 2013.

## **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.
  - "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.
  - "Siting study for the sustainable establishment of of Large Photovoltaics and Solar-Thermal plants in the region of Crete", contract between Region of Crete and Technical Univ. of Crete, 2013-2014.
  - "Development of an Innovative Energy Management System for University Campuses, CAMP-IT)", SYNERGASIA 2011, funded ny GGET, 2013-2015.
  - Trainer in "Training of Photovoltaic Installers in Europe (PVTRIN)", funded by EE, 2013.

## **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
  - PhD. And M.Sc. degrees awarded
    - A. Vasilomichelaki, year of initial enrollment in M.Sc. program: 2010.
    - G. Perrakis, year of initial enrollment in M.Sc. program: 2010.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - Various theses in progress.
  - Diploma theses in progress (supervisor)
    - 5 Theses completed as main supervisor.





Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Eftichios Koutroulis

**Rank:** Assistant Professor

**Years in rank:** 2

**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 2012)*
  - *ACE 102 - Basic Circuit Theory (Spring semester 2013)*
- Graduate courses taught
  - *ACE 601 - VLSI and ASIC System Design (Fall semester 2012, co-taught with ACE 511)*
  - *ACE 635 - Special Topics in Electronic Systems for Energy Management (Spring semester 2013)*
- Labs taught
  - *ACE 511 - VLSI and ASIC System Design (Fall semester 2012)*
  - *ACE 102 - Basic Circuit Theory (Spring semester 2013)*
- Curriculum & course development
  - Lecture notes / slides developed
    - *ACE 511 -VLSI and ASIC System Design (Fall semester 2012): updated the existing slides (440 slides)*
    - *ACE 102 - Basic Circuit Theory (Spring semester 2013): updated the existing slides (442 slides)*
    - *ACE 635 – Special Topics in Electronic Systems for Energy Management (Spring semester 2013): developed 141 new slides*

## B – Publications

- Publications in refereed journals
  - Submitted:
    - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal Design of Modern Transformerless PV Inverter Topologies”, *IEEE Transactions on Energy Conversion*, Vol. 28, No. 2, pp. 394-404, 2013.
    - C. Konstantopoulos, **E. Koutroulis**, “Global Maximum Power Point Tracking of Flexible Photovoltaic Modules”, *IEEE Transactions on Power Electronics*, accepted for publication.
  - Accepted:
    - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal Design of Modern Transformerless PV Inverter Topologies”, *IEEE Transactions on Energy Conversion*, Vol. 28, No. 2, pp. 394-404, 2013.
    - C. Konstantopoulos, **E. Koutroulis**, “Global Maximum Power Point Tracking of Flexible Photovoltaic Modules”, *IEEE Transactions on Power Electronics*, accepted for publication.
    - M. Lakka, **E. Koutroulis**, A. Dollas, “Development of an FPGA-Based SPWM Generator for High Switching Frequency DC/AC Inverters”, *IEEE Transactions on Power Electronics*, Vol. 29, No. 1, pp. 356-365, 2014.
  - Published:
    - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimal Design of Modern Transformerless PV Inverter Topologies”, *IEEE Transactions on Energy Conversion*, Vol. 28, No. 2, pp. 394-404, 2013.
    - M. Lakka, **E. Koutroulis**, A. Dollas, “Development of an FPGA-Based SPWM Generator for High Switching Frequency DC/AC Inverters”, *IEEE Transactions on Power Electronics*, Vol. 29, No. 1, pp. 356-365, 2014.
    - T. Kerekes, **E. Koutroulis**, D. Sera, R. Teodorescu, M. Katsanevakis, “An Optimization Method for Designing Large PV Plants”, *IEEE Journal of Photovoltaics*, Vol. 3, No. 2, pp. 814-822, 2013.
- Publications in refereed conferences
  - Submitted:
    - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimization of SiC-based H5 and Conergy-NPC Transformerless PV Inverters”, *2013 IEEE Energy Conversion Congress and Exposition (ECCE 2013)*.
    - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Filter Optimization of Si and SiC Semiconductor-based H5 and Conergy-NPC Transformerless PV Inverters”, *15<sup>th</sup> European Conference on Power Electronics and Applications (EPE'13 - ECCE Europe)*, 2013.
    - E. Kampianakis, J. Kimionis, K. Tountas, C. Konstantopoulos, **E. Koutroulis** and A. Bletsas, “Backscatter Sensor Network for Extended Ranges and Low Cost with Frequency Modulators: Application on Wireless Humidity Sensing”, *IEEE Sensors 2013*.

- C. Konstantopoulos, E. Kampianakis, **E. Koutroulis**, A. Bletsas, “Wireless Sensor Node for Backscattering Electrical Signals Generated by Plants”, *IEEE Sensors 2013*.
- Accepted:
  - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Optimization of SiC-based H5 and Conergy-NPC Transformerless PV Inverters”, *2013 IEEE Energy Conversion Congress and Exposition (ECCE 2013)*.
  - S. Saridakis, **E. Koutroulis**, F. Blaabjerg, “Filter Optimization of Si and SiC Semiconductor-based H5 and Conergy-NPC Transformerless PV Inverters”, *15<sup>th</sup> European Conference on Power Electronics and Applications (EPE’13 - ECCE Europe)*, 2013.
  - E. Kampianakis, J. Kimionis, K. Tountas, C. Konstantopoulos, **E. Koutroulis** and A. Bletsas, “Backscatter Sensor Network for Extended Ranges and Low Cost with Frequency Modulators: Application on Wireless Humidity Sensing”, *IEEE Sensors 2013*.
  - C. Konstantopoulos, E. Kampianakis, **E. Koutroulis**, A. Bletsas, “Wireless Sensor Node for Backscattering Electrical Signals Generated by Plants”, *IEEE Sensors 2013*.

## C – Awards & Distinctions

## D – Funded Projects

- Current projects:
  - *General Secretariat for Research and Technology (GSRT) – “Cooperation 2011” action: “AquaNet: Water Management for a City with an Intelligent, Autonomous and Low-cost Wireless Sensor Network”, in collaboration with Assist. Prof. A. Bletsas, Assist. Prof. A. Deligiannakis and Assoc. Prof. G. Karystinos, total budget for the Telecommunication Systems Institute: 467.440 k€.*
- Project proposals submitted:
  - *FP7-SMARTCITIES-2013 call (coordinator)*
  - *FP7-ICT-2013-X call (coordinator)*
  - *GSRT “PABET 2013” call (coordinator)*
  - *Danish Council for Strategic Research (DSF) call (as an international partner of the Dept. of Energy Technology research team - Aalborg University, Denmark)*

## **E – Professional service**

- Associate Editor duties:
  - *Member of the Editorial Board of the “Renewable Energy” journal (April 2011-present).*
- Conference Technical Program Committee service
  - *International Program Committee member: “International Conference on Green Energy and Technology (ICGET)”, Aug. 24-26, 2013, Japan.*
- Reviewing activities

*Reviewed 76 journal papers (including revisions) for:*

- *IEEE Transactions on Power Electronics*
- *Renewable Energy*
- *IEEE Journal of Photovoltaics*
- *IEEE Transactions on Energy Conversion*
- *IEEE Transactions on Sustainable Energy*
- *IEEE Transactions on Industrial Electronics*
- *IEEE Transactions on Instrumentation & Measurement*
- *IET Power Electronics*
- *IET Renewable Power Generation*
- *IET Circuits, Devices & Systems*
- *IET Generation, Transmission & Distribution*
- *IET Electronics Letters*
- *Energy*
- *Microelectronics Journal*

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

- *Departmental coordinator for the ERASMUS program.*
- *Editing of the postgraduate program guide (in Greek).*
- *Undergraduate studies advisor.*

## **G – Advising**

- Active graduate students supervised
- Ph.D. and M.Sc. students supervised
  1. *Stefanos Saridakis (M.Sc. Student)*
  2. *Yannis Mandourarakis (M.Sc. Student)*
  3. *Dimitris Christeas (M.Sc. Student)*
  4. *Chris Constantopoulos (M.Sc. Student)*

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



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Ioannis Papaefstathiou

**Rank:** Associate Professor

**Years in rank:** 2

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

**Division:** Electronics and Computer Architecture

**Lab affiliation:** Microprocessor and Hardware Laboratory

### A – Teaching

- Undergraduate courses taught
  - HRY 411 – Embedded Systems Design (Fall 2012)
  - HPY 302 – Computer Organization (Spring 2013)
- Graduate courses taught
  - HRY 611 – Design of Special Purpose Computer Architecture (Fall 2012)
- Labs taught
  - HRY 411 – Embedded Systems Design (Fall 2012)
  - HPY 302 – Computer Organization (Spring 2013)

### B – Publications

- Publications in refereed journals
  - Accepted
    - Luciano Lavagno, Mihai T. Lazarescu, Ioannis Papaefstathiou, Andreas Brokalakis, Johan Walters, Bart Kienhuis, Florian Schäfer, “*HEAP: A Highly Efficient Adaptive multi-Processor framework*”, Elsevier Microprocessors and Microsystems.

- Published
  - 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*”, ACM Transactions on Architecture and Code Optimization, Vol. 9, No. 4, Article 51, Jan. 2013.
  - A. Nikitakis, S. Papaioannou, I. Papaefstathiou, “*A Novel Low-power Embedded Object Recognition System working at multi-frames per second*”, ACM Transactions on Embedded Computing Systems, Vol. 11, No 2, June 2013 (***Best Paper Award ESTIMedia 2012***).
  - P. Mattheakis, I. Papaefstathiou, “*Significantly Reducing MPI Intercommunication Latency and Power Overhead in Both Embedded and HPC Systems*”, ACM Transactions on Architecture and Code Optimization, Vol. 9, No. 4, Article 51, Jan. 2013.
  - P. Karkazis, P. Trakadas, H.C. Leligou, L. Sarakis, I. Papaefstathiou, T. Zahariadis, “*Evaluating routing metric composition approaches for QoS differentiation in low power and lossy networks*”, Wireless Networks, Springer, Vol. 19, No. 1, Jan. 2013.
- Publications in refereed conferences
  - Published
    - Dionisios N. Pnevmatikatos, Tobias Becker, Andreas Brokalakis, Karel Bruneel, Georgi Gaydadjiev, W. Luk, Kyprianos Papadimitriou, Ioannis Papaefstathiou, O. Pell, Christian Pilato, M. Robart, Marco D. Santambrogio, Donatella Sciuto, Dirk Stroobandt, Tim Todman, “*FASTER: Facilitating Analysis and Synthesis Technologies for Effective Reconfiguration*”. 15th Euromicro Conference on Digital System Design, September 5-8, 2012, Cesme, Izmir, Turkey
    - Luciano Lavagno, Mihai T. Lazarescu, Ioannis Papaefstathiou, Andreas Brokalakis, Johan Walters, Bart Kienhuis, Florian Schäfer, “*HEAP: A Highly Efficient Adaptive Multi-processor Framework*”. 15th Euromicro Conference on Digital System Design, September 5-8, 2012, Cesme, Izmir, Turkey
    - Iakovos Mavroidis, Ioannis Mavroidis, Ioannis Papaefstathiou, Luciano Lavagno, Mihai Lazarescu, Eduardo de la Torre, “*FASTCUDA: Open Source FPGA Accelerator & Hardware-Software Codesign Toolset for CUDA Kernels*”, 15th Euromicro Conference on Digital System Design, September 5-8, 2012, Cesme, Izmir, Turkey.
    - A. Nikitakis, S. Papaioannou, I. Papaefstathiou, “*Novel Low-power Embedded Object Recognition System working at multiframe per second*”, 10<sup>th</sup> IEEE Symposium on Embedded Systems For Real-Time Multimedia (ESTIMedia 2012), Oct. 2012, Tampere, Finland. **Best Paper Award**.

## C – Awards & Distinctions

- ***Best Paper Award***: A. Nikitakis, S. Papaioannou, I. Papaefstathiou, “*Novel Low-power Embedded Object Recognition System working at multiframes per second*”, 10<sup>th</sup> IEEE Symposium on Embedded Systems For Real-Time Multimedia (ESTIMedia 2012), Oct. 2012, Tampere, Finland.

## D – Funded Projects

- Current projects:
  - “*AFORMI: Allowing for Reconfigurable Hardware to Efficiently Implement Algorithms of Multidisciplinary Importance*”, Founding Source: National Strategic Reference Framework (NSRF 2007 - 2013), Sectoral Operational Programmes, Education and Lifelong Learning (2012-2015).
  - “*HERMES: Innovative, Highly Efficient Road Surface Measurement and Control System*”, Funding Source: “European Commission, SEVENTH FRAMEWORK PROGRAMME, SME” (2012-2014).
  - European Research Grant Capacities Programme (Research for the benefit of SMEs), Title: “*Open Source FPGA Accelerator & Hardware-Software Codesign Toolset for CUDA Kernels (FASTCUDA)*” (2011-2013).
  - ARTEMIS EU projects, Title: “*new embedded Systems architecture for multi-Layer Dependable solutions (nShield)*” (2011-2013).
  - “*Intelligent Vehicle Intercommunication System for Increased Security in Highways and Urban Environments*”, Funding Source: “COOPERATION” - General Secretariat for Research and Technology (2011-2014).
  - “*R3-COP: Robust & Safe Mobile Co-operative Autonomous Systems*”, Funding Source: “ARTEMIS Joint Undertaking / Advanced Research and Technology for Embedded Intelligence and Systems JU” (2011-2013).

## 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
  - Ph.D. and M.Sc. students supervised
    - Antonis Nikitakis (Ph.D.), Year of initial enrollment in program: 2008
    - Kostas Fysarakis (Ph.D), Year of initial enrollment in program: 2011
    - George Chatzivasilis (Ph.D), Year of initial enrollment in program: 2011
    - Panagiotis Karkazis, (Ph.D.), 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.
    - Konstantina Miteloudi (M.Sc.), Year of initial enrollment in program:
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - N. Pogkas
    - D. Daskalakis
    - D. Tsiamasiotis
    - A. Katsoulas
    - P. Papantonakis
    - M. Papadovasilakis
  - Diploma theses completed (supervisor)
    - D. Tsiamasiotis, “Accelaration of Speech Recognition Algorithm Sphinx 3 with Multi-processor Graphics Card”.
    - S.-D. Daskalakis, “Snort DPI on FPGA with GigE”.



Technical University of Crete  
Department of Electronic & Computer Engineering

## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Dionisios Pnevmatikatos

**Rank:** Professor

**Years in rank:** 4

**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 2012)
  - HRY 415 – Computer Architecture (Spring 2013)
- Graduate courses taught
  - HRY 613 – Parallel and Distributed Computer Architecture (Spring 2013)
- Labs taught
  - HRY 201 – Digital Computers (Fall 2012)
  - HRY 415 – Computer Architecture (Spring 2013)
  - HRY 418 – Parallel and Distributed Computer Architecture (cross-listed with graduate HRY 613, Spring 2013)
- Curriculum & course development
  - New courses / labs developed
  - Lecture notes / slides developed
    - Digital Computers (Update)
    - Computer Architecture (Update)
    - Parallel and Distributed Computer Architecture (Update)

## B – Publications

- Publications in refereed journals
  - Published:
    - Ioannis Sourdis, Christos Strydis, A. Armato, Christos-Savvas Bouganis, Babak Falsafi, Georgi Nedeltchev Gaydadjiev, Sebastian Isaza, Alirad Malek, R. Mariani, Dionisios N. Pnevmatikatos, Dhiraj K. Pradhan, Gerard K. Rauwerda, Robert M. Seepers, Rishad A. Shafik, Kim Sunesen, Dimitris Theodoropoulos, Stavros Tzilis, Michalis Vavouras: “DeSyRe: On-demand system reliability”, *Microprocessors and Microsystems - Embedded Hardware Design* 37(8-C): 981-1001, 2013.
- Publications in refereed conferences
  - Published:
    - Kyprianos Papadimitriou, Dionisios N. Pnevmatikatos, Apostolos Dollas, Christos Koulamas, Stavros Aggelidakis, Petros Chatzidakis, Leonidas Vasilikiotis, Maria Emmanouilidou: Developing RFID-Based Systems for Security in Marine Transportations. Panhellenic Conference on Informatics October 2012: 50-55
    - Ioannis Sourdis, Christos Strydis, Christos-Savvas Bouganis, Babak Falsafi, Georgi Nedeltchev Gaydadjiev, Alirad Malek, R. Mariani, Dionisios N. Pnevmatikatos, D. K. Pradhan, Gerard K. Rauwerda, Kim Sunesen, Stavros Tzilis: The DeSyRe Project: On-Demand System Reliability. Proceedings, DSD September 2012: 335-342
    - Kyprianos Papadimitriou, Christian Pilato, Dionisios N. Pnevmatikatos, Marco D. Santambrogio, Catalin Bogdan Ciobanu, Tod Todman, Tobias Becker, Tom Davidson, Xinyu Niu, Georgi Gaydadjiev, Wayne Luk, Dirk Stroobandt: Novel Design Methods and a Tool Flow for Unleashing Dynamic Reconfiguration. CSE, December 2012: 391-398
    - Dionisios N. Pnevmatikatos, Tobias Becker, Andreas Brokalakis, Karel Bruneel, Georgi Gaydadjiev, W. Luk, Kyprianos Papadimitriou, Ioannis Papaefstathiou, O. Pell, Christian Pilato, M. Robart, Marco D. Santambrogio, Donatella Sciuto, Dirk Stroobandt, Tim Todman: FASTER: Facilitating Analysis and Synthesis Technologies for Effective Reconfiguration. Proceedings, DSD September 2012: 234-241
    - Dimitris Theodoropoulos, Polyvios Pratikakis, Dionisios N. Pnevmatikatos: Efficient runtime support for embedded MPSoCs. ICSAMOS July 2013: 164-171

## D – Funded Projects

- Current projects:
  - Departmental Practical Training
  - Synergasia MERIT
  - FP7 FASTER
  - FP7 DESYRE
- Project proposals submitted:
  - PABET mCluster

## E – Professional service

- Associate Editor duties
  - Guest Edit a Special Issue “**Reconfiguration Computing**” for International Journal of Journal of System Architecture (Springer)
- Society Technical Committee duties
- Conference Technical Program Committee service
  - International Conference on Field Programmable Logic and Applications (FPL) 2012
  - International Conference on Embedded Computer Systems: Architectures, Modeling, and Simulation (IC-SAMOS) 2012
  - IEEE International Conference On Computer Design (ICCD), 2013
  - International Conference on Supercomputing (ICS), 2013
  - Design and Test Europe (DATE), Architecture and Microarchitecture Track, 2013
  - Reconfig 2013
- Conference Organization (specify role)
  - General Co-Chair Workshop on Reconfigurable Computing, 2013
- Reviewing activities
  - Journal Reviewer:
    - IEEE TVLSI
    - IEEE TC
    - IJPP
    - ACM TACO
    - Journal of System Architecture
  - Conference Reviewer:
    - HiPEAC Conference 2013
  - Workshop Technical Committee Member:
    - ParaFPGA 2013

## 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.
    - Ch. Vatsolakis M.Sc.
    - G. Charitoulos M.Sc.
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
  - Diploma theses completed (supervisor)
    - Skitsas
    - Petropoulos
    - Ntouzos
  - Diploma theses completed (committee member)
    - Deriziotis
    - Andrianakis
    - Loizidis
    - Paravolos
    - Daskalakis
    - Fanioudakis



Technical University of Crete  
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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** George Stavrakakis

**Rank:** Professor

**Years in rank:** 18

**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 :
  - Renewable Energy Sources (HRY 416)
- Graduate courses taught:
  - Advanced topics in Optimal Control (SYS 603)
- Labs taught:
  - Renewable Energy Sources (HRY 416)

Curriculum & course development:

- New courses / labs developed already: Renewable Energy Sources (HRY 416)
- Lecture notes / slides developed already: Renewable Energy Sources (HRY 416)

### B – Publications

- **Publications in refereed journals**
  - Submitted: 5
  - Accepted: 3
  - Published: 3 (see below)
- T. Nikolaou, D. Kolokotsa, G. Stavrakakis and I. Skias, “On the application of clustering techniques for office buildings’ energy and thermal comfort classification”, IEEE

Transactions on Smart Grid, Special Issue on Intelligent Buildings and Home Energy Management in a Smart Grid Environment, Volume 3 (4), pp. 2196 - 2210. December 2012.

- Yiannis A. Katsigiannis, George S. Stavrakakis and Christodoulos Pharconides, “Effect of Wind Turbine Classes on the Electricity Production of Wind Farms in Cyprus Island”, Hindawi Publishing Corporation Conference Papers in Energy, Volume 2013, Article ID 750958, 6 pages. <http://dx.doi.org/10.1155/2013/750958>.
- Emmanouil Loukarakis, Georgios Stavrakakis, “Adaptive enumeration method for the optimal interconnection planning of isolated power systems”, IET Gener. Transm. Distrib., 2013, Vol. 7, Iss. 3, pp. 235–243.

- **Publications in refereed conferences**

- Submitted: 1
- Accepted: 1
- Published: 1 (see below)
- Yiannis A. Katsigiannis and George S. Stavrakakis, “Effect of wind turbine classes on the electricity production of wind farms in Cyprus Island”, 1st Conference on Power Options for the Eastern Mediterranean Region (POEM 2012), 19-21 November 2012, Limassol, Cyprus.

- **Publications in conferences on abstract review**

- Submitted: 4
- Accepted: 4
- Published: 4 (see below)
- N. Panagiotidou, G. Stavrakakis, C. Venetis, G. Konstantzos, V. Inglezakis, K. Moustakas, M. Loizidou, “The Development of a Decision Support Software Tool for Solid Waste Management planning”, International Conference on Industrial and Hazardous Waste “Crete 2012”, 12-14 September 2012, Chania, Greece.
- K. Gobakis, D. Kolokotsa, G. Stavrakakis, C. Lykas, “Application of advanced clustering methods in a GIS based forest fire risk assessment tool” International Conference on Industrial and Hazardous Waste “Crete 2012”, 12-14 September 2012, Chania, Greece.
- Y.A. Katsigiannis, G.S. Stavrakakis, “Effect of wind turbine classes on the electricity production of wind farms in Cyprus Island” 1st Conference on Power Options for the Eastern Mediterranean Region (POEM 2012), 19-21 November 2012, Limassol, Cyprus.
- Y.A. Katsigianis, G.S. Stavrakakis, “Estimation of wind energy production in Australia for different wind turbine classes”, World Renewable Energy Congress - WREC 2013 International Conference", Murdoch University, Perth, Western Australia, 14-18 July 2013.

- **Books and edited book chapters with referees:**

- A. Apostolou, T. Nikolaou, D. Kolokotsa, C. Munteanu, G. Stavrakakis, “**Integrated Intelligent Systems for the Efficient Management of Indoor Environment and Energy in Buildings**”, Editura POLITEHNIUM, Technical University “ Gh. Asachi” Iasi - Romania, June 2013, ISBN 978-973-621-400-4.

- **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)*

## **D – Funded Projects**

### **Current projects:**

--LIFE FOREST CITIES-Local Authorities' Alliance for Forest Fire Prevention LIFE+ funded. 1-1-2010 to 30-06-2013. 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 - ΓΓΕΤ 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 five 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.
  - Reviewer on call basis Renewable Energy journal.
- Participation in National Committees (e.g., ΕΔΕΤ): one
  - “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 (Senate)
  - ΕΛΚΕ
  - Institute
  - Other: member of the Technical Council of TUC



## G – Advising

- Active graduate students supervised
  - Committee Member of PhD thesis already defended: none
  - PhD students supervised: 1
    - Tripolitakis Evangelos
  
  - M.Sc Students supervised: 2
    - Panagiwtidou Natalia
    - Sytzanaki Athina
  
  - Committee Member of M.Sc. degrees awarded except the above: 4
  
- Undergraduate students supervised
  - Diploma theses in progress (supervisor): 7
  - Diploma theses completed (supervisor): 2
  - Diploma theses in progress (committee member): 5
  - Diploma theses completed (committee member): 5

## **Telecommunications Division**

### **Faculty Members:**

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



Technical University of Crete  
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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Aggelos Bletsas

**Rank:** Assistant Professor

**Years in rank:** 4

**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.
  - TEL 418 Computer Networks II.
- Graduate courses taught:
  - 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**
  - Submitted:
    - N. Fasarakis-Hilliard, P. Alevizos and **A. Bletsas**, "Cooperative Localization Under Bandwidth Constraints", submitted for publication.
  - Accepted:
    - **A. Bletsas**, A. Vlachaki, E. Kampianakis, J. Kimionis, G. Sklivanitis, K. Tountas, M. Asteris and P. Markopoulos, "Building the Low-Cost Digital Garden as a Telecom Lab Exercise", *IEEE Pervasive Computing*.

- Publications in refereed **conferences**
  - Published:
    - G. Sklivanitis, K. Alexandris and **A. Bletsas**, "Testbed for Non-Coherent, Zero-Feedback Distributed Beamforming", *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, May 2013, Vancouver, Canada.
    - P. Alevizos, N. Fasarakis-Hilliard and **A. Bletsas**, "Cooperative Localization in Wireless Networks under Bandwidth Constraints", Asilomar Conference on Signals, Systems and Computers (*ASILOMAR*), November 2012, Pacific Grove, California, USA.
    - J. Kimionis, **A. Bletsas**, J.N. Sahalos, "Bistatic Backscatter Radio for Tag Read-Range Extension", *IEEE International Conference on RFID-Technologies and Applications (RFID-TA)*, November 2012, Nice, France.
    - A. G. Dimitriou, J. Kimionis, **A. Bletsas** and J.N. Sahalos, "A Fading-Resistant Method for RFID-Antenna Structural Mode Measurement", *IEEE International Conference on RFID-Technologies and Applications (RFID-TA)*, November 2012, Nice, France.

## C – Awards & Distinctions

- Supervisor of Diploma Thesis “Receivers for Zero-feedback Distributed Beamforming” by Konstadinos Alexandris. **2012 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”.
- *Invited Talk:*
  - "Testing Backscatter Sensor Networks at the Power-limited Regime with Commodity Software-Defined Radio: Reporting Achieved Communication Ranges", European Cooperation in Science and Technology (COST) Action in Versatile, Integrated, and Signal-aware Technologies for Antennas (VISTA) Workshop, Thessaloniki, Greece, May **2013**.

## D – Funded Projects

- Current projects:
  - 3 Projects funded through GSRT Thalís.
  - 1 Project funded through GSRT ERC 3<sup>rd</sup> Call.
  - 1 Project funded through GSRT Synergasia.
  - 1 Project funded through Cyprus RPF.
- Project proposal submitted:
  - 2 EU COST Proposals.

## E – Professional service

- Associate Editor duties:
  - IEEE Wireless Communication Letters.

- Conference Technical Program Committee (TPC) service:
  - TPC Member of IEEE ICC 2013 (Wireless Networks Track), IEEE ICC 2013 (Ad-hoc & Sensor Networks Track), IEEE Globecom 2013 (Ad-hoc & Sensor Networks Track), IEEE Globecom 2013 (Ad-hoc & Sensor Networks Track), IEEE Globecom 2013 (Cognitive Radio & Networks Track).
- Reviewing activities:
  - Reviews for major Class A IEEE Journals.

## 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” (in progress).
    - E. Kampianakis, “Sensors and Testbed for Backscatter Sensor Networks” (in progress).
    - J. Kimionis, “Bistatic Backscatter Radio for Backscatter Sensor Networks”, (completed in Aug. 2013).
    - Emmanouil Alibertis, Localization through Community RF Sensing (in progress).
    - Panagiotis Alevizos, Detection and Coding for Backscatter Sensor Networks (in progress).
    - Nikos Fassarakis-Hilliard, Non-parametric Estimation and Coding for Backscatter Sensor Networks (in progress).
    - Konstantinos Alexandris, Non-coherent Receivers for Zero-Feedback Distributed Beamforming (in progress).
- Undergraduate students supervised
  - Diploma theses completed (supervisor):
    - Manolis Alibertis, “Community RF sensing”.
    - Nikos Agadacos, “Multi-Channel MACs for Wireless Sensor Networks”.
    - Efthimios Vlachos, “Intelligent Scheduling for Wireless Networks”.
    - Nikos Fassarakis-Hilliard, “Cooperative Localization under Bandwidth Constraints”.
    - Konstantinos Alexandris, “Receivers for Zero-feedback Distributed Beamforming”.
    - **2012 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”.
    - Panos Alevizos, “Factor Graphs in Telecommunications: Theory and Applications”.

- Diploma theses in progress (supervisor):
  - Manos Papagiannakis
  - Konstantinos Tountas
  - Spiros Daskalakis
  - Michalis Bamiedakis
  - Panos Oikonomakos



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Vassilis Digalakis

**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
  - *Statistical Modeling and Pattern Recognition*
  - *Signals and Systems*

Rector of Technical Univ. of Crete, since April 2013

### D – Funding

- Current Projects (PI):
  - *“Linear Dynamical Models for Speech Synthesis”, funded by 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) (until March, 2013)
- Rector, Technical University of Crete (since April, 2013)

## **G – Advising**

- Graduate students supervised
  - *Alex Georgogiannis, M.Sc.*
- Undergraduate students defended
  - *D. Kagiara, “Continuous Language Models with Semantic and Syntax Information”.*
- Undergraduate students supervised
  - *K. Pechlivanis, “Clustering & Optimization in Continuous Language Models”.*





Technical University of Crete  
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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** George Karystinos

**Rank:** Associate Professor

**Years in rank:** 0

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

- None (on leave).

### B – Publications

- Publications in refereed journals
  - Submitted
    - M. Asteris, D. S. Papailiopoulos, and **G. N. Karystinos**, “The sparse principal component of a constant-rank matrix, *IEEE Transactions on Information Theory*, submitted May 2013.
    - A. Kyrellidis and **G. N. Karystinos**, “Fixed-rank Rayleigh quotient maximization by an MPSK sequence,” *IEEE Transactions on Communications*, submitted June 2013.
    - P. P. Markopoulos, **G. N. Karystinos**, and D. A. Pados, “Optimal algorithms for  $L_1$ -subspace signal processing,” *IEEE Transactions on Signal Processing*, submitted June 2013.
  - Accepted: those published (see below)
  - Published
    - D. S. Papailiopoulos, G. Abou Elkheir, and **G. N. Karystinos**, “Maximum-likelihood noncoherent PAM detection,” *IEEE Transactions on Communications*, vol. 61, pp. 1152-1159, Mar. 2013.

- Publications in refereed conferences
  - Submitted: those published (see below)
  - Accepted: those published (see below)
  - Published
    - M. Gkizeli and **G. N. Karystinos**, “Maximum-SNR transmit antenna selection with unimodular beamforming and two receive antennas,” in *Proc. 2013 Conference on Information Sciences and Systems (CISS)*, Baltimore, MD, Mar. 2013.
    - M. Gkizeli and **G. N. Karystinos**, “Maximum-SNR transmit antenna selection with two receive antennas is polynomially solvable,” in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 4749-4753.
    - P. P. Markopoulos and **G. N. Karystinos**, “Novel full-rate noncoherent Alamouti encoding that allows polynomial-complexity optimal decoding,” in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 5075-5079.
    - D. Koupatsiaris and **G. N. Karystinos**, “Efficient DOA, DOD, and target estimation for bistatic MIMO SONAR,” in *Proc. IEEE ICASSP 2013 - Intern. Conf. Acoust., Speech and Signal Proc.*, Vancouver, BC, May 2013, pp. 5155-5159.
    - P. P. Markopoulos, **G. N. Karystinos**, and D. A. Pados, “Some options for  $L_1$ -subspace signal processing,” in *Proc. IEEE ISWCS 2013 - International Symposium on Wireless Communication Systems*, Ilmenau, Germany, Aug. 2013, pp. 622-626 (Best Paper Award).

## C – Awards & Distinctions

- IEEE ISWCS 2013 Best Paper Award (Intern. Symp. Wireless Comm. Syst.) for paper “Some options for  $L_1$ -subspace signal processing” by P. P. Markopoulos, G. N. Karystinos, and D. A. Pados.

## D – Funded Projects

- Current projects
  - PI (%effort: 33%), “DISCO - Distributed wireless communications,” Thales Program, Ministry of Education, Greece, Jan. 2, 2012 - Sept. 30, 2015, 600.000 EUR.
  - 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, “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 Wireless Communications and Networking Conference (WCNC) 2013 - PHY Track.
  - IEEE International Symposium on Wireless Communication Systems (ISWCS) 2013.
  
- Reviewing activities
  - Reviewer for journals
    - *IEEE Transactions on Communications*
    - *IEEE Transactions on Wireless Communications*
    - *IEEE Transactions on Signal Processing*
    - *IEEE Wireless Communications Letters*
    - *Entropy (MDPI)*
  - Reviewer for conferences
    - *IEEE WCNC 2013*
    - *IEEE ISWCS 2013*

## G – Advising

- Active graduate students supervised
  - Ph.D. and M.Sc. students supervised
    - Dimitris Koupatsiaris, “Efficient techniques for channel decoding,” Ph.D. student.
    - John Fountzoulas, “Blind channel estimation and QAM detection,” M.Sc. student.
  - Ph.D. and M.Sc. degrees awarded
  
- 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)



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Polychronis Koutsakis

**Rank:** Assistant Professor

**Years in rank:** 5

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - Computer Networks I
  - Introduction in Broadband Communication Networks
  
- Graduate courses taught
  - Special Topics in Communication Networks
  - Queuing Theory
  
- Curriculum & course development
  - Lecture notes / slides developed:
    - Slides for all courses that I taught

### B – Publications

- Publications in refereed journals
  - Submitted
    - **P. Koutsakis** and D. Vasileiadou, “Losing Packets to Save Lives: Scheduling for Urgent Traffic Transmission over WLANs”, revised for publication in the IEEE Journal of Biomedical and Health Informatics.

- E. Maratsolas, **P. Koutsakis** and A. Lazaris, “Activity-Based Video Traffic Policing: A New Paradigm”, revised for publication in the IEEE Transactions on Multimedia.
- **P. Koutsakis**, I. Spanou and A. Lazaris, “Mapping Video Scene Activity to User QoE for Resource Allocation over GEO Satellites”, submitted to the IEEE Transactions on Vehicular Technology.
- O.-S. Loizides and **P. Koutsakis**, “How good is your work? A New Approach for Judging the Quality of a Publication”, submitted to the Journal of the American Society for Information Science and Technology (JASIST).
- G.-A. Liagouras, A. A. Sayegh and **P. Koutsakis**, “BLS: A New Location-Aware Android Application for Automatic Synchronization of Business and Life Calendars”, submitted to the Wireless Personal Communications Journal.
- Published
  - O.-S. Loizides and **P. Koutsakis**, “Not So Snap a Judgement: Discussing the PR metric”, ACM SIGMOBILE Mobile Computing and Communications Review, Vol. 17, No. 2, 2013, pp. 19-26.
- Publications in refereed conferences
  - Submitted
  - Accepted
    - I. Spanou, A. Lazaris and **P. Koutsakis**, “Scene Change Detection-Based Discrete Autoregressive Modeling for MPEG-4 Video Traffic”, in Proc. of the IEEE ICC 2013, Budapest, Hungary (*Acceptance Ratio: 39%*).

## C – Awards & Distinctions

- *IEEE Senior Member (July 2013)*
- *2012 Exemplary Editor of the IEEE Communications Society*, for his editorial work in the IEEE Communications Surveys & Tutorials journal.

## 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 member
  - IEEE LCN 2013
  - IEEE GLOBECOM 2013 – Symposium on Wireless Networking
  - IEEE GLOBECOM 2013 – Ad-Hoc and Sensor Networking Symposium
  - IEEE GLOBECOM 2013 – Selected Areas in Communications Symposium, Satellite and Space Communications Track
  - IEEE GLOBECOM 2013 – Cognitive Radio and Networks Symposium
  - IEEE ICC 2013 – Wireless Networking Symposium
  - IEEE ICC 2013 - Symposium on Selected Areas in Communications (SAC)
  - IEEE ICC 2013 – Ad-Hoc and Sensor Networking Symposium
  - IEEE International Symposium on a World of Wireless Mobile and Multimedia Networks (WoWMoM) 2013
  - IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob) 2013
  - IEEE International Conference on Computing, Networking and Communications (ICNC) 2013 – Green Computing, Networking and Communications Symposium
  - IEEE International Conference on Computing, Networking and Communications (ICNC) 2013 – Internet Services and Applications Symposium
  - IEEE International Conference on Multimedia and Expo (ICME) 2013
  - IEEE WCNC 2013 – Network Track
  - 4th International Conference on Ambient Systems, Networks and Technologies (ANT 2013)
  
- 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 “*Traffic Modeling and Characterization II*” Session, IEEE ICC 2013, June 2013, Budapest, Hungary.
  
- Reviewing activities
  - IEEE Transactions on Multimedia
  - IEEE Communications Letters
  - Wireless Personal Communications Journal (Springer)
  - International Journal of Communication Systems (Wiley)

## **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)
    - Orestis-Stavros Loizides (MSc student)
- Undergraduate students supervised
  - Diploma theses in progress (supervisor). Students' Names:
    - Greta Tzamicha
    - Anna Repousi
  - Students with Diploma theses completed (supervisor)
    - Evangelos Maratsolas
    - Charis Stamos
    - Manolis Skevakis
    - Giorgos-Andreas Liagouras
    - Georgia Athanasopoulou
    - Orestis-Stavros Loizides



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Athanasios Liavas

**Rank:** Professor

**Years in rank:** 4

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

**Division:** Telecommunications

**Lab affiliation:** Telecommunications Laboratory

### A – Teaching

- Undergraduate courses taught
  - Telecommunications Systems I
  - Wireless Communications
- Graduate courses taught
  - Information Theory
  
- Labs taught
  - Telecommunications Systems I
  - Wireless Communications
  - Information Theory and Coding
  
- Curriculum & course development
  - New courses / labs developed
    1. Information Theory and Coding (Lab exercises)
  - Lecture notes / slides developed
    1. A. P. Liavas, Lecture Notes on “Information Theory and Coding”



## **D – Funded Projects**

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

## **E – Professional service**

- Associate Editor duties
- Society Technical Committee duties
- Conference Organization (specify role)
- Reviewing activities
  - *IEEE Transactions on Signal Processing, IEEE ICASSP2013, IEEE SPAWC13.*

## **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
    - Idiadis Stylianos
    - Lourakis Georgios
    - Chatzinikolaou Panagiotis
    - Georgiopoulos Theodoros
  - Diploma theses complete (supervisor)
    - Sapountzis Nikolaos
    - Boudouris Konstantinos



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Michael Paterakis

**Rank:** Professor

**Years in rank:** 14

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

**Division:** Telecommunications

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

### A – Teaching

- Undergraduate courses taught
  - *Probabilities and Random Signals* (TEL 202), Mandatory Undergraduate Course (Spring 2013).
  - *Introduction to Modeling and Performance Evaluation of Computer Communication Networks* (TEL 414), Advanced Senior Undergraduate Course (Fall 2012).
- Graduate courses taught
  - *Probability Theory & Random Processes* (TEL 601), Graduate Course (Fall 2012).

### 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 €.
  - “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. Funded for the period 3/2012 – 10/2015. Total budget: 521.738 €.

- “Design and Implementation of: (a) a software platform for the optical surveillance of the Municipal Port’s wireless network, (b) the V.P.N. for the wireless network of video cameras that will be installed in the Port of Chania, and reprogramming of the existing network equipment in the I.O.S. environment”. Funded for the period 25/06/2013 – 10/08/2013 by the Municipal Port Fund of Chania. PI: Prof. M. Paterakis.

## **E – Professional service**

- Conference Organization:
  - Co-Chair for the 2<sup>nd</sup> IEEE WoWMoM Workshop on Video Everywhere, Madrid, Spain, June 4-7, 2013.
- Participation in National Committees:
  - Member of the Board of Greek Universities Network (GUnet), a non-profit civil company founded by all the Greek Higher Education and Academic Institutions, (June 2013 – June 2016).

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

- Department-level responsibilities:
  - Member of the Graduate Committee
- School-level responsibilities
  - Director, Telecommunication Systems Research Institute (T.S.I.), Technical University of Crete, (June 2013 -).
  - 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*”.
    - Dimitris Bouzoukas, Thesis Title: “*Random Multiple Packet Access with Channel Sensing for an Energy Limited Cognitive Radio System*”.



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## Annual Activity Report

*For the period: September 1, 2012 to August 31, 2013*

**Name:** Michalis Zervakis

**Rank:** Professor

**Years in rank:** 12

**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
  - THL 302 “Digital Signal Processing”, Fall 2012 (mandatory course).
  - EKP 414 “Computer Vision”, Fall 2012 (with Prof. E. Petrakis).
  - THL 312 “Digital Image Processing”, Spring 2013.
  
- Graduate courses taught
  - PLH 602 “Computer Vision”, Fall 2012 (with Prof. E. Petrakis).
  - THL 610 “Digital Image Processing”, Spring 2013.
  
- Labs taught
  - Digital Signal Processing.
  - Digital Image Processing.

## B – Publications

- Publications in refereed journals
  - Published:
    - 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. Biomedical and Health Informatics*, vol. 17, no.1, pp. 128-135, Jan. 2013.
    - M.G. Kounelakis, E.S. Bei, M.E. Zervakis, G.C. Giakos, L. Zhang, C. Narayan, D. Kafetzopoulos, “Measurement methodologies for assessing the glycolysis effect in the discrimination and therapy of brain gliomas”, *International Journal of Monitoring and Surveillance Technologies Research (IJMSTR)*, Vol. 1, pp: 34-55, Jan 2013.
    - K. Miki, P. Stavrakakis, A. Agapiou, K. Moirogiorgou, S. Karma, G. C. Pallis, A. Pappa, M. Statheropoulos, M. Zervakis, “Chemical, acoustic and optical response profiling for analysing burning patterns”, *Sensors & Actuators: Chemical B*, vol. 176, no.1, pp. 290-298, Jan. 2013.
    - N. Pasadakis, G. Livanos, M. Zervakis, “Deconvolving the absorbance of methyl and methylene groups absorbances in the FT-IR 3000-2800 cm<sup>-1</sup> band of petroleum fractions”, *Trends in Applied Spectroscopy*, Vol. 10, pp. 25-35, Jan. 2013.
    - M. Papadogiorgaki, P. Koliou, X. Kotsiakis and M. Zervakis, “Mathematical modelling of spatio-temporal glioma evolution”, *Theoretical Biology and Medical Modelling*, Vol. 10:47, BioMed Central, Aug. 2013.
    - L. Koumakis, V.A. Moustakis, M.E. Zervakis, D. Kafetzopoulos, & G.A. Potamias, “Coupling Regulatory Networks and Microarrays: revealing Molecular Regulations of Breast Cancer Treatment Responses”. *Artificial Intelligence: Theories and Applications. Lecture Notes in Computer Science*, 7297, 239-246 (2012).
    - A. Roniotis, K. Marias, V. Sakkalis, G.C. Manikis & M.E. Zervakis, “Simulating radiotherapy effect in high grade glioma by using diffusive modeling and brain atlases”, *Journal of Biomedicine and Biotechnology*, Vol. 2012 (2012), Article ID 715812, doi:10.1155/2012/715812
  - Book Chapters
    - L. Koumakis, V.A. Moustakis, M.E. Zervakis, D. Kafetzopoulos, & G.A. Potamias, “Coupling Regulatory Networks and Microarrays: revealing Molecular Regulations of Breast Cancer Treatment Responses”, *Artificial Intelligence: Theories and Applications. Lecture Notes in Computer Science*, Vol. 7297, pp. 239-246 (2012).
    - C. Stentoumis, G. Livanos, A. Doulamis, M. Zervakis, “Precise 3D Reconstruction of Cultural Objects using Combined Multi-Component Adaptive Image Matching and Active Contours Segmentation”, *Advances in Visual Computing*, Springer, George Bebis et al ed (Eds), *Lecture Notes in Computer Science*, Vol. 8034, pp. 148-157, July 2013 (From ISVC'13 Rethymnon, Crete).

- Publications in refereed conferences
  - Published:
    - Kalliopi D. Kalantzaki, Ekaterini S. Bei, K. P. Exarchos, Michalis Zervakis, D. I. Fotiadis and Minos Garofalakis, “Identification of altered MET network in Oral Cancer Progression based on Nonparametric Network Design”, Proceedings of IEEE EMBC’2013, Osaka, Japan, July 2013.
    - K. Kalantzaki, E.S. Bei, M. Garofalakis, M. Zervakis, “Biological Interaction Networks Based on Sparse Temporal Expansion of Graphical Models”, 12th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2012), Larnaca, Cyprus; November 11-13, 2012.
    - T. Vigdideli, E.S. Bei, D. Kafetzopoulos, M. Zervakis, “Influence of Algorithmic Parameters on Marker Selection in Genomic Datasets”, 12th IEEE International Conference on BioInformatics and BioEngineering (BIBE 2012), pp. 523-528, Larnaca, Cyprus, November 11 - 13, 2012.
    - K. Kalantzaki, E. Bei, M. Garofalakis, M. Zervakis, D. Kafetzopoulos, “Gene Interaction Networks Based on Temporal Expansion of Graphical Models”. In Proceedings of the 7th conference of the Hellenic Society for Computational Biology & Bioinformatics (HSCBB12); FORTH, Heraklion, Crete, Greece, October 4 - 6, 2012.

## D – Funded Projects

- Current projects:
  - [2011 - 2014] RT3S: Real Time Simulation for Safer vascular Stenting, Funding Source 7th Framework Programme, Cooperation, Information and Communication Technologies.
  - [2011 - 2014] OASYS: Osteoarthritis: Integrated Systemic Analysis for targeted Biological Treatment”, Funding Source : National Strategic Reference Framework (NSRF 2007 - 2013), Sectoral Operational Programmes, Operational Program Competitiveness & Entrepreneurship, “COOPERATION” – SUB ACTION II: Large Scale Cooperative Projects.
  - [2011 - 2015] OncoSeed Diagnostics: Biology of Circulating Tumour Cells, Distant Metastasis & Development of Liquid Biopsy Methods”, Funding Source : National Strategic Reference Framework (NSRF 2007 - 2013), Sectoral Operational Programmes, Operational Program Competitiveness & Entrepreneurship, “COOPERATION” – SUB ACTION II: Large Scale Cooperative Projects.
  - [2011 - 2015] THALES-CyberSensors: High Frequency Monitoring System for Integrated Water Resources Management of Rivers”, co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program “Education and Lifelong Learning” of the National Strategic Reference Framework (NSRF) – Research Funding Program: Thales. Investing in knowledge society through the European Social Fund.
  - [2012 - 2015] ADCnano: Active Deformable micro-Cutters with Nano-Abrasives, GSRT, Cooperation II, National Strategic Reference Framework (NSRF).

## **E – Professional service**

- 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.

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

- Departmental responsibilities
  - Lab Director: Digital Image and Signal Processing Laboratory
  - Lab Director: Automation Laboratory
- School-level responsibilities
  - Member and vice-chair ELKE

## **G – Advising**

- Active graduate students supervised
  - I. Feigler
  - K. Xifaras
  - S. Sfakianakis
  - A. Roniotis
  - K. Moirogiorgou
  - K. Kalantzaki
- M.S. Theses completed
  - K. Kalantzaki, “Graphical Models in Genomic Networks”.
- Undergraduate students supervised
  - Diploma theses in progress (supervisor)
    - S. Kirakosian
  - Diploma theses complete (supervisor)
    - Konstantinos Papageorgiou, “Spectral Analysis & Classification of Oil Products Using Near-IR”.
    - Konstantina Bakali, “Development of Algorithms for Gene Signature Extraction in Osteoarthritis”.
    - Anastasia Pentari, “Object Identification from Multiple Cameras”.
    - Nikos Doukas, “Study of Wall Mortar Micro-layer Structure via Image Processing”.