

KATERINA GKIRTZOU

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Institute for Management of Information Systems ◊ Research Center “Athena”

Artemidos 6 and Epidavrou ◊ Marousi 15125, Greece

OBJECTIVES

Machine and Statistical Learning Theory, Semantic Web, Linked Data, Data Mining, Biomedical Imaging, Bioinformatics

EDUCATION

Philosophy of Science May 2009 - December 2013
Applied Mathematics and Systems Department, Ecole Centrale Paris Châtenay-Malabry, France

- Thesis: “Sparsity regularization and graph-based representation in medical imaging”.
- Grade: Très honorable

Master of Science September 2006–April 2009
Computer Science Department, University of Crete Heraklion, Crete, Greece

- Thesis: “Mature microRNA identification via the use of Naive Bayes classifier”.
- Primary Discipline : Biomedical Informatics and Technology
- Secondary Discipline : Information Systems
- Grade : 8.36/10

Bachelor’s Degree September 2002–December 2006
Computer Science Department, University of Crete Heraklion, Crete, Greece

- Thesis: “Scanning for mirna precursors in plant viruses with Hidden Markov Models”.
- Grade: 7.59/10

SUMMER SCHOOLS

Advanced Statistics and Data Mining Summer School 2009 6th–17th July, 2009
Artificial Intelligence Department, Universidad Politecnica de Madrid Madrid, Spain

Participated in the following courses:

- Practical Statistical Questions: Experimental design, Parameter estimation, Hypothesis testing, Sample size.
- Statistical inference: Basic statistical test, Multiple testing, bootstrapping.
- Unsupervised pattern recognition (clustering): Prototype-based clustering, Density-based clustering, Graph-based clustering, Cluster evaluation.

Workshop on Computational Biology 25th–29th July, 2007
Mediterranean Institute of Life Sciences (MedILS) Split, Croatia

- Participated in the Workshop on Computational Biology (part of the MedILs Summer school 2007) trained in basic computational methods for the spatio-temporal simulation of biological systems.

PROFESSIONAL EXPERIENCE

Institute for Management of Information Systems, R.C. “Athena” March 2014–present
Postdoc Researcher *Marousi, Greece*

- Working as member of the team of Researcher Dalamagas Theodore PhD.
- Responsible for organising and writing the deliverables for the greek national project LODGOV.
- Designed a novel model for evolving RDF graph data.
- Designed and participated in the implementation of a novel algorithm for searching and exploring RDF graph data using keywords.

Applied Mathematics and Systems Department, Ecole Centrale Paris May 2009–December 2013

Research Assistant *Chatenay-Malabry, France*

- Worked under the supervision of Professor Nikos Paragios and Assistant Professor Matthew B. Blaschko.
- Did a bibliographic research on clustering and dimensionality reduction techniques.
- Worked on the analysis of medical images (fMRIs, MRIs, DTIs) using regularization techniques (PhD Thesis).
- Designed and implemented a novel regularization method, the k-support regularized SVM (PhD Thesis).
- Designed and implemented a novel algorithm of graph representation and comparison for graphs with continuous or multi-dimensional labeled data (PhD Thesis).

Ecole Centrale Paris September 2009–June 2012

Teaching Assistant *Paris, France*

- Duties included laboratory exercises, exercise correction and the survey of examinations.
- MA2500FA Signal Processign, Fall 2009.
- MA2500HA Traitement du signal, Spring 2012

Computational Biology Research Group, IMBB-FORTH October 2006–April 2009

Research Assistant *Heraklion, Crete, Greece*

- Worked under the supervision of Research Associate Professor Poirazi Yiota.
- Participated in the development of the precursor miRNA prediction tool SSCprofler in Java that utilizes Hidden Markov Models to predict novel microRNA genes for various organisms based on sequence, secondary structure and conservation information of the miRNA precursor.
- Did bibliography research on artificial life.
- Developed the mature miRNA prediction tool MatureBayes in Python that utilizes a Naive Bayes Classifier to predict the mature miRNA of a precursor miRNA for various organisms based on sequence and secondary structure of the miRNA precursor (Master thesis).

Computer Science Department, University of Crete September 2006–January 2009

Teaching Assistant *Heraklion, Crete Greece*

- Duties included exercises and project marking, survey of examinations.
- CS-217 Probabilities, Fall 2006.
- CS-317 Applied Stochastic Processes, Spring 2007.
- CS-217 Probabilities, Fall 2007.
- CS-473 Pattern Recognition, Spring 2008.
- CS-217 Probabilities, Fall 2008.

Computational Biology Research Group, IMBB-FORTH

Undergraduate Student Fellowship

October 2005–September 2006

Heraklion, Crete, Greece

- Worked on the use of Hidden Markov Model in Java to discover miRNA precursors in plant viruses based on sequence and secondary structure of the miRNA precursor of plants under the supervision of Research Associate Professor Poirazi Panayiota (Bachelor's Thesis).

Telecommunication and Network Laboratory, ICS-FORTH

Undergraduate Student Fellowship

October 2004–June 2005

Heraklion, Crete, Greece

- Did bibliographic research on wavelets, focused on their use for approximate query processing in relational databases under the supervision of Professor Tsakalides Panagiotis.

LANGUAGE SKILLS

Greek	Native language
English	Fluent level of speaking, reading and written English.
French	Basic level of speaking, reading and written French.

TECHNICAL SKILLS

Languages (Good knowledge)	Java, Python, object-oriented design, C
Languages (knowledge)	C++, SPARQL, SQL, HTML, XML, XPath, XQuery
Mathematical software	Very good knowledge of Matlab, Knowledge of R
Revision control system	git, svn
Document preparation systems	Very good knowledge of L ^A T _E X
Operating Systems	GNU/Linux, Windows

PUBLICATIONS

Journal Publications

- [1] **Katerina Gkirtzou** and Matthew Blaschko. The pyramid quantized weisfeilerlehman graph representation. *Neurocomputing*, 173, Part 3:1495 – 1507, 2016.
- [2] Eugene Belilovsky, **Katerina Gkirtzou**, Michail Misyrilis, Anna Konova, Jean Honorio, Nelly Alia-Klein, Rita Goldstein, Dimitris Samaras, and Matthew Blaschko. Predictive sparse modeling of fMRI data for improved classification, regression, and visualization using the k-support norm. *Computerized Medical Imaging and Graphics*, page 1, 2015.
- [3] **Katerina Gkirtzou**, Ioannis Tsamardinos, Panagiotis Tsakalides, and Panayiota Poirazi. Mature-Bayes: a probabilistic algorithm for identifying the mature miRNA within novel precursors. *PloS one*, 5(8):e11843+, August 2010.
- [4] Anastasis Oulas, Alexandra Boutla, **Katerina Gkirtzou**, Martin Reczko, Kriton Kalantidis, and Panayiota Poirazi. Prediction of novel microRNA genes in cancer-associated genomic regions—a combined computational and experimental approach. *Nucl. Acids Res.*, 37(10):3276–3287, June 2009.

Peer-Reviewed Conference Proceedings

- [1] Marios Meimaris, George Alexiou, **Katerina Gkirtzou**, George Papastefanatos, and Theodore Dalamagas. RDF Resource Search and Exploration with LinkZoo. In *DATA 2015 - Proceedings of*

4th International Conference on Data Management Technologies and Applications, Colmar, Alsace, France, 20-22 July, 2015., pages 232–239, 2015.

- [2] **Katerina Gkirtzou**, Kostis Karozos, Vasilis Vassalos, and Theodore Dalamagas. Keywords-To-SPARQL Translation for RDF Data Search and Exploration. In *Research and Advanced Technology for Digital Libraries - 19th International Conference on Theory and Practice of Digital Libraries, TPDL 2015, Poznań, Poland, September 14-18, 2015. Proceedings*, pages 111–123, 2015.
- [3] **Katerina Gkirtzou**, Thanasis Vergoulis, Artemis G. Hatzigeorgiou, Timos Sellis, and Theodore Dalamagas. Publishing Diachronic Life Science Linked Data. In *Proceedings of the 7th International Workshop on Semantic Web Applications and Tools for Life Sciences, Berlin, Germany, December 9-11, 2014*, 2014.
- [4] **Katerina Gkirtzou**, Jean Honorio, Dimitris Samaras, Rita Goldstein, and Matthew Blaschko. fMRI Analysis with Sparse Weisfeiler-Lehman Graph Statistics. In *4th International Workshop on Machine Learning in Medical Imaging*, Nagoya, Japon, September 2013. Springer.
- [5] **Katerina Gkirtzou**, Jean Honorio, Dimitris Samaras, Rita Goldstein, and B. Blaschko, Matthew. Fmri analysis of cocaine addiction using k-support sparsity. In *International Symposium on Biomedical Imaging*, San Francisco, États-Unis, January 2013. IEEE.
- [6] **Katerina Gkirtzou**, Jean-François Deux, Guillaume Bassez, Aristeidis Sotiras, Alain Rahmouni, Thibault Varacca, Nikos Paragios, and Matthew Blaschko. Sparse classification with MRI based markers for neuromuscular disease categorization. In *4th International Workshop on Machine Learning in Medical Imaging*, Nagoya, Japon, September 2013. Springer.
- [7] **Katerina Gkirtzou**, Panagiotis Tsakalides, and Panayiota Poirazi. Mature miRNA identification via the use of a Naive Bayes classifier. In *BIBE*, pages 1–5, 2008.
- [8] Ioannis Avguleas, **Katerina Gkirtzou**, Sofia Triantafilou, Antonis Bikakis, Grigoris Antoniou, Efstratios Kontopoulos, and Nick Bassiliades. Visualization of Proofs in Defeasible Logic. In *RuleML*, pages 197–210, 2008.