

# Eleftherios Spyromitros-Xioufis

Researcher in Data Science

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Profiles: [LinkedIn](#) | [Google Scholar](#) | [Kaggle](#) | [GitHub](#)

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EDUCATION      **Ph.D. in Computer Science**      **Apr 2010 - Jun 2016**  
School of Informatics, Aristotle University of Thessaloniki, Greece  
- Advisor: Professor Ioannis Vlahavas  
- Thesis: “Machine Learning Methods for Predicting Multiple Response Variables”  
**M.Sc. in Information Systems**      **Sep 2009 - Jan 2011**  
School of Informatics, Aristotle University of Thessaloniki, Greece  
- Concentrations: Machine Learning and Data Mining  
- Thesis: “Dealing with Concept Drift and Class Imbalance in Multi-label Stream Classification”  
**B.Sc. in Computer Science**      **Sep 2004 - Jan 2009**  
School of Informatics, Aristotle University of Thessaloniki, Greece  
- Specialization: Information Systems (emphasis on Artificial Intelligence)  
- Thesis: “An Empirical Study on Lazy Multi-label Classification Algorithms”

RESEARCH INTERESTS & PUBLICATIONS      The main research topics I have worked on are: a) *multi-target prediction*, b) *image representation, indexing & search*, c) *diverse image retrieval*, d) *text classification*, e) *content-based image classification & retrieval*, f) *classification of evolving data streams*, g) *recommender systems*, h) fairness in classification

I have published > **20 papers** on the above topics - attracting > **1100 citations** (according to Google scholar) - including articles in top-tier journals (JMLR, Machine Learning, IEEE TMM) and conferences (IJCAI, ECML PKDD, WWW, ICMR).

Below you can find a list of selected publications. For a complete list of publications check my Google scholar profile.

SELECTED PUBLICATIONS      E. Krasanakis, E. Spyromitros-Xioufis, S. Papadopoulos, Y. Kompatsiaris  
Adaptive Sensitive Reweighting to Mitigate Bias in Fairness-aware Classification  
*WWW*, 2018 (**acceptance rate 14.8%**)  
E. Spyromitros-Xioufis, G. Tsoumakas, W. Groves, I. Vlahavas  
Multi-target regression via input space expansion: treating targets as inputs  
*Machine Learning*, 2016  
E. Spyromitros-Xioufis, S. Papadopoulos, A. Popescu, Y. Kompatsiaris  
Personalized Privacy-aware Image Classification  
*ACM ICMR*, New York, USA, 2016 (**acceptance rate 16%**)  
E. Spyromitros-Xioufis, S. Papadopoulos, Y. Kompatsiaris, G. Tsoumakas, I. Vlahavas  
A comprehensive study over VLAD and Product Quantization in large-scale image retrieval  
*IEEE Transactions on Multimedia*, 2014  
G. Tsoumakas, E. Spyromitros-Xioufis, A. Vrekou, I. Vlahavas  
Multi-target regression via random linear target combinations  
*ECML PKDD 2014*, Nancy, France, 2014 (**acceptance rate 23%**).  
E. Spyromitros-Xioufis, M. Spiliopoulou, G. Tsoumakas, I. Vlahavas  
Dealing with concept drift and class imbalance in multi-label stream classification  
*IJCAI 2011*, Barcelona, Spain, 2011 (**acceptance rate 17%**)  
G. Tsoumakas, E. Spyromitros-Xioufis, J. Vilcek, I. Vlahavas  
Mulan: a java library for multi-label learning  
*Journal of Machine Learning Research*, 2011

JOURNAL / CONFERENCE REVIEWER      **Journals:** JMLR, Machine Learning, IEEE TKDE, CVIU, IEEE TMM, Information Sciences, IEEE TIP, Neurocomputing, Im. Com., ADAC, The R Journal, AUSE

**Conferences:** ECML PKDD 2014, ACM Multimedia 2015, ACM Multimedia 2016/2017/2018 (PC Member), ICMR 2015/2016/2017, SISAP 2016, ECIR 2017, ESANN 2017

PROFESSIONAL  
EXPERIENCE

**Postdoctoral Research Fellow** **Jul 2016 - Apr 2018**  
**Research Associate** **Jan 2012 - Jun 2016**

Information Technologies Institute - Center for Research and Technology Hellas  
- Worked on three EU funded projects (SocialSensor, USEMP and hackAIR) organizing research efforts, conducting basic research and delivering prototype implementations. Research topics range from large-scale image retrieval to search results diversification, privacy-aware image classification, inference of personal user attributes based on online behavior and air quality estimation from social images and Twitter activity.

**Web Developer** **Jan 2008 - Dec 2010**  
Undertook the development of e-shops and web portals as a freelancer.  
- [www.csd.auth.gr](http://www.csd.auth.gr), [www.greekrocks.com](http://www.greekrocks.com), [www.bobgriffis.com](http://www.bobgriffis.com)

SELECTED  
PROJECTS

**Mulan:** is a java library for multi-label learning. One of the main developers of the project. Implemented numerous multi-label classification algorithms and evaluation measures. Extended the library with multi-target regression functionality and methods. Wrote documentation and unit-tests. Work done while at Aristotle University.

**hackAIR:** is an EU-funded project aiming to develop an open technology platform for citizen observatories on air quality. I was responsible for the development of an image-based air quality estimation pipeline consisting of automated sky detection and localization using deep neural networks. I also applied text mining algorithms for Twitter-based air quality prediction. Work done while at ITI-CERTH.

**USEMP:** was an EU-funded project aiming to develop a framework to empower OSN users by enhancing their control over their shared data. My key contribution was the implementation of a [privacy-aware image classification](#) module and a personal user attribute inference module and their integration to the project's web application (Databait). Work done while at ITI-CERTH.

**SocialSensor:** was an EU-founded project on the collection, processing, and aggregation of big streams of social media data to discover trends, events, influencers, and interesting media content. My key contribution was the development of a [large-scale image indexing and search framework](#). Work done while at ITI-CERTH.

DATA MINING  
CONTESTS AND  
AWARDS

In the past I have participated in several Data Mining contests with very good results - receiving distinctions from the Aristotle University in 2011 ([see here](#)) and the Greek Ministry of Education in 2012 ([see here](#)) for some of these achievements. Below is a list of my best results, see the contests-awards section of my website for more details.

- **MediaEval 2015 - Retrieving Diverse Social Images Task** **Oct 2015**  
Best run in the single-topic category, 2nd run overall
- **MediaEval 2014 - Retrieving Diverse Social Images Task** **Oct 2014**  
Best visual-only run, best visual+textual run, 3rd text-only run
- **WISE 2014** **Jul 2014**  
7th place + Kaggle master badge!
- **MediaEval 2013 - Retrieving Diverse Social Images Task** **Oct 2013**  
Best visual-only run, 3rd run overall
- **JRS 2012** **Mar 2012**  
9th place
- **ImageCLEF 2011 - Photo-annotation** **Sep 2011**  
1st place in concept-based retrieval sub-task.
- **ECML PKDD 2011 Discovery Challenge** **Aug 2011**  
2nd place in cold-start recommendations task + 700 euro prize

	<ul style="list-style-type: none"> <li>• <b>Data Mining Cup 2011</b> <span style="float: right;"><b>Jun 2011</b></span> 7th place + 1000 dollars travel prize</li> <li>• <b>ISMIS 2011 Contest on Music Information Retrieval</b> <span style="float: right;"><b>Mar 2011</b></span> 1st place in instruments recognition track + 1000 dollars prize</li> </ul>
SCHOLARSHIPS AND GRANTS	<ul style="list-style-type: none"> <li>• <b>ESIF grant for young scientists</b> <span style="float: right;"><b>Dec 2017</b></span> Our research proposal “Information theoretic feature selection for multi-target regression” received a competitive (top 10%) ESIF grant.</li> <li>• <b>PhD excellence scholarship</b> <span style="float: right;"><b>Sep 2012</b></span> During the academic year 2011-2012 I received a PhD excellence scholarship from the Research Committee of the Aristotle University of Thessaloniki.</li> <li>• <b>CLEF scholarship</b> <span style="float: right;"><b>Sep 2011</b></span> Sponsored by PetaMedia Network of Excellence, European Science Foundation (ESF). CLEF 2011, Amsterdam, The Netherlands.</li> <li>• <b>ECML PKDD conference grant</b> <span style="float: right;"><b>Sep 2011</b></span> Sponsored by the Hellenic Artificial Intelligence Society (EETN). ECML PKDD 2011, Athens, Greece.</li> <li>• <b>IJCAI scholarship</b> <span style="float: right;"><b>July 2011</b></span> Sponsored by the IJCAI Organization and its Artificial Intelligence Journal (AIJ) Division. IJCAI 2011, Barcelona, Spain.</li> <li>• <b>Erasmus scholarship</b> <span style="float: right;"><b>Oct 2010</b></span> From the Greek State Scholarships Foundation to continue my master’s program at the Otto-von-Guericke University of Magdeburg.</li> <li>• <b>MLSS scholarship</b> <span style="float: right;"><b>Jul 2010</b></span> Sponsored by PASCAL2 Network of Excellence. 2nd Machine Learning bootcamp of the European Network of Excellence PASCAL (Pattern Analysis, Statistical modelling and ComputAtional Learning), Marseille, France.</li> </ul>
TEACHING EXPERIENCE	<p><b>School of Informatics, Aristotle University of Thessaloniki</b></p> <p><i>Teaching Assistant</i> <span style="float: right;"><b>Jan 2011 - Dec 2014</b></span></p> <ul style="list-style-type: none"> <li>• Advance Machine Learning and Knowledge Discovery (postgraduate course) <ul style="list-style-type: none"> <li>• Spring Semester 2011, 2012</li> </ul> </li> <li>• Machine Learning (postgraduate course) <ul style="list-style-type: none"> <li>• Winter Semester 2011, 2012, 2013</li> </ul> </li> <li>• Artificial Intelligence (undergraduate course) <ul style="list-style-type: none"> <li>• Spring Semester 2013, 2014</li> </ul> </li> <li>• Decision Support Theory and Systems (undergraduate course) <ul style="list-style-type: none"> <li>• Winter Semester 2011</li> </ul> </li> <li>• Object Oriented Programming (undergraduate course) <ul style="list-style-type: none"> <li>• Spring Semester 2011</li> </ul> </li> </ul>
LANGUAGES	Greek (native), English (full professional), German (elementary)
SOFTWARE SKILLS	<p>Programming languages:</p> <ul style="list-style-type: none"> <li>• Java (expert), Python (good), PHP/SQL (good), C/C++/C#/JavaScript (basic)</li> </ul> <p>Data mining and statistical libraries/tools:</p> <ul style="list-style-type: none"> <li>• Weka/Mulan (expert), scikit-learn (good), Matlab/R/SPSS (medium), Tensor-Flow (basic)</li> </ul> <p>Technologies:</p> <ul style="list-style-type: none"> <li>• Web services (RESTful web services with Jersey/JAX-RS), NoSQL stores (MongoDB, BerkleyDB), Relational Databases (MySQL)</li> </ul> <p>Productivity applications:</p> <ul style="list-style-type: none"> <li>• T<sub>E</sub>X, most common productivity packages (for Windows and Linux platforms)</li> </ul>

Operating Systems:

- Windows and Linux

REFEREREREES

**Dr. Yiannis Kompatsiaris** (e-mail: [ikom@iti.gr](mailto:ikom@iti.gr))

- Senior Researcher, ITI-CERTH
- ★ *Dr. Kompatsiaris supervises my work at ITI-CERTH*

**Dr. Ioannis Vlahavas** (e-mail: [vlahavas@csd.auth.gr](mailto:vlahavas@csd.auth.gr))

- Professor, School of Informatics, Aristotle University of Thessaloniki
- ★ *Dr. Vlahavas was the supervisor of my Ph.D.*

**Dr. Myra Spiliopoulou** (e-mail: [myra@iti.cs.uni-magdeburg.de](mailto:myra@iti.cs.uni-magdeburg.de))

- Professor, Faculty of Computer Science, OVGU, Magdeburg
- ★ *Dr. Spiliopoulou supervised my master thesis in OVGU*