

# Fragkiskos D. Malliaros

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PERSONAL INFORMATION	<i>First Name:</i> Fragkiskos <i>Last Name:</i> Malliaros <i>Father's Name:</i> Dimitrios	<i>Date of Birth:</i> 7 November 1985 <i>Place of Birth:</i> Sparta, Greece <i>Citizenship:</i> Greek
RESEARCH INTERESTS	Data mining, data science, algorithmic data analysis, graph mining, social network analysis, pattern discovery, applied machine learning, databases, data management, design and analysis of algorithms	
CURRENT POSITION	Research assistant at <b>École Polytechnique</b> , France	
EDUCATION	<b>École Polytechnique</b> , Palaiseau, Paris area, France <ul style="list-style-type: none"><li>Ph.D. Student in Computer Science, February 2012 - September 2015 Thesis title: "Mining Social and Information Networks: Dynamics and Applications" Mention: "Très honorable" Advisor: Michalis Vazirgiannis, Professor</li></ul> <b>University of Patras</b> , Patras, Greece <ul style="list-style-type: none"><li>M.Sc. in Computer Science &amp; Engineering, October 2009 - July 2011 Thesis title: "Structural analysis of time-evolving graphs: properties, models and applications" Advisor: Vasileios Megalooikonomou, Professor GPA: 9.75/10</li><li>Diploma in Computer Engineering and Informatics, October 2004 - July 2009 Thesis title: "Parameter-free data mining techniques" Advisor: Vasileios Megalooikonomou, Professor GPA: 8.26/10 (ranked 5<sup>th</sup> out of approx. 270 students)</li></ul>	
AWARDS / HONORS	<b>Google European Doctoral Fellowship</b> <ul style="list-style-type: none"><li>Awarded the 2012 <i>Google Europe Fellowship in Graph Mining</i> (3-year bursary) [15 fellowships were awarded in Europe, 40 worldwide]</li></ul> <b>Intra-University Research Network in Web Science, University of Patras</b> <ul style="list-style-type: none"><li>My M.Sc. thesis was awarded for being one of the best theses in the area of Web Science and Future Internet for the academic year 2010-2011</li></ul> <b>Department of Computer Engineering and Informatics, University of Patras</b> <ul style="list-style-type: none"><li>Graduated 5<sup>th</sup> out of approx. 270 students of my class</li></ul> <b>Greek State Scholarships Foundation (IKY)</b> <ul style="list-style-type: none"><li>Performance award (€1,450) for ranking 3<sup>rd</sup> out of approx. 270 students in the academic year 2007-08 (4<sup>th</sup> year of my studies)</li><li>Honorable mention for ranking 4<sup>th</sup> out of approx. 270 students in the academic year 2006-07 (3<sup>rd</sup> year of my studies)</li></ul> <b>Eurobank EFG Group, "Great Moment for Education" program</b> <ul style="list-style-type: none"><li>Award for achieving the highest grade of my school at the pan-Hellenic university admission examinations</li></ul>	<b>Sep. 2012</b> <b>April 2012</b> <b>July 2009</b> <b>2007, 2008</b> <b>Oct. 2003</b>

	<b>Greek Ministry of Education</b>	<b>1997-2003</b>
	<ul style="list-style-type: none"> <li>Greek Ministry of Education awards for excellence in high school (1997-2003)</li> </ul>	
RESEARCH EXPERIENCE	<b>Computer Science Laboratory (LIX), École Polytechnique, France</b>	<b>Feb. 2012 - present</b>
	<ul style="list-style-type: none"> <li><i>Research Assistant, Data Science and Mining (DaSciM) Group</i> Advisor: Prof. Michalis Vazirgiannis Ongoing research on mining and analyzing large-scale real-world networks.</li> <li><i>Data Scientist</i> (July 2013 - April 2014) Work on a data science project in collaboration with AIRBUS. Analysis of flight report data that are generated by an aircraft, towards performing data exploration and failure occurrence prediction.</li> </ul>	
	<b>Palo Alto Research Center (PARC), California, USA</b>	<b>June 2014 - Aug. 2014</b>
	<ul style="list-style-type: none"> <li><i>Research Intern, Interaction and Analytics Laboratory</i> Advisors: Dr. Juan (Julia) Liu and Dr. Sricharan Kumar Work on the problem of anomaly detection in social networks.</li> </ul>	
	<b>Computer Engineering and Informatics Dept., University of Patras, Greece</b>	<b>Sep. 2009 - Jan. 2012</b>
	<ul style="list-style-type: none"> <li><i>Research Assistant, Multidimensional Data Analysis and Knowledge Management Group</i> Participation in the EC FP7-ICT ARMOR project (Advanced multi-parametric Monitoring and analysis for diagnosis and Optimal management of epilepsy and Related brain disorders); Assisted in several EU and national research proposals; Systems Administrator</li> <li><i>M.Sc. Thesis</i> Title: <i>Structural analysis of time-evolving graphs: properties, models and applications</i> Committee: Prof. Efstratios Gallopoulos, Prof. Vasileios Megalooikonomou, and Prof. Christos Zaroliagis</li> </ul>	
PUBLICATIONS	<b>Journal Articles</b>	
	<ul style="list-style-type: none"> <li>Fragkiskos D. Malliaros and Michalis Vazirgiannis. Vulnerability Assessment in Social Networks under Cascade-Based Node Departures. <i>Europhysics Letters (EPL)</i>, 110(6): 68006, IOP Science, 2015. (Impact Factor: 2.095).</li> <li>Fragkiskos D. Malliaros, Vasileios Megalooikonomou and Christos Faloutsos. Estimating Robustness in Large Social Graphs. <i>Knowledge and Information Systems (KAIS)</i>, 45(3): 645–678, Springer, 2015. (Impact Factor: 1.782).</li> <li>Fragkiskos D. Malliaros and Michalis Vazirgiannis. Clustering and Community Detection in Directed Networks: A Survey. <i>Physics Reports</i>, 533(4): 95–142, Elsevier, 2013. (Impact Factor: 22.929).</li> </ul>	
	<b>Conference Papers</b>	
	<ul style="list-style-type: none"> <li>Fragkiskos D. Malliaros, Konstantinos Skianis and Michalis Vazirgiannis. Graph-Based Term Weighting for Text Categorization. In Proceedings of the <i>IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Social Media and Risk Workshop</i>, Paris, France, 2015.</li> <li>Fragkiskos D. Malliaros and Michalis Vazirgiannis. Disengagement Social Contagion: Assessing Network Vulnerability under Node Departures. In Proceedings of the <i>International Conference on Computational Social Science (ICCSS)</i>, Helsinki, Finland, 2015.</li> <li>Maria-Evgenia G. Rossi, Fragkiskos D. Malliaros, and Michalis Vazirgiannis. Spread it Good, Spread it Fast: Identification of Influential Nodes in Social Networks. In Proceedings of the <i>24<sup>th</sup> International World Wide Web Conference (WWW)</i>, Florence, Italy, 2015.</li> </ul>	

- Christos Giatsidis, Fragkiskos D. Malliaros, Dimitrios M. Thilikos and Michalis Vazirgiannis. CoreCluster: A Degeneracy Based Graph Clustering Framework. In Proceedings of the 28<sup>th</sup> AAAI Conference on Artificial Intelligence (AAAI), Québec City, Canada, 2014.
- Fragkiskos D. Malliaros and Michalis Vazirgiannis. To Stay or Not to Stay: Modeling Engagement Dynamics in Social Graphs. In Proceedings of the 22<sup>nd</sup> ACM International Conference on Information and Knowledge Management (CIKM), San Francisco, California, 2013. (Full Paper; Acceptance Rate: 16.8%).
- Amalia Charisi, Fragkiskos D. Malliaros, Evangelia I. Zacharaki, and Vasileios Megalooikonomou. Multiresolution Similarity Search in Time Series Data: An Application to EEG Signals. In Proceedings of the 6<sup>th</sup> ACM International Conference on Pervasive Technologies Related to Assistive Environments (PETRA), Island of Rhodes, Greece, 2013.
- Fragkiskos D. Malliaros, Vasileios Megalooikonomou, and Christos Faloutsos. Fast Robustness Estimation in Large Social Graphs: Communities and Anomaly Detection. In Proceedings of the 2012 SIAM International Conference on Data Mining (SDM), Anaheim, CA, 2012.
- Fragkiskos D. Malliaros and Vasileios Megalooikonomou. Expansion Properties of Large Social Graphs. In Proceedings of the 2<sup>nd</sup> DASFAA International Workshop on Social Networks and Social Media Mining on the Web (SNSMW), Hong Kong, 2011.

### Tutorials

- Fragkiskos D. Malliaros\*, Michalis Vazirgiannis\* and Apostolos Papadopoulos\*. Core Decomposition: Algorithms and Applications. In Proceedings of the IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Paris, France, 2015.
- Christos Giatsidis\*, Fragkiskos D. Malliaros\*, and Michalis Vazirgiannis\*. Community Detection and Evaluation in Social and Information Networks (Tutorial). In Proceedings of the 15<sup>th</sup> International Conference on Web Information System Engineering (WISE), Thessaloniki, Greece, 2014.
- Christos Giatsidis\*, Fragkiskos D. Malliaros\*, and Michalis Vazirgiannis\*. Graph Mining Tools for Community Detection and Evaluation in Social Networks and the Web (Tutorial). In Proceedings of the 22<sup>nd</sup> International World Wide Web Conference (WWW), Rio de Janeiro, Brazil, 2013.
- Christos Giatsidis\*, Fragkiskos D. Malliaros\*, and Michalis Vazirgiannis\*. Advanced Graph Mining for Community Evaluation in Social Networks and the Web (Tutorial). In Proceedings of the 6<sup>th</sup> ACM International Conference on Web Search and Data Mining (WSDM), Rome, Italy, 2013.

### Other

- Christos Giatsidis\*, Fragkiskos D. Malliaros\*, and Michalis Vazirgiannis\*. Community Detection and Evaluation in Real Graphs. Tutorial at 8<sup>th</sup> Hellenic Conference on Artificial Intelligence (SETN), Ioannina, Greece, 2014.
- Christos Giatsidis\*, Fragkiskos D. Malliaros\*, François Rousseau\* and Michalis Vazirgiannis\*. Search in BigData<sup>2</sup> – When Big Text meets Big Graph (Position paper). World Summit on Big Data and Organization Design, Paris, France, 2013.
- Fragkiskos D. Malliaros and Vasileios Megalooikonomou. Parameter-Free Data Mining Techniques. In Proceedings of the 3<sup>rd</sup> Panhellenic Scientific Student Conference on Informatics, Related Technologies and Applications (EUREKA), Corfu, Greece, 2009.

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\*: Equal contribution; authors in alphabetical order.

TEACHING  
EXPERIENCE

### Instructor in Guest Lectures

- Graph and Text Mining  
Topics: Text and Graph Mining with Python (Laboratory; 6 hours)  
Professional training program in Orange offered by École Polytechnique, France

**Spring 2015**

- Graph and Text Mining **Fall 2014**  
Topic: Graph Mining and Analysis with Python (Laboratory; 3 hours)  
Professional Training Program: *Data Science Starter Program (DSSP)*, École Polytechnique, France
- Advanced Machine Learning **Spring 2014**  
Topic: Learning in Graphs: Applications to Community Mining (Theory and Laboratory; 5 hours)  
Professional Masters Degree in *Big Data: Management and Analysis of Massive Data*, Télécom Paris-Tech, France

#### Teaching Assistant

- Data Science and Mining **Winter 2014**  
Master 1 Course, École Polytechnique  
Instructor: Prof. Michalis Vazirgiannis
- Advanced Learning for Text and Graph Data **Spring 2014, Spring 2015**  
M.Sc. Program in *Mathematics, Vision, Learning (MVA)*, ENS Cachan, France  
M.Sc. Program in *Mathematics for Data Science and Big Data*, École Polytechnique and Télécom ParisTech, France  
Instructor: Prof. Michalis Vazirgiannis
- Machine Learning for Big Data **Spring 2014**  
M.Sc. Program in *Conception & Management of Complex Informatic Systems*, École Polytechnique  
Instructor: Prof. Michalis Vazirgiannis
- Databases I **Fall 2009, Fall 2010**  
University of Patras, Greece  
Instructor: Prof. Vasileios Megalooikonomou
- Databases II **Spring 2010, Spring 2011**  
University of Patras, Greece  
Instructor: Prof. Vasileios Megalooikonomou
- Undergraduate laboratory of “Digital Design” **Spring 2007**  
University of Patras, Greece  
Instructor: Prof. George Alexiou

#### GRADUATE COURSEWORK

Special Topics in Spatial and Temporal Databases and Knowledge Discovery, Multimedia Databases, Computational Linguistics and Natural Language Processing, Methods and Technologies for Handling Massive Datasets, Approximation Algorithms, Advanced Communication Algorithms, High Speed Telecommunication Networks

*Additional Coursework (Coursera):*

Social Network Analysis (Statement of Accomplishment; University of Michigan; Prof. Lada Adamic)

#### TECHNICAL SKILLS **Operating Systems:** Unix/Linux, Windows

**Programming Languages:** Python, Matlab, C, C++ (Libraries: STL, LEDA, Boost), Java, HTML, PHP, LISP

**Databases:** MySQL, PostgreSQL

**Applications:**  $\text{\LaTeX}$  and other common productivity packages for Linux and Windows platforms

#### STUDENTS MENTORED

- Skianis Konstantinos. Student Internship at École Polytechnique (April 2015 - present).
- Marc Mitri. Student Internship at École Polytechnique (April 2015 - September 2015).
- Maria-Evgenia Rossi. Ph.D. student at École Polytechnique (February 2014 - present).

## TALKS

- Disengagement Social Contagion: Assessing Network Vulnerability under Node Departures. Oral presentation at the International Conference on Computational Social Science (ICCSS), Helsinki, Finland, 2015.
- Predicting Quitting Behavior in Enterprise Social Networks. Palo Alto Research Center (PARC), Palo Alto, California, August 2014.
- Robustness and Engagement Dynamics in Social Graphs. Palo Alto Research Center (PARC), Palo Alto, California, June 2014.
- To Stay or Not to Stay: Modeling Engagement Dynamics in Social Graphs.
  - Oral presentation at 22<sup>nd</sup> ACM International Conference on Information and Knowledge Management (CIKM), San Francisco, California, October 2013.
  - Presentation at Google Zürich, September 2013.
- Big Graph and Text Mining. DigiCosme Research day, Université Paris-Sud, Paris, France, July 2013.
- Graph Mining Tools for Community Detection and Evaluation in Social Networks and the Web. Tutorial at 22<sup>nd</sup> International World Wide Web Conference (WWW), Rio de Janeiro, Brazil, May 2013.
- Advanced Graph Mining for Community Evaluation in Social Networks and the Web. Tutorial at 6<sup>th</sup> ACM International Conference on Web Search and Data Mining (WSDM), Rome, Italy, February 2013.
- Fast Robustness Estimation in Large Social Graphs: Communities and Anomaly Detection.
  - Optimization Seminar, École Polytechnique, Paris, France, November 2012.
  - DBWeb group seminar, Télécom ParisTech, Paris, France, May 2012.
  - SIAM International Conference on Data Mining (SDM), Anaheim, CA, April 2012.
- Expansion Properties of Large Social Graphs. 2<sup>nd</sup> DASFAA International Workshop on Social Networks and Social Media Mining on the Web (SNSMW), Hong Kong, April 2011.
- Parameter-Free Data Mining Techniques. 3<sup>rd</sup> Panhellenic Scientific Student Conference on Informatics, Related Technologies and Applications (EUREKA), Corfu, Greece, September 2009.

## PROFESSIONAL SERVICE

Program Committee Member:

- Social Media and Risk Workshop (SoMeRiS), IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Paris, France, 2015.

External reviewer for:

- AAAI Conference on Artificial Intelligence (AAAI): 2015
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD): 2011, 2013, 2014
- International Symposium on Experimental Algorithms (SEA): 2013
- International World Wide Web Conference (WWW): 2013, 2014
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD): 2012, 2013, 2014
- IEEE/ACM Int. Conference on Advances in Social Networks Analysis and Mining (ASONAM): 2012, 2014
- SIAM International Conference on Data Mining (SDM): 2012

Journal referee for:

- Data Mining and Knowledge Discovery (DAMI): 2014, 2015
- Social Network Analysis and Mining (SNAM): 2015
- IEEE Transactions on Knowledge and Data Engineering (TKDE): 2012, 2014
- Physics Letters A (Elsevier): 2014
- IEEE Internet Computing (Special Issue on Web and Social Graph Mining): 2014
- ACM Transactions on Knowledge Discovery from Data (TKDD): 2012
- Intelligent Data Analysis - An International Journal (IDA): 2012, 2013
- Information Retrieval (Springer): 2011
- Pattern Recognition (Elsevier): 2010

Event organization:

- Participation in the organization of the *Computer Science Laboratory (LIX) Colloquium on Data Science*, École Polytechnique, Palaiseau, November 28, 2014.  
(Webpage: <http://www.lix.polytechnique.fr/dascim/colloquium2014/>).
- Participation in the organization of the *Data Science in the Big Data Era (DSBDE) Workshop*, Paris, July 17, 2013.  
(Webpage: <http://www.lix.polytechnique.fr/dascim/dsbde/>).

ADDITIONAL  
PROFESSIONAL  
EXPERIENCE

**Licensed Electronic and Computer Engineer**

**October 2009 - present**

- Member of the Technical Chamber of Greece

LANGUAGES

- Greek (Native)
- English
- French (Beginner)

PERSONAL  
INTERESTS

Playing football and basketball, biking, hiking, dancing

REFERENCES

References available upon request