

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, text mining, pattern discovery, applied machine learning, databases, data management, design and analysis of algorithms	
ACADEMIC APPOINTMENTS	University of California, San Diego, USA • Data Science Postdoctoral Scholar Department of Computer Science and Engineering, Artificial Intelligence group Member of the Qualcomm Institute and the Information Theory and Applications Center (ITA) École Polytechnique, France • Postdoctoral Researcher; Computer Science Laboratory (LIX) Conducting research in data science projects mainly involving graph mining, social networks analysis and text analytics; teaching data mining courses and supervising students	Oct. 2016 - present Oct. 2015 - Sept. 2016
EDUCATION	École Polytechnique, Palaiseau, Paris area, France • Ph.D. in Computer Science, February 2012 - September 2015 Thesis title: "Mining Social and Information Networks: Dynamics and Applications" Mention: "Très honorable" Advisor: Michalis Vazirgiannis, Professor University of Patras, Patras, Greece • M.Sc. in Computer Science & 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 • 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 th out of approx. 270 students)	
AWARDS / HONORS	Thesis Prize (Prix de thèse), École Polytechnique • One of the best Ph.D. Dissertations in École Polytechnique for 2015 Google European Doctoral Fellowship • Awarded the 2012 Google Europe Fellowship in Graph Mining (3-year bursary) [15 fellowships were awarded in Europe, 40 worldwide] Intra-University Research Network in Web Science, University of Patras • 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	June 2016 Sep. 2012 April 2012

- Department of Computer Engineering and Informatics, University of Patras** **July 2009**
- Graduated 5th out of approx. 270 students of my class
- Greek State Scholarships Foundation (IKY)** **2007, 2008**
- Performance award (€1,450) for ranking 3rd out of approx. 270 students in the academic year 2007-08 (4th year of my studies)
 - Honorable mention for ranking 4th out of approx. 270 students in the academic year 2006-07 (3rd year of my studies)
- Eurobank EFG Group, “Great Moment for Education” program** **Oct. 2003**
- Award for achieving the highest grade of my school at the pan-Hellenic university admission examinations
- Greek Ministry of Education** **1997-2003**
- Greek Ministry of Education awards for excellence in high school (1997-2003)

RESEARCH
EXPERIENCE

- Computer Science Laboratory (LIX), École Polytechnique, France** **Feb. 2012 - Sept. 2016**
- *Research Assistant, Data Science and Mining (DaSciM) Group*
Advisor: Prof. Michalis Vazirgiannis
Research on mining and analyzing large-scale real-world networks.
 - *Data Scientist* (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.
- Palo Alto Research Center (PARC), California, USA** **June 2014 - Aug. 2014**
- *Research Intern, Interaction and Analytics Laboratory*
Advisors: Dr. Juan (Julia) Liu and Dr. Sricharan Kumar
Work on the problem of anomaly detection in social networks.
- Computer Engineering and Informatics Dept., University of Patras, Greece** **Sept. 2009 - Jan. 2012**
- *Research Assistant, Multidimensional Data Analysis and Knowledge Management Group*
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
 - *M.Sc. Thesis*
Title: *Structural analysis of time-evolving graphs: properties, models and applications*
Committee: Prof. Efstratios Gallopoulos, Prof. Vasileios Megalooikonomou, and Prof. Christos Zaroliagis

PUBLICATIONS

Journal Articles

- Fragkiskos D. Malliaros, Maria-Evgenia G. Rossi and Michalis Vazirgiannis. Locating Influential Nodes in Complex Networks. *Scientific Reports*, 6(19307) Nature Publishing Group, 2016. (Impact Factor: 5.578).
- Fragkiskos D. Malliaros and Michalis Vazirgiannis. Vulnerability Assessment in Social Networks under Cascade-Based Node Departures. *Europhysics Letters (EPL)*, 110(6): 68006, IOP Science, 2015. (Impact Factor: 2.095).
- Fragkiskos D. Malliaros, Vasileios Megalooikonomou and Christos Faloutsos. Estimating Robustness in Large Social Graphs. *Knowledge and Information Systems (KAIS)*, 45(3): 645–678, Springer, 2015. (Impact Factor: 1.782).

- Fragkiskos D. Malliaros and Michalis Vazirgiannis. Clustering and Community Detection in Directed Networks: A Survey. *Physics Reports*, 533(4): 95–142, Elsevier, 2013. (Impact Factor: 22.929).

Conference Papers

- Konstantinos Skianis, Maria-Evgenia G. Rossi, Fragkiskos D. Malliaros and Michalis Vazirgiannis. SPREADVIZ: Analytics and Visualization of Spreading Processes in Social Networks. In Proceedings of the *IEEE International Conference on Data Mining (ICDM)*, Barcelona, Spain, 2016. (Demo Paper; To Appear).
- Antoine J.-P. Tixier, Fragkiskos D. Malliaros and Michalis Vazirgiannis. A Graph Degeneracy-based Approach to Keyword Extraction. In Proceedings of the *2016 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, Austin, Texas, 2016. (Long Paper; To Appear).
- Fragkiskos D. Malliaros, Konstantinos Skianis and Michalis Vazirgiannis. Graph-Based Term Weighting for Text Categorization. In Proceedings of the *IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM), Social Media and Risk Workshop*, Paris, France, 2015.
- Fragkiskos D. Malliaros and Michalis Vazirgiannis. Disengagement Social Contagion: Assessing Network Vulnerability under Node Departures. In Proceedings of the *International Conference on Computational Social Science (ICCSS)*, Helsinki, Finland, 2015.
- 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 *24th International World Wide Web Conference (WWW)*, Florence, Italy, 2015.
- Christos Giatsidis, Fragkiskos D. Malliaros, Dimitrios M. Thilikos and Michalis Vazirgiannis. CoreCluster: A Degeneracy Based Graph Clustering Framework. In Proceedings of the *28th 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 *22nd 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 *6th 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 *2nd DASFAA International Workshop on Social Networks and Social Media Mining on the Web (SNSMW)*, Hong Kong, 2011.

Tutorials

- Fragkiskos D. Malliaros*, Apostolos Papadopoulos*, and Michalis Vazirgiannis*. Core Decomposition of Networks: Concepts, Algorithms and Applications. In Proceedings of the *IEEE International Conference on Data Mining (ICDM)*, Barcelona, Spain, 2016. (To Appear).
- Fragkiskos D. Malliaros*, Apostolos Papadopoulos*, and Michalis Vazirgiannis*. Core Decomposition in Graphs: Concepts, Algorithms and Applications. In Proceedings of the *18th International Conference on Extending Database Technology (EDBT)*, Bordeaux, France, 2016.
- 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 15th *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 22nd *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 6th *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 8th *Hellenic Conference on Artificial Intelligence (SETN)*, Ioannina, Greece, 2014.
- Christos Giatsidis*, Fragkiskos D. Malliaros*, François Rousseau* and Michalis Vazirgiannis*. Search in BigData² – 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 3rd *Panhellenic Scientific Student Conference on Informatics, Related Technologies and Applications (EUREKA)*, Corfu, Greece, 2009.

*: Equal contribution; authors in alphabetical order.

TEACHING EXPERIENCE

Instructor in Guest Lectures

- Graph and Text Mining **Spring 2015**
Topics: Text and Graph Mining with Python (Laboratory; 6 hours)
Professional training program in Orange offered by École Polytechnique, France
- 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, Winter 2015**
Master 1 Course, École Polytechnique
Instructor: Prof. Michalis Vazirgiannis
- Advanced Learning for Text and Graph Data **Spring 2014, Spring 2015, Spring 2016**
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”
University of Patras, Greece
Instructor: Prof. George Alexiou

Spring 2007

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: \LaTeX and other common productivity packages for Linux and Windows platforms

STUDENTS
MENTORED

- Laurent Nieuviarts. Student internship and Master’s thesis at École Polytechnique (April 2016 - September 2016).
- Bowen Shi. Student internship and Master’s thesis at ENSTA ParisTech and University of Pierre and Marie Curie (UPMC) (April 2016 - September 2016).
- Damien Seux. Semester project at École Polytechnique (November 2015 - March 2016).
- Konstantinos Skianis. Student internship and Master’s thesis at ENS Cachan (April 2015 - September 2015). Currently Ph.D. student at École Polytechnique (October 2015 - present).
- Marc Mitri. Student internship and Master’s thesis at École Polytechnique (April 2015 - September 2015). Currently in industry.
- Maria-Evgenia Rossi. Ph.D. student at École Polytechnique (February 2014 - present).

TALKS

- Mining Social and Information Networks. AI Seminar, UC San Diego, San Diego, CA, June 2016.
- Mining Social and Information Networks. Télécom ParisTech, Paris, France, June 2016.
- Mining Social and Information Networks. NEC Laboratories Europe, Heidelberg, Germany, April 2016.
- Degeneracy-Based Mining of Social and Information Networks: Dynamics and Applications. Complex Networks Team, Laboratoire d’Informatique de Paris 6 (LIP6), Pierre and Marie Curie University, Paris, France, April 2016.
- Degeneracy-Based Mining of Social and Information Networks: Dynamics and Applications. Center for Complex Network Research (CCNR), Network Science Institute, Northeastern University, Boston, USA, March 2016.
- Mining Social and Information Networks. Bell Labs, Alcatel-Lucent, Dublin, Ireland, October 2015.
- Disengagement Social Contagion: Assessing Network Vulnerability under Node Departures. Oral presentation at the International Conference on Computational Social Science (ICCS), 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 22nd 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 22nd 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 6th 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. 2nd DASFAA International Workshop on Social Networks and Social Media Mining on the Web (SNSMW), Hong Kong, April 2011.
- Parameter-Free Data Mining Techniques. 3rd Panhellenic Scientific Student Conference on Informatics, Related Technologies and Applications (EUREKA), Corfu, Greece, September 2009.

PROFESSIONAL
SERVICE

Organizing Committee:

- Special Session on *Natural Language Processing for Social Media Analysis*, 19th International Conference on Speech and Computer (SPECOM), University of Hertfordshire, Hatfield, UK, 2017.
- 2nd International Workshop on Data Science for Social Media and Risk (SoMeRiS '16), IEEE International Conference on Data Mining (ICDM), Barcelona, Spain, 2016.

Program Committee Member:

- 31st AAAI Conference on Artificial Intelligence (AAAI), San Francisco, California, 2017.
- 8th International Workshop on Data Engineering meets the Semantic Web (DESWeb), IEEE International Conference on Data Engineering (ICDE), San Diego, CA, 2017.
- 19th International Conference on Speech and Computer (SPECOM), University of Hertfordshire, Hatfield, UK, 2017.
- Big Network Analytics Workshop (BigNet), 25th ACM International Conference on Information and Knowledge Management (CIKM), Indianapolis, USA, 2016.
- The 7th International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN), Big Data and Big Data Science track, London, United Kingdom, 2016.
- 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:

- ACM International Conference on Information and Knowledge Management (CIKM): 2016
- 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, 2015, 2016
- 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, 2016
- 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

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