Alexandru Cristian Mara, PhD Candidate

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Nationality: Romanian Date of Birth: 30.04.1991

Education

2018 – Now **Dr. of Computer Science Engineering (Expected June 2022), Ghent University, Belgium.**
Research topic: *Network Representation Learning.*
Supervisor: *Prof. Tijl De Bie*

2015 – 2017 **M.Sc. (Hons), Computer, Communication and Information Sciences, Aalto University, Finland.** Major in Machine Learning and Data Mining.
Thesis title: *A Comparative Analysis of Graph Signal Recovery Methods for Big Data Networks.*
Supervisor: *Prof. Alexander Jung*
Graduated with honours.

2010 – 2014 **B.Eng. (Hons), Computer Engineering, Technical University of Madrid, Spain.**
Thesis title: *Autonomous User-following Drone for Aerial Footage.*
Supervisor: *Prof. Vicente A. García*
Graduated with honours. Best academic record award.

Employment History

2018 – Now **PhD Student and Teaching Assistant.** Artificial Intelligence and Data Analytics group, IDLab, Ghent University, Belgium. (Full-time)
Currently, I am part of the AIDA group at Ghent University where my work focuses on network representation learning. I am also the main developer of the EvalNE Python toolbox and assist in teaching the courses ”Big Data Science” and the ”AI Research Seminar”.

2016 – 2017 **Research and Teaching Assistant.** Machine Learning for Big Data group, School of Science and Technology, Aalto University, Finland. (Full-time)
Within the MLBD group at the School of Science of Aalto University, my work focused on semi-supervised (transductive) learning over massive Internet-scale graphs using graph signal processing techniques and tools such as GraphX, Spark and Scala. I have also contributed to the management and teaching of the course ”Machine Learning Basic Principles” with over 600 students.

2015 – 2016 **Research and Teaching Assistant.** Machine Learning for Big Data group, School of Science and Technology, Aalto University, Finland. (Part-time)
Being selected for the Honours Programme at the School of Science of Aalto University granted me the opportunity to work on a research project related to dictionary learning techniques. I also assisted in the management and teaching of the special course ”Convex Optimization for Big Data”, where I gave several lectures on Big Data Frameworks (Hadoop/Spark) and the parallelization of convex optimization methods.

Employment History (continued)

2014 – 2015 **Research Engineer.** ONTIC FP7 European project, Technical University of Madrid, Spain. (Full-time)
The main focus of the ONTIC Project was the accurate identification and categorization of network traffic according to the application type, a key element for tasks related with QoS, capacity planning and detection of network attacks. My main responsibilities within the project were investigating and implementing new feature selection and reduction algorithms, implementing new online and offline network traffic classification methods and setting up, configuring and maintaining Spark/Hadoop and Storm clusters.

2013 – 2014 **Research Intern.** Ericsson, Spain. (Part-time)
The project developed during my internship at Ericsson was related to simulation and visualization of 3G and 4G core network nodes. The internship also included a training period focused on topics such as: cellular networks, network protocols, Unix system administration, programming languages and Machine Learning.

2011 – 2013 **Teaching Assistant.** Mathematics Department of the School of Computer Systems Engineering, Technical University of Madrid, Spain. (Part-time)
Teaching assistant for weekly mathematics and physics reinforcement sessions tailored to first year Computer Science students.

Research Publications

Journal Articles

1. Jung, A., Hero, III, A. O., **Mara, A.**, Jahromi, S., Heimowitz, A., & Eldar, Y. C. (2019). Semi-supervised learning in network-structured data via total variation minimization. *IEEE Transactions on Signal Processing, 67*(24), 6256–6269.

2. Jung, A., Tran, N., & **Mara, A.** (2018). When is network lasso accurate? *Frontiers in Applied Mathematics and Statistics, 3*, 28.

Conference Proceedings

1. Adriaens, F., **Mara, A.**, Lijffijt, J., & De Bie, T. (2020). Block-approximated exponential random graphs. In *2020 IEEE 7th International Conference on Data Science and Advanced Analytics*.

2. **Mara, A.**, Lijffijt, J., & d. Bie, T. (2020). Benchmarking network embedding models for link prediction: are we making progress? In *2020 IEEE 7th International Conference on Data Science and Advanced Analytics*.

3. **Mara, A.**, Mashayekhi, Y., Lijffijt, J., & De Bie, T. (2020). CSNE: conditional signed network embedding. In *Proceedings of the 29th ACM International Conference on Information Knowledge Management*.

4. **Mara, A.** & Jung, A. (2017). Recovery conditions and sampling strategies for network lasso. In *51st asilomar conference on signals, systems and computers*. Finalist of the Asilomar 2017 best student paper contest.

5. Zhu, B., **Mara, A.**, & Mozo, A. (2015). Clus: parallel subspace clustering algorithm on spark. In T. Morzy, P. Valduriez, & L. Bellatreche (Eds.), *New trends in databases and information systems*.

Skills

Languages	Native proficiency: Romanian, Spanish and English.
Coding	Java, Scala, C, C++, C#, Python, R, MATLAB, LaTeX, Bash and VHDL.
Databases	MySQL, SQLite, MongoDB and HDFS.
Big Data Frameworks	Apache Hadoop, Apache Spark, Apache Storm and Apache Samza.
Misc.	Academic research, teaching, project funding proposal writing, team working, leadership and organization.

Awards and Achievements

2017 **Graduated with honours**, School of Science and Technology, Aalto University, Finland.

2015 **Honours Programme**, School of Science and Technology, Aalto University, Finland.

2014 **Graduated with honours**, School of Computer Systems Engineering, Technical University of Madrid, Spain.

Best Academic Record Award, School of Computer Systems Engineering, Technical University of Madrid in recognition of outstanding academic achievements throughout the years 2010-2014, Spain.

Department Prize for Outstanding Academic Performance, School of Computer Systems Engineering, Technical University of Madrid, Spain.

2011 **Excellence grant**, Scholarship awarded by the Spanish Ministry of Education, Culture and Sports in recognition of outstanding academic performance, Spain.

Department Prize for Outstanding Academic Performance, School of Computer Systems Engineering, Technical University of Madrid, Spain.