Diala Ezzeddine

Curriculum Vitae

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Education

2010 – 2014 **PhD, Computer Science (Machine Learning - Statistics)**, *ERIC Laboratory, Lumiere University Lyon 2*, France, Dissertation : *A Contribution to Topological Learning and its Application in Social Networks*.

2009 – 2010 **Master 2 Professionel, Statistics**, *Lebanese University*, Beirut, Lebanon, with distinction, 1st in class.

2008 – 2009 **Master 1, Statistics**, *Lebanese University*, Beirut, Lebanon, with distinction, 1st in class.

2002 – 2008 **Maitrise, Pure Mathematics**, *Lebanese University*, Tripoli, Lebanon.

2002 **Lebanese Baccalaureate II, General Sciences**, *Saint Joseph High School*, Miniara, North Lebanon.

November 2015 **Certificate in Algorithms .NET**, *Bellevue College*, Bellevue.

October–November 2015 **Certificate in Programming with Python 1 and 2**, *Bellevue College*, Bellevue.

Honors

2010 Full Scholarship from the Lebanese University Reserved for Top Students in the Nation

Experience

2014 – present **Data and Research Scientist**, *Red Data Science*, Bellevue, USA.
Working on variety of projects in the biomedical and e-Business field, Analyzing data and applying Machine Learning algorithms

2011 – 2014 **Teaching Assistant at the faculty of Economics and Management Lyon 2** , *Lumiere University*, Lyon, France.
Teaching Calculus ; Linear Algebra ; Probability and Statistics

2011 – 2013 **Teaching Assistant at the faculty of Science and Technology Lyon 1**, *Claude Bernard University*, Lyon, France.
Teaching Statistics ; R

2012 **Teaching Assistant at the University Institute of Technology (IUT) Lumiere Lyon 2**, Lyon, France.
Prepared the complete curriculum of the Probability and statistics for the first year Business Administration (GEA)

2006–2010 **High School teacher**, Lebanon.
Teaching Mathematics in Akkar and Beirut, Lebanon

July-August 2009 **Summer Intern : The Multiple Indicators Clusters Survey 2009**, *Central Administration of Statistics, Presidency of the Council of Ministers*, Beirut, Lebanon.
Household Survey, Used SPSS to study the women and children situation in Lebanon with the association of UNICEF

Research

My research is organized around the following themes : exploratory data analysis, machine learning, data mining and text mining. More specifically, I worked on topics of supervised and semi-supervised classification, and statistical analysis.

The aim of my PhD thesis was to study the use of neighborhood graphs where using the topology representing these graphs seems very important in the exploratory data analysis field. I applied and tested this concept using data from the UCI repository and also using real data from Twitter. I have also programmed parts of this work using the R language.

My master's thesis was about exploring the concept of structural equation modeling (SEM). Two estimation methods, Lisrel and PLS, were developed and compared. A real data set, the status of deaf women in Lebanon 2005, was used to apply SEM using LISREL8.8 program. The result was a model that draws a relationship between the state of the deaf woman in Lebanon and her psychological state and personality.

Research Projects

2016–2017 **Hypothyroidism During Pregnancy**, Worked on analyzing Biostatistical data using R. The objective of this study is to find correlation between Hypothyroidism and obstetrical complications in Lebanese Women.

2012–2014 **Political Tweet Classification**, Worked on classifying tweets of the presidential French election. This work is based on new concept, classifying tweet's author instead of tweets. Started by manually classifying a small number of authors of a large repository of tweets collected in the months leading to the elections. Then, extended this classification to the remaining authors. We verified this classification using our method based on topological graph and known methods like KNN and RF.

2012 **Graph Kernel vs. SVM Kernel**, Evaluated different graph kernels using multiple kernel quality indexes like KTA, FSM, RCEW, then compared the learning error of SVM with Graph kernel and of SVM with Gaussian and RBF kernel.

2012 **Neighborhood Random Classification**, Extending my work on topological random classifiers in 2011, used additional aggregation methods and used different tests, described in the PAKDD paper. Also created a poster summarizing this work, used to highlight Laboratoire ERIC's work during national evaluations.

2011 **Topological Random Classifiers Based on Neighborhood Graphs**, Comparing our Random Neighborhood Classification method (based on neighborhood graphs) with other key methods like SVM, Random Forest, Logistic Regression, Discriminant Analysis, and C4.5.

2010 **Structural Equation Modeling : Theoretical Aspects and Application**, M2 Research (Thesis) Project. Studied the SEM approach to equation modeling.

2009 **Using Bootstrap in Principal Component Analysis (PCA)**, M1 Research Project supervised by Prof. Genane Younes. Applied resampling methods like Bootstrapping and Jacknife with PCA using S-plus program.

Teaching

While pursuing my PhD research work, I taught Mathematics(Calculus, Linear Algebra,...), Statistics and R. Over four years, I held more than 250 hours of lectures, interactive discussion sections, and student tutoring for college students at IUT, Lumiere University, and Claude Bernard University. I also helped write and grade exams. I held office hours where I was always accessible to students who needed help.

After receiving my degree in Pure Mathematics, I taught Mathematics at two high schools and three trade schools in Lebanon over more than five years, in addition to private tutoring.

Skills

R, SPSS, SAS, GeoGebra, LISREL, PYTHON, Basic knowledge of SQL, C#, and JAVA

Publications

May 2017 **Prevalence and Correlation of Hypothyroidism with Pregnancy Outcomes among Lebanese Women**, Journal of the Endocrine Society (2017), with Dima Ezzedine ; Ghina Ghazeeri ; Caroline Hamadi ; Hussein A. Abbas ; Anwar Nassar ; May Abiad.

October 2014 **New Approach to Detect the Political Opinion in Tweets**, Proceedings of the Joint Conference on Robotics and Intelligent Systems (JCRIS2014), Sao Paulo, Brazil, 2014, with D.A. Zighed and F. Rico.

August 2013 **Topological learning with geometric graphs**, Proceedings of the Joint Meeting of the IASC Conference, Yonsei University, Seoul, Korea, 2013, with D.A. Zighed and F. Rico.

August 2013 **Neighborhood Random Classification**, Proceedings of the Geometric Science of Information 2013 conference (GSI 2013), Paris, France, with D.A. Zighed and F. Rico.

June 2012 **Neighborhood Random Classification**, Proceedings of the 16th Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2012, Kualalampur, Malaysia. June 2012, with D.A. Zighed and F. Rico.

July 2010 **Les modèles d'équations structurelles : Aspects théoriques et application à des données portant sur la situation sociale de la femme sourde au Liban.**, *Structural Equation Modeling : Theoretical Aspects and Applications using Data about the Social Status of Deaf Women in Lebanon*, Memoire M2 (thesis). July 2010.