

# Lina Fahed | Postdoc Researcher

## Machine Learning – Data Mining

Nationality: French

Computer Science dept., IMT Atlantique, Univ. Bretagne Loire, F-29238 Brest, France

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My Academic Page – My Google Scholar Page

### Education

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#### PhD in Computer Science (Data Mining)

Nancy, France

Lorraine University. Directors: Anne Boyer, Armelle Brun

Nov. 2012 – Oct. 2016

Entitled: "Prediction and influence of the occurrence of events in a complex sequence"

#### Master (research) in Computer Science

Strasbourg, France

Strasbourg University, Speciality: "Software & Knowledge Engineering"

Sept. 2011 – Aug. 2012

#### Engineering degree in Computer Science (5 years study)

Lattakia, Syria

Tichrine University, Faculty of Information Engineering

Sept. 2003 – Aug. 2008

Speciality: "Software Engineering and Information Systems"

### Experiences

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#### Postdoctoral Researcher: machine learning, predictive modeling

Brest, France

IMT Atlantique (ex Telecom Bretagne, High Post-Graduate School)

Dec. 2016 – Present

Lab-STICC laboratory, DECIDE Team

- Directors: Yannis Haralambous, Philippe Lenca
- Contribution 1: an algorithm for the detection of anomalous events in sequential data (logs data). A paper is under preparation (20% done)
- Contribution 2: an algorithm based on rules mining under gap-constraint for the early prediction of future events in sequential data. A paper is under preparation (60% done)
- Fulfillment of research objectives within project timelines
- Funding: via ARKEA project, with the following application objectives:
  - Analyzing information system logs for modeling actions/activities to prevent future errors/anomalies
  - Analyzing clients' activities for modeling their behaviors to prevent future negative behaviors/actions

#### Researcher: data mining, machine learning, predictive modeling

Nancy, France

LORIA laboratory, KIWI Team

Nov. 2012 – Aug. 2016

- Directors: Anne Boyer, Armelle Brun
- Contribution 1: an algorithm based on episode rules mining for early prediction of future events
- Contribution 2: an algorithm based on episode rules mining for early detection of the emergence of future new events/associations in a data stream. A paper is under preparation (80% done)
- Contribution 3: an algorithm based on episode rules mining for influencer events detection in events sequence
- Grant: via ARMURES Crédit Agricole S.A. project, with the following application objectives:
  - Analyzing users' messages on Web Blogs for the objective of modeling their real-life behaviors
  - Predicting users' future behaviors or interests, and monitoring the e-reputation of the company
  - Recommending events (corresponding to real-life actions) in order to influence users' behaviors

**Lecturer (Assistant Professor)***Lorraine University, Charlemagne Institute of Technology***Nancy, France***Sept. 2015 – Aug. 2016***Lecturer (Assistant Professor)***Lorraine University, Informatics and Cognitive Science Department***Nancy, France***Nov. 2012 – Aug. 2015***Research-intern: supervised machine learning, classification***ICUBE laboratory, BFO Team***Strasbourg, France***Sept. 2011 – Oct. 2012*

- Directors: Nicolas Lachiche, Gabriel Frey
- Contribution: an algorithm based on multi-label classification for prediction objectives
- Application: prediction in multiple alignment of protein sequences
- BIO-SEQUENCES project in collaboration with IGBMC research laboratory
- Grant: Campus France scholarship

**Lecturer (Assistant Professor)***Damascus University, Faculty of Information Engineering***Damascus, Syria***Jan. – Jun. 2010***Research-Development Engineer***National Port Company, Computer science department***Tartous, Syria***Jan. – Dec. 2009*

- Mission: development of new plugin for the information system

## Research interests

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- Data mining & Machine learning approaches: rules/patterns mining, classification, clustering
- Modeling: early prediction, emergent events detection, recommending systems, users' profile modeling
- Data: data sequences, data streams, complex data, Social Web

## Teaching & supervision experience (342 teaching hours: lectures, practical works)

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**IMT Atlantique (High Post-Graduate Eng. School): 33 teaching hours***Level: Data Science Master students, group of 20 students**Courses: Data mining (classification, clustering, patterns & rules mining)***Brest, France***2017 – 2018***IMT Atlantique (High Post-Graduate Eng. School): 5 teaching hours***Level: Data Science Master students, group of 20 students**Courses: Advanced algorithmic (optimization problems)***Brest, France***2016 – 2017***Charlemagne Institute of Technology, Lorraine University: 200 hours***Level: Bachelor students (1<sup>st</sup> and 2<sup>nd</sup> year), groups of 22 students**Courses: Object-oriented programming (Java), Bases of object design (Java), Human-machine interface programming (Java), Advanced database (PL/SQL, Triggers, Indexing), Programming Language (Java)***Nancy, France***2015 – 2016***Cognitive Science Department, Lorraine University: 82 hours***Level: Bachelor students (1<sup>st</sup> and 2<sup>nd</sup> year), groups of 25 students**Courses: Bases of Web Technologies (HTML, CSS, JavaScript), Algorithmic (Python), Database (UML)***Nancy, France***2013 – 2015***Faculty of Information Engineering, Damascus University: 22 hours***Level: Bachelor students (3<sup>rd</sup> year). Courses: Database concepts (SQL)***Damascus, Syria***2009 – 2010***Supervision (Bachelor and Master level):**

- Research internship, Master student, IMT Atlantique, France, 2018
- End-of-studies project, Master student, IMT Atlantique, France, 2017

- Research project, 2 Master students, Telecom Nancy (High Graduate School), France, 2014
- End-of-year project, 2 Master students, Cognitive Science, Lorraine University, France, 2013
- End-of-studies project, 4 Master students, Faculty of Information Engineering, Damascus, Syria, 2010

**Jury member:**

- Defense of end-of-studies internships, IMT Atlantique, France, 2017
- Simulated job interviews, 3<sup>rd</sup> year engineering students, IMT Atlantique, France, 2017
- Defense of end-of-studies internships, 2<sup>nd</sup> year bachelor students, Charlemagne Institute of Technology, France, 2016
- Defense of end-of-year projects, 2<sup>nd</sup> year engineering students, Telecom Nancy (High Graduate School), France, 2014
- Defense of end-of-year projects, 2<sup>nd</sup> year engineering students, Faculty of Information Engineering, Damascus, Syria, 2010

## Skills

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**Computer skills:**

- Software development: Java, R, Python, Linux/Shell scripts, Unified Modeling language (UML), JavaScript & XML (background)
- Integrated Development Environment: Eclipse, PyCharm, Jupiter Notebook
- Databases systems (MySQL, Oracle, PostgreSQL): SQL, PL/SQL, Triggers, Indexing
- Web technology: HTML, CSS
- Version control: Git, SVN
- Document preparation system: Latex, Beamer
- Computer clusters, resource & task manager (OAR)
- Data mining platforms: Weka
- Distributed treatment platforms (Big Data): STORM, Map-reduce & Hadoop (background)

**Languages:** French: bilingual, English: professional working proficiency, Arabic: bilingual

## Participation in research projects

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**ARKEA project:**

- Project period: Nov. 2016 - Dec. 2018
- Participation role: as a postdoctoral researcher
- Participation term: Dec. 2016 - Dec. 2018
- Sponsor: a banking company ARKEA Crédit Mutuelle

**PriceMinister project:**

- Project period: Jan. 2015 - June 2015
- Participation role: as a doctoral researcher
- Participation term: Feb. 2015 - March 2015
- Sponsor: Rakuten Institute of Technology

**ARMURES project:**

- Project period: Nov. 2009 - Aug. 2015
- Participation role: as a doctoral researcher
- Participation term: Nov. 2012 - Aug. 2015
- Sponsor: a banking company Crédit Agricole S.A

**BIO-SEQUENCES project:**

- Project period: Aug. 2011 - Dec. 2012
- Participation role: as a research intern
- Participation term: Sept. 2011 - June. 2012
- Sponsor: IGBMC biological university research laboratory

## Grants

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**PhD studies grant** **2012 & 2015**

*Funding: research project sponsored by Crédit Agricole S.A.*

Crédit Agricole S.A.: a banking company who has a research convention with the Lorraine University

**Master studies grant** **2011 & 2012**

*Granted by Campus France*

Campus France: a french public institution placed under the joint supervision of the Ministry of Foreign Affairs and the Ministry of High Education

## Academic services: review committee member

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- RJC CIFED-CORIA: Young Researchers Meeting held in conjunction with national conference in Information Research and Applications
- Expert Systems With Applications (ESWA) international journal

## Conference organization committee

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**ECML-PKDD international conference** **Nancy, France 2014**

**“Graphemics in the 21<sup>st</sup> century” international conference** **Brest, France 2018**

## Associations/conferences membership

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- KES: Knowledge Based and Intelligent Information and Engineering Systems Association
- EGC: Knowledge Extraction and Management Association
- INSTICC: Institute for Systems and Technologies of Information, Control and Communication

## Qualifications

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**Qualified to fill Associate Professor position** **France, 2017**

- Associate professor qualification is an evaluation awarded by the National Council of Universities in France
- This evaluation is based on the research quality and teaching activities of the researcher
- Without this qualification, researchers cannot postulate for associate professor positions in France

## Talks and presentations

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### Invited speaker

- MachineLearning & DataViz meet-up, Brest, France, 2017
- Data Science workshop at Crédit Agricole Data Lab, Paris, France, 2016

### Research seminars

- DECIDE research team, IMT Atlantique, Brest, France, 2017
- ARKEA Crédit Mutuelle Data Lab, Brest, France, 2017
- KIWI research team, Nancy, LORIA Lab, Nancy, France, 2015
- Workshop of the “Complex systems, artificial intelligence and robotics” department, LORIA Lab, Nancy, France, 2013

## Conferences papers presentation

- International Conference in Knowledge Discovery and Information Retrieval (KDIR), Rome, Italy, 2014
- Knowledge Extraction and Management (EGC) francophone conference, Rennes, France, 2014
- Spatial and temporal Data Mining Workshop (held in conjunction with EGC conference), Rennes, 2014
- Knowledge Extraction and Management (EGC) francophone conference, Toulouse 2013

## Publications

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### Summary:

- 1 International journal paper (impact factor 3.928)
- 1 International book chapter
- 2 International peer-reviewed conference papers
- 2 Francophone peer-reviewed conference papers (papers in French)
- 1 Francophone peer-reviewed workshop paper (paper in French)
- Journal papers under preparation (available on request):
  - PhD contribution: "Early detection of emergent associations" (80% done)
  - Postdoctoral contribution: "Anomalies detection in Data Logs" (20% done)
  - Postdoctoral contribution: "Early prediction by sequential rules under gap constraints" (60% done)

### In details

#### International journal:

- Lina Fahed, Armelle Brun, Anne Boyer: DEER: Distant and Essential Episode Rules for early prediction, Expert Systems With Applications Journal (impact factor 3.928), 2017, DOI: 10.1016/j.eswa.2017.10.035.

#### International book chapter:

- Lina Fahed, Armelle Brun, Anne Boyer: Efficient Discovery of Episode Rules With a Minimal Antecedent and a Distant Consequent, Springer-Verlag Book Chapter: Communications in Computer and Information Science (CCIS), Knowledge Discovery, Knowledge Engineering and Knowledge Management (IC3K) Revised Selected Papers, 2014, p. 3-18.

#### International peer-reviewed conferences:

- Lina Fahed, Armelle Brun, Anne Boyer: Influencer events in episode rules: a way to impact the occurrence of events, International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES) (ranking B), 2015, p. 527-536.
- Lina Fahed, Armelle Brun, Anne Boyer: Episode Rules Mining Algorithm for Distant Event Prediction, International Conference in Knowledge Discovery & Information Retrieval (KDIR) (ranking C), 2014, p. 5-13.

#### National peer-reviewed conferences:

- Lina Fahed, Armelle Brun, Anne Boyer: Extraction de règles d'épisodes minimales dans des séquences complexes, Francophone Conference "Extraction et Gestion des Connaissances" (EGC) (ranking C), 2014, p. 545-548.
- Lina Fahed, Gabriel Frey, Julie Dawn Thompson, Nicolas Lachiche: Classification multi-étiquette pour l'alignement multiple de séquences protéiques, Francophone Conference "Extraction et Gestion des Connaissances" (EGC) (ranking C), 2013, p. 431-436.

#### National peer-reviewed workshops:

- Lina Fahed, Armelle Brun, Anne Boyer: Prédiction au plus tôt d'événements par règles d'épisodes. Francophone workshop: Fouille de données Spatiales et Temporelles, Extraction et Gestion des Connaissances (EGC) (ranking C), 2014, p. 27-37.

## Referees

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- Armelle Brun (my PhD Director); Associate Professor in Computer Science, Lorraine University (France), [armelle.brun@loria.fr](mailto:armelle.brun@loria.fr)
- Anne Boyer (my PhD Director); Professor in Computer Science, Head of KIWI team, Lorraine University (France), [anne.boyer@loria.fr](mailto:anne.boyer@loria.fr)
- Yannis Haralambous (my postdoc Director); Professor in Computer Science, IMT Atlantique (France), [yannis.haralambous@imt-atlantique.fr](mailto:yannis.haralambous@imt-atlantique.fr)
- Philippe Lenca (my postdoc Director); Professor in Computer Science, Head of Logic of usage, Social & Information Sciences Department, IMT Atlantique (France), [philippe.lenca@imt-atlantique.fr](mailto:philippe.lenca@imt-atlantique.fr)