Ilef BEN SLIMA

Date of birth: May 28, 1989
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Training

2014 - 2019 **Doctoral thesis in Computer Science**

Faculty of Sciences of Tunis, University of Tunis El Manar
Subject: "Learning by regrouping attributes in Fuzzy Inference Systems"
Thesis director: Amel Borgi, Professor at ISI
Mention: Very honorable

2008 - 2013 **Computer science engineering studies**

INSAT (National Institute of Applied Sciences and Technology)
Sector: Software Engineering
Mention: Good (Second rank in the promotion)

2007– 2008 **Bachelor of Technical Sciences**

High School Med Ali from Sfax, "Very good" mention
First Prize in the Sfax region for the Baccalaureate in Technical Sciences

Professional experiences

From March 2023 **Assistant Professor in Computer Science**
Establishment: Higher Institute of Applied Mathematics and Computer Science from Kairouan (**ISMAIK**)

Sept. 2020- March 2023 **Researcher in Computer Science**
Establishment: Sfax Digital Research Center (**CRNS**)

Jan 2022- Feb. 2023 **Part-time teacher**
Establishment: Private International Polytechnic School (**ESPIN**)

Jan. 2016- August 2020 **Computer Technologist**
Establishment: Higher Institute of Technological Studies of Gafsa (**ISET GAFSA**)

June 2019 - Mai 2022 **Part-time teacher via Videoconference**
Establishment: International distance learning organization **Supadom**

Sept. 2013 - 2014 **Part-time teacher**
Establishment: Higher Institute of Computer Science and Multimedia of Sfax (**ISIMS**)

Educational Activities

Teaching:

- Machine Learning (Courses and Labs)
- Artificial Intelligence (Courses and Labs)
- Formal Logic (Courses and Exercices)
- Language and Automata Theory (Courses and Exercices)
- Process and Methods Engineering: Agile Methods, SCRUM (Courses and Exercices)
- Databases (Courses and Labs)
- Object-Oriented Design: UML (Courses and Labs)
- Event-Driven Programming with C# (Courses and Labs)
- Advanced Object-Oriented Programming: Java (Courses and Labs)
- J2EE Development Environment Workshop (Courses and Labs)
- Persistence Framework Workshop (Courses and Labs)
- Software Engineering Concepts (Courses)
- Machine Learning and Programming with Python (Courses and Labs)
- Website Design and Administration (Labs)

Developing an online course:

Developing a Machine Learning online course for the project: "*Machine Learning Engineer Career Path Program »*, to the company profile *Stallion Tech Inc., Dubai*, from May 1 to July 31, 2021.

- Course hosting site: aiqom.ai platform (https://aiqom.ai)
- Course content: Data, Supervised learning, Unsupervised learning and Reinforcement learning.
- Team: Yousri Kessentini (project manager), Sourour Ammar, Ilef Ben Slima , Mohamed Koubaa

PFE supervision:

- « Development of a recruitment and employee tracking application with IoT integration », Chaima Fejjari and Mabrouka Massoudi, Bachelor's Degree in Information Systems Engineering, ISMAIK, defended in Juin 2024.
- « Complaint Management System with Chatbot for Tunisie Telecom », Khaoula Romdhani and Dorra Hadouej, Bachelor's Degree in Information Systems Engineering, ISMAIK, defended in Juin 2024.
- « AI and IoT based carrier tracking platform », Rihab Amari Bachelor's Degree in Information Systems Engineering, ISMAIK, defended in Juin 2024.
- « Explainable Learning Model for Early Prevention of Suicide Attempts: Mobile Application Development », Islem MESSAOUD, Hanen ALLOUCHE and Mariam GARGOURI, Bachelor's Degree in Computer Science, CRNS / FSS, defended in Juin 2024.
- « Machine Learning for Detecting Suicide Predictors in Mentally Ill People », Hamza Benhamza, Professional Master's Degree in Big Data in E-Commerce, CRNS / IHEC, defended in Juin 2023.

- « Creation of a web application for humanitarian associations with J2EE », Malak Mnassri, Applied Bachelor's degree in Computer Technology, defended in June 2019.
- « Design and development of an inventory management application », Oumayma Khalfi, Applied Bachelor's degree in Computer Technology, defended in June 2019.
- « Study, design and production of a web application for online subscription management », Mohamed Touhemi Saadaoui, Applied Bachelor's degree in Computer Technology, defended in June 2016.
- « Design and production of a dynamic web application: Child Health Record », Saida Sboui, Applied Bachelor's degree in Computer Technology, defended in June 2016.

Certifications

Nov. 2024	Azure **AI** Fundamentals (**Microsoft – Azure**)
Avril 2023	Scrum Fundamentals Certified **(SCRUMstudy** - Certificate ID: **976675)**
Avril 2021	DL101 - Intellectual property under Tunisian law **(**Certificate Code: **EeHaZlGcVN)**
Janv. 2021	Convolutional Neural Networks **(Coursera – ID: 8TS77TVMDRWG)**
Oct. 2020	Structuring Machine Learning Projects **(Coursera – ID: 7EW2F6UQARBF)**
Sep. 2020	Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization (**Coursera – ID: RR9BTNSHRTHU)**
Mai. 2020	Neural Networks and Deep Learning **(Coursera – ID: U4UUQW66EAF6)**
Dec. 2019	Introduction to Programming using Python **(MTA[1] 98-381)**
Nov. 2019	Introduction to Programming using Java **(MTA 98-388)**
Nov. 2019	Database fundamentals (**MTA 98-364)**
Nov. 2019	Fundamentals of Deep Learning for Computer Vision **(NVIDIA Deep Learning)**
Juin 2011	Microsoft .NET Framework - Application Development Foundation **(MCTS 70-536)**

Internships and Projects

Feb. – Jun. 2013 **Graduation Project - Telnet**

Subject: Development of an interactive project management application with the SCRUM methodology and knowledge sharing.

Link to the descriptive video: https://drive.google.com/file/d/19M7-mPBB-0ZYchgWXelaUkKHRPg7-Oou/view

Jul - Aug 2012 **Engineer Internship - IT4IT**

Assignment: Development of a higher education portal with the SharePoint tool

Jul - Aug 2011 **Engineer Internship - Ideryet – Sfax**

Assignment: Creation of a dynamic website for the company

[1] MTA : Miscrosoft Technology Associate

Computer skills

Programming languages	Python, Java, C#, PHP, html, Javascript, CSS
Development framework	Tenserflow, Keras, J2EE, JSF, Hibernate, EJB, Spring, ASP.NET
Design methodologies	UML, design pattern GOF
SGBD	MySQL, SQL Server, PostgreSQL, Oracle
Project management	SCRUM, RUP
Data Mining Software	Weka**,** RStudio (R language)

Research Activities

Research themes:

My main research areas are data mining and machine learning: the combination of classifiers, ensemble methods and attributes regrouping, the processing of uncertain and imprecise data, classification systems based on fuzzy rules, optimization of the number of classification rules. My research work also focuses on the interpretability and explainability of machine learning models.

Co-supervision of a doctoral thesis:

- Subject: Ensemble methods in supervised learning: Application in chemo-informatics
- Student: Maroua Lejmi
- Thesis director: Prof. Amel Borgi
- Program: PHC-Utique Project (PAPRICA)
- Duration: January 2022 – Today (ongoing)

Co-supervision of research Masters:

- Ons Abdelbaki: « Attributes regrouping for coalitional explanation of machine learning models ». Higher Institute of Applied Mathematics and Computer Science from Kairouan (ISMAIK). Date of defense: January 2025
- Nour Mrabet: « Explainability of Learning Models for Early Detection of Suicide Attempts: Analysis and Understanding of Predictive Factors". Higher Institute of Applied Sciences and Technology of Kairouan, Principal supervisor: Sourour Ammar. Defense date: January 2025
- Chaima Chaker: "Knowledge extraction from maritime data". Higher Institute of Computer Science of Tunis (ISI), Principal supervisor: Amel Borgi. Date of defense: December 2022
- Maroua Lejmi: "Attribute clustering by genetic algorithm in fuzzy inference systems". Higher Institute of Computer Science of Tunis (ISI), Principal supervisor: Amel Borgi. Date of defense: December 2021
- Ilyes Ben Amara: "Grouping of attributes by association rules in the ANFIS system". Higher Institute of Computer Science of Tunis (ISI), Principal supervisor: Amel Borgi. Date of defense: July 2021
- Riadh Zaatour: "Grouping of attributes by association rules in SUCRAGE". Higher Institute of Computer Science of Tunis (ISI), Principal supervisor: Amel Borgi. Date of defense: July 2016

Reviewing Activities:

- Reviewer in impacted scientific journals:
    - Applied Soft Computing (ASOC) Neural
    - Computing and Applications (NCAA)
- Sub-Reviewer for the MedPRAI'2021 conference: “The 5th Mediterranean Conference on Pattern Recognition and Artificial Intelligence”.

Cooperation Projects

Since Nov. 2023 — **PEJC Project**

Title: Machine Learning for the Study of Explanatory and Predictive Factors of Marine Biodiversity.

Members: Ilef Ben Slima (Project Coordinator), Amel Borgi, Narjes Doggaz, Fériel Sallem.

Funding: Ministry of Higher Education (DGRS)

Since Dec. 2021 — **CMCU PHC-Utique Project**

Title: Supervised ensemble and explanatory learning: application to molecular data (PAPRICA)

Partners: GREYC (University of Caen Normandy), LIPAH (El Manar University Tunis), CRNS

Funding: In France, MEAE and MESRI. In Tunisia, MESRS and DGRS

Since Sep. 2021 — **Scientific collaboration**

Title: Study of predictive factors of mental disorders in hospitalized patients by machine learning.

Partners: CRNS (IlefBen Slima: Project coordinator), Psychiatry Department, CHU Hédi Chaker Sfax.

June 2022 - June 2024 — **Scientific collaboration**

Title: Artificial Intelligence for Automatic Recognition of Human activities from data from a set of sensors.

Partners: CRNS, Sofrecom.

Publications

International Journals:

[1] Lejmi, M., Geslin, D., Bureau, R., Cuissart, B., Ben Slima, I., Meddouri, N., ... & Lepailleur, A. (2024). Navigating pharmacophore space to identify activity discontinuities: A case study with BCR-ABL. ***Molecular Informatics*** (**Q2, IF= 2.8**), 43(8), e202400050.

[2] Ben Slima, I., Ammar, S., Turki, M., Bouattour, W., & Aloulou, J. (2023). COVID-19 pandemic's effect on the mental health among the Tunisian general population: Associated factors mining via machine learning. ***Scientific African*** (**Q1, IF= 2.7**), 21, e01804.

[3] Ben Slima I, Ammar S and Ghorbel M. (2022). Possibilistic rank-level fusion method for person reidentification. ***Neural Computing and Applications*** (**Q2, IF= 5.606**), v. 34, no. 17, pp. 14151-14168.

[4] Ben Slima I, Borgi A, (2018) Supervised methods for grouping attributes in fuzzy rule-based classification systems, ***Applied Intelligence*** (**Q2, IF=3.325**), v. 48, no. 12, pp. 4577-4593.

International conferences classified:

[5] Hassine S., Ammar S., Ben Slima I. CNN-Trans: A Two-Branch CNN Transformer Model for Multivariate Time Series Classification, *17th International Conference on Agents and Artificial Intelligence, **ICAART 2025 (Class B)***, Porto, Protugal, 23-25 Février 2025.

[6] Ben Slima I, Borgi A, Sellem F. Clustering and Association Rules Mining for Coral Reef Fish Distribution: A Data-Driven Approach in the Mediterranean Sea, *16th International Conference on Management and Digital Ecosystems, **MEDES 2024 (Class C***), Naples, Italy, November 18-20, 2024.

[7] Ben Slima I , Jarraya A, Ammar S, Borgi A. PCMCR: A Novel Conflict Resolution Strategy based on Possibility Theory for Human Activity Recognition, *26th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, **KES 2022 (Class B)***, Verona, Italy, September 7-9, 2022.

[8] Lejmi M,Ben Slima I , Borgi A. Attributes grouping by genetic algorithm in fuzzy inference systems, *26th International Conference on Knowledge-Based and Intelligent Information & Engineering Systems, **KES 2022 (Class B)***, Verona, Italy, September 7-9, 2022.

[9] Ben Slima I, Borgi A, (2018) Features' associations in fuzzy ensemble classifiers, *29th International Conference on Database and Expert Systems Applications, **DEXA 2018 (Class B)**,* Regensburg, Germany, September 3-6, 2018.

[10] Ben Slima I , Borgi A, (2015) Attribute clustering by association rules in fuzzy inference systems, *15th international conf. on knowledge extraction and management, **EGC 2015 (Class C)**,* Luxembourg, January 27-30, 2015.

Indexed international conferences:

[11] Ben Slima I , Ammar S, Ghorbel M and Kessentini Y, (2020) Possibilistic classifier combination for person re-identification,*4th Mediterranean Conference on Pattern Recognition and Artificial Intelligence, **MedPRAI 2020,*** Hammamet Tunisia, pp. 98-111.

(Second best paper award)

[12] Zaatour R, Borgi A,Ben Slima I , (2016) Attributes regrouping by association rules in SUCRAGE, *11th int. conf. on Intelligent Systems: Theories and Applications, **SITA 2016,*** Mohammedia, Morocco. **(Best paper award)**

National conferences with selection committee:

[13] Ben Slima I , Borgi A, (2017) Attribute clustering in fuzzy inference systems by frequent itemset extraction,*1st Computer Science UTM PhD Symposium, **CUPS'2017***, May 22-25, 2017.

Various Activities

- Member of the **ISMAIK Scientific Council** (starting June 2024)
- Member of the **Research Results Valorization and Technology Transfer Unit** at the Sfax Digital Research Center (September 2020 – September 2022)
- Member of the **scientific committee of the SM@RTS Days 2025** scientific event (SM@RTS Laboratory Days – 2025 edition)
- Member of the **organizing committee for the MedPrai'2020** scientific event (https://medprai2020.sciencesconf.org/)
- **Reviewer** in relevant scientific journals:
    - Applied Soft Computing (ASOC)
    - Neural Computing and Applications (NCAA)
- **Reviewer** for the conferences: KES 2024, ICPR 2022, MedPRAI'2021

LANGUAGES

Arabic: Native language

French: Fluent in spoken and written language

English: Good level