Kawthar Zaraket
Doctorate Holder
Lebanese University and Haute-Alsace University

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EDUCATION

•Doctor of Philosophy (Ph.D.) in Computer Science *2021-2024*
Université de Haute Alsace, France - Lebanese University, Lebanon
<u>Thesis:</u> Enhanced AI-Models for Real-Time Big Data Analytics in ITS.

•Second Semester of Master Two in Computer Networks *March - Oct 2020*
La Rochelle University, France - Lebanese University, Lebanon Percent: 85

•First Semester of Master Two in Information Systems and Data Intelligence *Sep 2019 - Feb 2020*
La Rochelle University, France - Lebanese University, Lebanon Percent: 80

•Master One in Computer Science *2018-19*
Lebanese University, Lebanon Rank: 1st

•Bachelor's Degree in Computer Science *2015-18*
Lebanese University, Lebanon Rank: 1st

EXPERIENCE

•Ph.D. Researcher *Jan 2021 - 2024*
Université de Haute Alsace, France - Lebanese University, Lebanon
– Proposed novel AI models for traffic flow forecasting in vehicular networks (Hyper-Flophet).
– Developed and implemented an outlier detection based model for event pattern recognition (ODEP).
– Conducted extensive experiments to enhance traffic data storage and processing in ITS environments.

•Computer Science Lecturer *Sep 2021 - Present*
Al Maaref University, Beirut On-site
– Web Design (HTML, CSS, JavaScript, jQuery, AJAX)
– Database Systems (SQL)
– Data Structures (JAVA)
– Object Oriented Programming (JAVA)
– Basic Concepts of Programming (C++)
– Introduction to Computing
– Business Software Applications.

•Software Engineer *Nov 2021 - May 2023*
Payleadr Software Company, Australia Online
– Java, Groovy, Grails, GSP, CSS, JS, AJAX, JQuery, MySql Workbench, AWS Bucket S3.
– Postman API, JIRA, Bitbucket, Agile Project Management, Scrum.
– Learned basics of Network & Cloud Security.

•Data Engineer Internship *Aug - Sep 2021*
Intelligencia Development Hub, Beirut Online
– Extract, Transform, Load (ETL), Azure Data Factory, Azure Synapse Analytics, Data warehouse.

CERTIFICATIONS & COURSES

• Information System Fundamentals and Collaborative Computing
• Decision Fundamentals;Multi Criteria Analysis and Visualizations
• Artificial Intelligence
• Deep Learning,Data Mining and Knowledge Discovery
• Web of data, Semantic Web and Information Retrieval
• Graph Theory
• Ubiquitous Computing and Internet Of Things(IOT)
• OLAP and Big Data Analytics
• Real-time Data Processing and Visualization
• Cloud Computing and Services
• Data Structures
• Advanced Database
• Coverage and Connectivity in Wireless Sensor Networks

Personal Projects

- Traffic Event Multi-Classification
- Traffic Outlier Detection
- Object Multi-Classification Application
- Be Elegant Online Shopping Website
- Book Rating Website
- Time Table Management System
- Attendance Management System
- Virtual Network System
- File System Simulator
- Army Management System
- Electricity Subscription System
- Clinic Reservation System
- Traveling Salesman Application using Parallel Genetic Algorithm

Technical Skills and Interests

Backend Languages: Java, Apache Groovy, Python, C, C#, C++, ASP.NET, PHP
Computational Languages: MATLAB
Frontend Languages & Technologies: HTML, CSS, JavaScript, AJAX, jQuery, Groovy Server Pages (GSP)
Version Control Tools: Git, GitHub
Frameworks & Libraries: MVC, Grails, TensorFlow, PyTorch, Scikit-learn, OpenAI API, LangChain, pandas, NumPy, matplotlib, seaborn, scikit-learn, RAG
Databases: MySQL, Microsoft SQL Server, NoSQL databases, FAISS
AI & Machine Learning: Deep Learning, Neural Networks, Outlier Detection, Multiclass Classification, Natural Language Processing (NLP), Large Language Models (LLMs), Fine-tuning
Soft Skills: Teaching, Research Mentorship, Technical Writing, Problem Solving, Self-Learning, Adaptability

Publications

- K. Zaraket, I. Bennis, H. Harb, A. Jaber and A. Abouaissa, "A Comparative Study of Recent Advances in Big Data Analytics in Vehicular Ad Hoc Networks," 2022 International Wireless Communications and Mobile Computing (IWCMC), Dubrovnik, Croatia, 2022, pp. 841-846, doi: 10.1109/IWCMC55113.2022.9825248.
- Kawthar Zaraket, Hassan Harb, Ismail Bennis, Ali Jaber, Abdelhafid Abouaissa: Flophet: A Novel Prophet-Based Model for Traffic Flow Prediction in Vehicular Ad Hoc Networks. ICC 2023: 4761-4766.
- Kawthar Zaraket, Hassan Harb, Ismail Bennis, Ali Jaber, Abedalhafid Abouaissa, Hyper-Flophet: A neural Prophet-based model for traffic flow forecasting in transportation systems, Simulation Modelling Practice and Theory, Volume 134, 2024, 102954, ISSN 1569-190X, https://doi.org/10.1016/j.simpat.2024.102954. (https://www.sciencedirect.com/science/article/pii/S1569190X24000686)
- K. Zaraket, I. Bennis, H. Harb, A. Jaber and A. Abouaissa, "Outlier Detection based Model for Event Pattern Recognition in Vehicular Networks," 2024 20th International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob), Paris, France, 2024, pp. 56-61, doi: 10.1109/WiMob61911.2024.10770496.
- Kawthar Zaraket, Hassan Harb, Ismail Bennis, Ali Jaber, and Abdelhafid Abouaissa. "Learning4Detecting: An Outlier-based Learning Framework for Detecting Event Patterns in Vehicular Networks," Submitted to Journal of Innovation & Knowledge.

Awards & Achievements

• **Award** Best Researcher Award   *CAD Awards*