Mohammad Moshawrab, Ph.D. Comp. Eng.

Software Engineer, AI Researcher

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A PhD in Artificial Intelligence with 15 years of experience spanning machine learning, deep learning, federated learning, and privacy-preserving AI. I combine deep research expertise with hands-on software and systems engineering, architecting secure and scalable AI solutions across cloud, distributed, and enterprise environments. My work bridges advanced research and real-world implementation, delivering intelligent systems that are innovative, secure, and operationally reliable.

Education

Doctorate in Computer Engineering Sep. 2020 – July 2024
Université du Québec à Rimouski Rimouski, QC, Canada
- Thesis Title: Improving the Security of Federated Learning with Polymorphic and Homomorphic Encryption
- Courses: Artificial Intelligence, Machine Learning and Data Mining

Master of Science in Computer Science Sep. 2013 – May 2017
Beirut Arab University Debbieh, Lebanon
- Thesis Title: Parallelization of the AES Standard Encryption Algorithm Using Multi-Core Processor
- Courses: Project Management, IT Strategies, Parallel Programming, Human Computer Interaction, Software Verification, Technical Writing, Data Mining, Forecasting Methods and Applications, Supply Chain Management

Bachelor of Science in Computer Science Sep. 2008 – July 2012
Islamic University of Lebanon Khaldeh, Lebanon
- Courses: Database, Web Development, Windows Applications, Informatics, Mathematics, Operating Systems, Networking, Operation Research, …

Work Experience

AI Architect June 2025 - Present
JobRivals Bromma, Sweden
- Lead and execute the ML architecture, modeling, and integration outlined in the Specs Documentation
- Collaborate closely with team members to align on feature design, data integration, and system behavior
- Deliver key modules including the candidate/employer feedback engines, personality matching systems, and scoring systems
- Ensure all models are explainable, secure, and ethically constructed in line with the JobRivals mission

Full Stack Developer May 2023 – Present
Mediterranean Shipping Company Montreal, QC, Canada
- Spearhead MEDLOG's enterprise-wide AI transformation journey, from strategic research and capability assessment to designing, developing, and deploying AI-powered solutions that directly empower end users and elevate operational performance.
- Contribute to the development of the systems used within MSC, or within other companies in its group such MEDLOG, Go Expedited, Best Choice and others
- Develop, from scratch, different web applications, web APIs, crystal reports, database files and other services and contributed to enhancing other already existing applications
- As a full stack developer, deal with different technologies including database, backend and fronted working with ASP.NET, .NET Core, Javascript, React, Bootstrap, HTML & CSS and other stack layers
- Conduct different training sessions oriented for technical and non-technical topics

Backend Developer
April 2021 – March 2023

Centre de Recherches Interdisciplinaires en Etudes Montréalaises (McGill University)   Montreal, QC, Canada
- Contributed to the development of PDS (The Social Data Analysis Center), a digital platform aimed at understanding the unique issues and needs of Montreal's populations
- Worked extensively with .NET Core technologies, JavaScript, Razor, Blazor, Microsoft Orleans, MySQL, and other tools
- Played a key role in building the architecture of the solution beside the development role

Artificial Intelligence & Machine Learning Researcher (Intern)
April 2022 – Nov. 2022

Institut Technologique de Maintenance Industrielle   Rimouski, QC, Canada
- Conducted different research topics in Machine Learning domain in the field of connected and smart health
- Developed different smart Machine Learning models for the prediction of Cardiovascular Diseases using the Heart Rate Variability data. Models developed outperformed the state-of-the art existing models
- Conducted a study on the digital parameters and devices in use to detect occupational physical fatigue
- Published two articles about the above-mentioned topic within the period of the internship

Teaching Assistant
Jan. 2022 – Sep. 2023

Université du Québec à Rimouski   Rimouski, QC, Canada
- Played a pivotal role in managing courses, delivering lectures, and preparing courses presentations
- Taught courses to both Master's and Bachelor's students, fostering their understanding of complex topics and contributing to their academic growth and development

Founder and Owner
Aug 2018 – Nov. 2020

iBits   Sarafand, Lebanon
- Founded iBits, a startup offering various software solutions
- Managed a team of developers, driving the development and delivery of different applications including Point of Sale systems, Clinic Management, Cargo Management, Educational Systems, and Municipalities Data Management solutions
- This experience honed my business acumen and equipped me with valuable insights into startup dynamics and operations
- Within a year, iBits gained traction, serving tens of clients all over Lebanon
- The startup was closed after the economic crisis that occurred in Lebanon at the end of 2019

Application Administrator
June 2015 – June 2018

Phoenicia University   Sarafand, Lebanon
- Overseen vital data management systems like the student information system, payroll, ERP, and various web platforms
- Progressed to a leadership role, by managing a dedicated team to develop and integrate systems, bridging gaps with customized solutions such as transportation management and entrance exams, and tens others.
- Mastered diverse technologies like .NET, .NET Core, JavaScript, and more
- Delivered numerous applications, integration projects with banks, and extensive SQL SSRS reports

Information Technology Instructor
Sep. 2014 – June 2015

Al Masar Institute   Al Ghazieh, Lebanon
- Served as an IT Instructor, delivering comprehensive courses on Database Management, A+ Computer Maintenance, Java, C#, and other IT subjects across multiple class levels
- Facilitated students' mastery of diverse technical skills essential for their academic and professional development

Information Technology Specialist
Feb. 2011 – June 2015

Amal Educational Institutions (Shoumran High School)   Al Baysaryeh, Lebanon
- Managed and set-up and maintained the IT infrastructure
- Played a key role in developing the Educational Management System using APEX SQL and Oracle. Provided comprehensive IT support to staff and conducted hardware maintenance tasks

Qualifications

- Technical Skills: C#, NodeJS, Python, Java, C/C++, Microsoft Orleans, Javascript, Angular, Razor, Blazor, MSSQL, MySQL, MongoDB, CosmosDB, HTML5, CSS, XML, JSON, Encryption
- AI Tools: Deep Learning, Machine Learning, Federated Machine Learning, Data Mining
- Languages: English (Professional), Arabic (Native)
- Soft Skills: Problem-solving, Critical thinking, Communication, Teamwork, Adaptability, Time management, Attention to detail, Leadership, Ethical awareness, Customer focus

Scientific Contributions:

- *Cardiovascular Events Prediction using Artificial Intelligence Models and Heart Rate Variability (Link)* — Aug-2022
- *Smart Wearables in Detection of Occupational Physical Fatigue: A Literature Review (Link)* — Oct-2022
- *Smart Wearable Devices in the Management of Cardiovascular Diseases: A Systematic Literature Review (Link)* — Jan-2023
- *Reviewing Federated Machine Learning and its Use in Diseases Prediction (Link)* — Feb-2023
- *Predicting Cardiovascular Events with Machine Learning Models and Heart Rate Variability (Link)* — Mar-2023
- *Reviewing Multimodal Machine Learning and its Use in Cardiovascular Diseases Detection (Link)* — Mar-2023
- *Detection of Occupational Fatigue in Digital Era; Parameters In Use (Link)* — Apr-2023
- *Machine Learning Models to Predict Cardiovascular Events from Heart Rate Variability Data (Link)* — Apr-2023
- *Reviewing Federated Learning Aggregation Algorithms; Contributions, Limitations and Future Perspectives (Link)* — May-2023
- *PolyFLAG_SVM: A Polymorphic Federated Learning Aggregation of Gradients Support Vector Machines Framework (Link)* — Oct-2023
- *Securing Federated Learning; Approaches, Mechanisms and Opportunities (Link)* — Sep-2024
- *A Maneuver in the Trade-Off Space of Federated Learning Aggregation Frameworks Secured with Polymorphic Encryption: PolyFLAM and PolyFLAP Frameworks (Link)* — Sep-2024
- *HP_FLAP: Homomorphic & Polymorphic Federated Learning Aggregation of Parameters Framework (Link)* — June-2025

University Projects:

- *PhD Projects:*
  - PolyFLAG_SVM: Polymorphic Federated Learning Aggregation of Gradients Support Vector Machines Framework (Link)
  - PolyFLAM: Polymorphic Federated Learning Aggregation of Models Framework (Link)
  - PolyFLAP: Polymorphic Federated Learning Aggregation of Parameters (Link)
  - HP_FLAP: Homomorphic and Polymorphic Federated Learning Aggregation of Parameters (Link)
  - Prediction of Cardiovascular Diseases with HRV data and Machine Learning Models (Link)

- *Masters Project:*
  - Parallelization of the AES Standard Encryption Algorithm Using Multi-Core Processor