

BAHA RABABAH

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Baha is a PhD student at University of Manitoba, his research focuses in building a secure and robust Large Language Models. Baha is currently serves as an Instructor at Red River College Polytechnic in Manitoba, Canada, where he delivers on-campus and online courses for Applied Computer Education IT programs. His role involves meticulous course preparation, encompassing course outlines, lesson plans, assignments, and hands-on assessment. He also leads Data Science industrial projects between the college and industry partners, such as Price Industries and participates in the committee of Data Science and Machine Learning. His research focuses on designing and building intelligent systems using Data Science and Machine Learning.

Keywords: Data Science, Machine Learning, Blockchain, Agile, Data Science Project Management, Python, TensorFlow, NumPy, Scikit-learn, Keras, Pandas, Matplotlib, Node-Red, JSON , ETL, Java, Object-Oriented Programming, Data Structure, Java Script, PHP, C#.NET and C++.

RELEVANT EXPERIENCE:

Instructor, Red River College Polytechnic, Winnipeg, Canada Aug 2022- Present

- Deliver both online and on campus courses for Applied Computer Education IT programs.
- Lead data science Industrial projects between the college and industry partners.
- Works on projects funded by Canada Government.
- Course preparation, course outlines, lesson plans, assignments, and face to face marking.
- Participate in committee of Data Science and Machine Learning.

Sessional Instructor, University of Winnipeg, Winnipeg, Canada Sep 2022- Dec 2022

- Deliver on campus course Artificial Intelligence and Machine Learning.
- Course preparation, course outlines, lesson plans, Lab assignments, and face to face marking.

Computer Instructor/Network Administrator, Edge Skills Centre, Winnipeg May 2022-Aug 2022

- Deliver lectures and workshops on various computer courses.
- Develop curriculum and prepares teaching materials.
- Implement, manage and maintain different aspects of IT infrastructure including operating systems, desktops, laptops, server, and network devices.
- Update and maintain Website and emails services.

Machine learning and Data Engineer Freelancer Feb 2018 – Sep 2022

- Processed several public and private datasets (NSL-KDD, N-BalIoT, Cruise Ship, PlantVillage, etc.).
- Developed 50+ machine learning projects.
- Implemented machine learning and deep learning algorithms using Python.
- Used data science and machine learning libraries (NumPy, Pandas, Scikit-learn, Keras, matplotlib).

Full Time Lecturer, Islamic University of Madinah, KSA Sep 2016 –Sep 2018

- Designed courses, prepared teaching materials, delivered lectures, and conducted lab and tutorials.
- Made improvements to existing Lab experiments and exercises.
- Contributed to ABET accreditation of the IT academic programs.
- Evaluated and developed the faculty policy by engaging three committees (Strategic Planning Committee, Faculty Affairs Committee, and Curriculum Committee).

Computer Helpdesk and Data Entry Operator, Ministry of interior, Bahrain Jan 2012 – Aug 2014

- Provided support on hardware and software (Desktops, Printers, Windows, Oracle Human Resources).
- Resolved problems with networks.
- Responded to queries via email or phone.

EDUCATION AND QUALIFICATIONS:

- University of Manitoba, Canada. Sep 2023 – Present
PhD Computer Science
- Red River College Polytechnic, Canada. Sep 2022 – Present
PGCert Teaching for Learning in Applied Education
- University of Manitoba, Canada. Sep 2018 – April 2021
MSc Computer Science.
Thesis Domain: Internet of Things and Machine Learning
- University of Portsmouth, United Kingdom. Sep 2014 – Sep 2015
MSc Computer Network Administration and Management
- Al-Balqa Applied University, Jordan. Sep 2006 – July 2010
BSc Computer Engineering.

TECHNICAL SKILLS:

- **Programming:** Python, Java, C++, C#
- **Visual Programming:** Node-Red
- **Frameworks:** TensorFlow, Keras, Scikit-learn
- **Database Management:** MySQL
- **Front-End Development:** PHP, JavaScript, HTML5, CSS3
- **Project management & version control tools:** Git, Agile framework
- **Design Architectures:** Object-Oriented Design, Data Structure
- **Cloud platforms:** OpenStack , IBM cloud, AWS
- **IDE:** PyCharm, Colab, Visual Studio, NetBeans
- **Operating Systems:** Windows, Linux, Raspberry Pi OS
- **Networking:** ISP Architecture, Routing Protocols, TCP/IP, CCNA.

PROJECTS:

AI and Machine Learning Applications

- [CareMate](#) (Winter 2024)
 - Led the development of an AI product to assist pharmacists by automating consultation documentation, enhancing efficiency and patient care. This Project is a collaboration between RRC Polytech and CareMate Health.
- [ML Insights & Metrics](#) (Winter 2024)
 - Led the development of an AI-driven tool enabling scientists to accelerate drug development with targeted nanoparticle-based therapeutics, reducing costs and time. This Project is a collaboration between RRC Polytech and ML Insights & Metrics.
- [Price Industries](#) (Winter 2024)
 - Led the Development of a chatbot to streamline access to technical and sales information for engineers and sales representatives. This Project is a collaboration between RRC Polytech and Price Industries Inc.

Technology and Application Development

- [GFit Wellness Mobile Application](#) (Winter 2024)
 - Led the redevelopment of the app with modern technologies, delivering a user-friendly interface, improved performance, and increased engagement. This Project is a collaboration between RRC Polytech and GFit Wellness.
- [Ikwe Safe Rides](#) (Spring 2024)
 - Led the development of a web app prioritizing safety and accessibility for female riders, particularly Indigenous women, integrating safety features and replacing a Facebook-based system. This Project is a collaboration between RRC Polytech and Ikwe Safe Rides Women Helping Women.
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- [Espira Testing](#) (Spring 2023)
 - Led the development of a website highlighting Espira Engineering's services, enhancing user experience across devices. This Project is a collaboration between RRC Polytech and Espira Testing Ltd.
- [Satellite Image Semantic Segmentation](#) (Winter 2023)
 - Led the development of AI semantic segmentation tool for satellite imagery. This Project is a collaboration between RRC Polytech and NextGen Environmental Research Inc.

HONOURS & AWARDS:

- Program completion scholarship, University of Manitoba April 2021
- Honorable achievement ABET accreditation, Islamic University in Madinah May 2018
- Best student certificate, University of Portsmouth Nov 2015
- Best performance certificate, University of Portsmouth Nov 2015

ACTIVITES:

- Member of the following Data Science and Machine Learning committee, Department of Applied Computer Education, Red River College, Winnipeg Canada Aug 2022-Present.
- Member of the following committee for ABET accreditation: Strategic Planning Committee, Faculty Affairs Committee, and Curriculum Committee, Faculty of Computer and Information Systems, Islamic University in Madinah, Al madinah Almonwarah, Saudi Arabia, 2016/2017.

- Member of High Performance Networking and Computing research group, Faculty of Computer and Information Systems, Islamic University in Madinah, Al madinah Almonwarah, Saudi Arabia, 2016/2017.
- Member of Jordan Engineers Association since Aug 2010.

PUBLICATIONS:

- **Baha Rababah**, Shang Wu, Matthew Kwiatkowski, Carson K. Leung, Cuneyt Gurcan Akcora: SoK: Prompt Hacking of Large Language Models. CoRR abs/2410.13901 (2024), IEEE BigData 2024 (Accepted).
- **Baha Rababah**, Shang Wu, Matthew Kwiatkowski, Carson K. Leung, Cuneyt Gurcan Akcora: Are Existing Large Language Models Robust Against Jailbreak Attacks. IEEE BigData 2024 (Accepted).
- **Baha Rababah**, Rasit Eskicioglu, "Distributed Intelligence Model for IoT Applications Based on Neural Networks", International Journal of Computer Network and Information Security(IJCNIS), Vol.13, No.3, pp.1-14, 2021. DOI: 10.5815/ijcnis.2021.03.01
- Tanweer Alam, **Baha Rababah**, Arshad Ali, Shamimul Qamar "Distributed Intelligence at the Edge on IoT Networks", Annals of Emerging Technologies in Computing (AETiC), Vol.4, No.5, pp. 1-18, 2020.
- **Baha Rababah**, Tanweer Alam, Rasit Eskicioglu "The Next Generation Internet of Things Architecture Towards Distributed Intelligence: Reviews, Applications, and Research Challenges", Journal of Telecommunication, Electronic and Computer Engineering (JTEC), Vol.12, No.2, pp. 11-19, 2020.
- Tanweer Alam, **Baha Rababah** "Convergence of MANET in communication among smart devices in IoT", International Journal of Wireless and Microwave Technologies (IJWMT), Vol.9, No.2, pp. 1-10, 2019.
- **Baha Rababah**, Shikun Zhou, Mansour Bader," Evaluation the Performance of DMZ", International Journal of Wireless and Microwave Technologies(IJWMT), Vol.8, No.1, pp. 1-13, 2018.
- Mansour Bader, Andraws Swidan, Mazin Al-hadidi and **Baha Rababah** "A Binary to Residue Conversion Using New Proposed Non-Coprime Moduli Set" Signal & Image Processing : An International Journal (SIPIJ), Vol.7, No.3, June 2016.