

MOHAMMED OSAMA

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Passionate about advancing innovation in AI and data science, specializing in developing and implementing cutting-edge technological solutions to solve complex challenges. My expertise in data science, data analysis, machine learning, and AI is aimed at driving both technological progress and economic growth.

Education

Canadian International College: Data Science Major (September 2023 – July 2025)

- Data Structures & Algorithms
- Image & Speech Processing
- Machine Learning & Deep Learning
- Object-Oriented Programming
- Pattern Recognition
- Natural Language Processing (NLP)

Data Science Scholarship (May 2023 – July 2024)

- **Soft skills foundations program (ALX & African Leadership University)**
 - Problem-solving & Formulation
 - Agile Development
- **Data Science & Artificial Intelligence Program (Explore AI Academy)**
 - SQL
 - Python
 - Data Analysis & Visualization
 - NLP & Classification
 - Supervised & Unsupervised Learning
 - AWS Foundations

Skills

- Programming Languages: Python, R
- Machine Learning:
- Databases
- All Microsoft Office Apps
- Problem-Solving
- Leadership in Teams
- Data Analysis
- Data Visualization
- Tools: Jupyter Notebooks, Git
- Communication & Social Skills
- Web Development
- Analytical Thinking

Projects

Electric vehicle Digital Twin Platform for real-time simulation and health monitoring | Python, pybamm, GYM, Real-Time Simulation (2025)

- Designed and implemented a comprehensive digital twin solution for electric vehicles, enabling real-time simulation, monitoring, and predictive analytics for battery and drivetrain systems.
- Developed robust data pipelines for ingesting and processing sensor data, and built interactive dashboards for visualizing key performance metrics.
- Led the integration of advanced analytics algorithms, resulting in a 30% improvement in fault detection accuracy and a 25% reduction in maintenance costs for pilot users.
- Deployed the platform in collaboration with automotive R&D teams, supporting data-driven decision-making and enhancing operational efficiency in fleet management.

AI-Based Software for Remote Sensing Satellite Imagery in Multi-Domain Operations | Python, ESRCAN, Remote Sensing Technologies (2024)

- Developed AI frameworks for processing high-res satellite imagery in multi-domain applications.
- Built an image viewer for efficient management of remote sensing images.
- Enhanced image resolution using ESRCAN, improving clarity for defense, agriculture, and urban planning.
- Integrated AI solutions into broader software frameworks for advanced decision-making.

AI-Based Insect Recognition System | Python, CNN, VGG16, VGG19, Scikit-learn (2024)

- Developed a machine learning and deep learning framework to classify insect species, achieving 91% accuracy with VGG19.
- Processed and analyzed a dataset of 4,500 images across 5 insect classes (Butterfly, Dragonfly, Grasshopper, Ladybird, Mosquito).
- Applied preprocessing techniques like brightness adjustment and SIFT feature extraction to improve data quality.
- Designed and evaluated ML models (SVM, Random Forest, KNN) and CNN-based architectures, demonstrating deep learning's superior performance.
- Conducted experiments to optimize model accuracy and robustness under varying environmental conditions.
- Proposed future work includes active learning, dataset expansion, and the deployment of real-world models for improved recognition systems.

Experience

- **Internship at the National Authority for Remote Sensing and Space Sciences (Feb. – Mar. 2024)**
 - Introduction to GIS, Mapping, And Spatial Analysis
- **Training R programming languages – Canadian International College (April 2024)**
 - Gained proficiency in data manipulation, statistical analysis, and data visualization using R, with hands-on experience in real-world data science applications.
- **Volunteer Event Coordinator ALX Events | (January 2024)**
 - Assisted in organizing and managing tech and professional development events for the ALX community.
- **Training IBM SPSS Data analysis – Canadian International College (December 2023)**
 - Acquired skills in data analysis, statistical techniques, and data interpretation using IBM SPSS, with practical experience in analyzing real-world datasets.
- **Training Problem Solving Using C++ - Coach Academy (June 2023)**
 - Developed strong problem-solving skills and programming proficiency in C++, with practical experience in designing and implementing efficient algorithms.
- **Training Database Management using SQL – Canadian International College (December 2022)**
 - database design, query optimization, transaction management, and data security
- **Volunteer at Google Developers Student Club Member (2022-2023)**
 - Organized tech workshops and events, coordinated marketing efforts to promote club activities, and collaborated with peers to enhance community engagement and technical skill development.

Courses (Proof Available Upon Request)

- **ALX Data Science Program (May 2023 – Aug 2024)**
 - Focus Areas: Python, SQL, Data Analysis, Machine Learning, NLP, AWS
- **ALX Foundations in Specialization (Sep 2024)**
 - Professional Development Skills for the Digital Age
- **National Authority for Remote Sensing and Space Sciences(Mar 2024)**
 - Finished all projects and tasks
- **Huawei HCIA-Big Data Learning Course(Jan 2020)**
 - Finished all Challenger, Professional, and Advanced Levels
- **Digital Marketing – Udacity & ITITDA (Sep 2021)**
 - Finished all Challenger, Professional, and Advanced Levels
- **Android Development Track– Udacity & 1 Million Arab Coders Initiative(Sep 2020)**
 - Finished all Challenger, Professional, and Advanced Levels
- **Full Stack Development Trac– Udacity & 1 Million Arab Coders Initiative(July 2019)**
 - Finished all Challenger, Professional, and Advanced Levels

Languages

- English: Advanced
- Arabic: Native Speaker