



Albara AH Ramli

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Work Experience

Postdoctoral Scholar	University of California, Davis Health	Department of Physical Medicine & Rehabilitation	Sep 2023 - Jul 2026
- Conducted mentored research focused on the application of ML and AI to identify gait impairments in individuals with neuromuscular disorders, particularly muscular dystrophies. - Designing and fine-tuning machine learning models for healthcare, enabling precise diagnostics, personalized treatments, and improved patient outcomes. - Led data collection, processing, and analysis under IRB-approved protocols, integrating wearable sensor data with algorithmic modeling to develop digital outcome measures. - Played a key role in developing and validating AI-powered tools for quantitative gait analysis to support clinical trials in neuromuscular diseases. - Collaborated closely with clinicians and research teams during patient visits at the UC Davis Neuromuscular Research Lab and the Multispecialty Neuromuscular Clinic. - Supervised and mentored undergraduate researchers and lab personnel in experimental design, data analysis, and publication preparation. - Presented research findings at national conferences including the Muscular Dystrophy Association's annual meeting and contributed to peer-reviewed publications. - Selected to participate in a UC system-wide initiative to foster interdisciplinary ALS research and international collaborations, recognized as a rising expert in wearable technology and AI in neuromuscular disease research.			
Researcher	University of California, Davis	Department of Computer Science	Aug 2020 - Jun 2023
- Dived into the application of machine learning (ML), both classical and deep learning techniques, to areas like IoT devices, human activity, and healthcare systems. Utilized advanced ML algorithms to extract insights from intricate datasets, leading to the development of Walk4Me system, which integrates AI and healthcare for improved efficiency & accuracy for DMD, ALS, and Stroke patients. Research ranged from gait identification systems to developing deep learning models for translating eye blinks into language for ALS patients, all while employing a variety of tools, software platforms. UC Davis; Department of Computer Science. UC-Davis AI-based Sensing in Healthcare; UC Davis Health, Department of Physical Medicine & Rehabilitation and Department of Neurology, Alzheimer's Disease Research Center.			
Teaching Assistant	University of California, Davis	Department of Computer Science	Jan 2016 - Jun 2023
- Serving as a TA for ECS193AB (senior design course) for Computer Science & Engineering undergraduates. Mentoring, guiding, and advising 211 students (53 teams) to successfully complete their projects in the most efficient manner. Interactions with teams and organization skills to improve student output. In addition, helped with interactive grading 635 students (159 teams) and checked 520 clients' proposals.			
Software Developer (Intern)	Symantec, Mountain View, CA, USA	CSS Cyber Insurance	Jun 2017 - Sep 2017
- Build a real-time large scale system for data gathering and analysis within time and space constraints. Model cross-layer network outages based on active and passive measurements. Using a combination of third party datasets, Internet registrar repositories: IANA and DNS logs (Norton DNS). Developed a live measurement platform that can help monitor network-based services (such as domains and endpoints). This, in turn, helps create baselines for normal/expected behavior that can then be used for real-time anomaly/outage detection applications in aggregation risk assessment and real-time alert generation which is useful for the CyberCube and other Symantec products.			
Computer Engineer	Hatif Libya Co.	Billing Department	Jul 2013 - Oct 2014
- Developed and enhanced billing system using Oracle database. Generated report statistics for informed decision-making. Collaborated with cross-functional teams to optimize system operations. - Ensured billing system accuracy and efficiency and maintained integrity & security of critical data.			
Founder	Attatweer IT & Communications. Ltd		May 2012 - Oct 2014
- Established and managed the Company, leading diverse projects for clients including Mellitah Oil & Gas Co.; Document Management and Archiving; International Excellence Co. , Training Center; Courses, Membership Management and Archiving; Ministry of Interior, Interim Government; Personal Files Management & Archiving; Ministry of Economy, E-commerce, Network Libya Trade; Recruitment Management & Archiving; Interim Government; Automated Issuance, Management & Archiving Sys. for Official Documents. - Provided innovative solutions in document management, archiving, training center operations, membership management, recruitment, and automated issuance systems for official documents.			
Internet Services Engineer	Aljeel Aljadeed Technology Co.		May 2012 - Oct 2014
- Following, configuring and troubleshooting the DNS and AAA in the team of Next Generation Network (NGN).			
IP/MPLS Core Network Engineer	Aljeel Aljadeed Technology Co.	Next Generation Network	May 2010 - Jan 2011
- Member in the team of Next Generation Network (NGN) project that aim to build the new telecommunication infrastructure for the whole country, my responsibility was to follow, verify, feedback about electronic topology of the optical fibers (HLD & LLD).			

Skills

Languages: Java, Python, C, C++, C#, PHP, SQL, JavaScript (JS), Swift, VB, Assembly. **Web development:** HTML, CSS, Bootstrap, Tailwind, React, Next.js, Node.js, Express.js, Flask, Spring Boot, Nginx, Apache. **Database:** Prisma, MySQL, PostgreSQL, MongoDB. **DevOps & Cloud:** AWS (EC2, Lambda, S3), GCP, Azure, CI/CD, Git, and Linux. **Web Services & APIs:** Swagger, Postman, GraphQL, REST API, Web Services, HTTP/HTTPS, Cookies, Docker, Kubernetes. **AI:** Classical Machine Learning (ML), Deep Learning (DL), Natural Language Processing (NLP), Large Language Models (LLM), Scikit-learn, PyTorch, TensorFlow, Keras, Pandas, NumPy. **Others:** D3js, HIPPA.

Education

- **Doctor of Philosophy (Ph.D.)** in Computer Science
 - *University of California, Davis*
- **Master of Science (M.S.)** in Computer Science
 - *University of California, Davis*
- **Bachelor of Science (B.Sc.)** in Computer Engineering
 - *University of Tripoli, Tripoli*

Mentoring

- **BioPortal Platform:** connect, visualize, analyze and share animal health and management data. Responsible for mentoring the 6 members divided into 2 teams: mobile (Flutter), web (JS/React).
- **iCare Platform:** Alzheimer’s Disease Platform. Responsible for mentoring the 9 members divided into 3 teams: mobile (Flutter), web (JS/React), and backend. [Development and piloting of a digital application designed to promote exercise and a healthy diet among older adults at risk for cognitive decline]. Responsible for mentoring the 6 members divided into 2 teams: mobile (Flutter), web (JS/React).
- **Covid-19 Symptom Scientist Platform:** Responsible for mentoring the a team of 2 members to develop cross platform (Flutter) mobile app

Publications

- **Harnessing FFT for Rapid Community Travel Distance and Step Estimation in Children with DMD.**
 - *Sensors, 25(10), 3234. (2025).*
- **Gait Event Detection and Travel Distance Using Waist-Worn Accelerometers Across a Range of Speeds: Automated Approach.**
 - *Sensors, 24(4), 1155. (2024).*
- **Gait Characterization in Duchenne Muscular Dystrophy Using a Single-Sensor Accelerometer: Classical and Deep Learning Approaches.**
 - *Sensors, 24(4), 1123. (2024).*
- **Walk4Me: Telehealth Community Mobility Assessment, An Automated System for Early Diagnosis and Disease Progression.**
 - *arXiv:2305.05543. (2023).*
- **Applied Machine Learning in Healthcare Systems: Classical and Deep Learning Approach for Gait Analysis and Activity Recognition.**
 - *Doctoral Dissertation, University of California, Davis. (2023).*
- **An Overview of Human Activity Recognition Using Wearable Sensors: Healthcare and Artificial Intelligence.**
 - *Int. Conf. on Internet of Things, 1–14. (2021).*
- **Early Mobility Recognition for ICU Patients Using Accelerometers.**
 - *AIoT Workshop at KDD. (2021).*
- **BWCNN: Blink to Word, A Real-Time Convolutional Neural Network Approach.**
 - *ICIOT. (2020).*
- **Shooting a Moving Target: Motion-Prediction-Based Transmission for 360-Degree Videos.**
 - *IEEE Big Data. (2016).*
- **Viewing 360 Degree Videos: Motion Prediction and Bandwidth Optimization.**
 - *IEEE ICNP. (2016).*

Projects

- **Healthcare and Gait Analysis**
 - Walk4Me: Telehealth Community Mobility Assessment: An Automated System for Early Diagnosis and Disease Progression.
 - Duchenne Muscular Dystrophy Identification and Community-Based Prescreening: Developed advanced machine learning and deep learning methods for early diagnosis and monitoring of disease progression in children with Duchenne muscular dystrophy.
 - Gait Identification of Stroke Patients Based on Multi-Camera Systems and Force Plates: Designed systems to analyze stroke-related gait features using multi-camera systems and force plate data.
 - Identifying Hemorrhagic Stroke Based on Wearable Sensors in Real-Time: Created a real-time wearable sensor solution to identify hemorrhagic stroke patterns.
 - Gait Characteristics in Duchenne Muscular Dystrophy Patients Based on Wearable Sensors: Built a mobile app and machine/deep learning model to identify disordered gait patterns, enabling early diagnosis and tracking disease progression.
- **Computer Vision and AI Applications**
 - BWCNN: Blink to Word: A Real-Time Convolutional Neural Network Approach. Translating Eye Blinks to Spoken/Written Language: Developed a deep learning model to predict eye states and translate them into word sequences, improving communication for patients with Amyotrophic Lateral Sclerosis (ALS).
- **Data Privacy and Network Security**
 - Privacy Data Protection in Wireless Environments: Developed a framework to identify actively transmitting devices and their types in wireless environments using data-driven techniques.
 - Network Security: System Secure and Policy Protection: Verified security integration in shared networks using assurance models like Bell-LaPadula and Biba.
- **Networking and Reinforcement Learning Applications**
 - Cross-Layer Interaction Between Transport and Application Layers: Designed a reinforcement learning framework to generate adaptive bitrate streaming and congestion control algorithms by modeling interactions between transport and application layers.
 - Reproducing Neural Adaptive Video Streaming with Pensieve: Implemented a system using reinforcement learning to generate adaptive bitrate streaming algorithms.
 - Reproducing Pantheon of Congestion Control: Evaluated and contributed to a community platform for congestion control research.
- **Virtual Reality and Experimental Platforms**
 - Virtual Reality Platform for 360-Degree Video Analysis: Developed a platform using Oculus to collect and analyze head orientation data for 360-degree videos.
- **Programming and Development**
 - SBR Polyglot Programming: Built a platform enabling hyper-programming languages for seamless integration across systems.
 - Measuring Network Performance: Analyzed and evaluated the performance degradation caused by the 2016 DYN cyberattack.

Peer Review Service

Recognized reviewer for leading international journals in Internet of Things, wearable sensing, and AI-enabled healthcare systems.

- **IEEE Internet of Things Journal** (2022 - present)
- **Sensors** (2023 - present)
- **Journal of Sensors** (2023 - present)
- **Applied Sciences** (2024 - present)

Talks & Presentations

- **[Poster]** Gait characterization in duchenne muscular dystrophy (DMD). UCSF Innovation Ventures (Reinvigorating Innovation in ALS): 2024
- **[Poster]** Gait characterization in duchenne muscular dystrophy (DMD). MDA Clinical & Scientific Conference: 2024
- **[Presentation]** A Deep Learning Approach for Identification of Stroke-related Gait Features. The Center for Neuroengineering & Medicine (UCD) - Research Symposium 2022
- **[Presentation]** Ensemble learning. UC Davis 2022
- **[Presentation]** AI-based Sensing for Healthcare Applications. The Center for Neuro-engineering & Medicine (UCD) - Neuroengineering Lunch and Learn series 2022
- **[Presentation]** An Overview of Human Activity Recognition Using Wearable Sensors: Healthcare and Artificial Intelligence (ICIOT 2021)
- **[Demo]** Human Activity Recognition through Wearable Sensors. Health data science brown bag talk 2021.
- **[Demo]** Human Activity Recognition through Wearable Sensors: DMD patient identification and ICU patient activity recognition. Virtual UCDMC Machine Learning Working Group 2021
- **[Presentation]** BWCNN: Blink to Word, a Real-Time Convolutional Neural Network Approach. International Conference on Internet of Things (ICIOT 2020)
- **[Presentation]** An Automated System for Early Diagnosis, Severity and Progression Identification in Duchenne Muscular Dystrophy: A Machine Learning and Deep Learning Approach. 7th Annual UC Davis Health Human Genomics Symposium 2020
- **[Presentation]** BACTGAN: Automatic Configuration Tuning for Software Systems with Generative Adversarial Networks. 34th IEEE/ACM International Conference on Automated Software Engineering (ASE 2019)

Awards and Honors

- **Postdoctoral Fellow:** Granted by Department of Physical Medicine and Rehabilitation, School of Medicine, UC Davis Health, University of California, Davis.
- **PhD and Master's Degree Scholarship:** Libyan-North American Scholarship Program (LNASP) recipient, sponsored by the Libyan Ministry of Higher Education & Scientific Research.
- **GGCS Graduate Program Fellowship:** Granted by the Department of Computer Science, College of Engineering, University of California, Davis.

Volunteer

[AIBridge Course] Collaborated to teach students to work toward completing a personally-defined project using techniques in AI, with data from their research or problems supplied by the course. This one-week course was hosted in person at UC Davis and targeted mainly undergraduate and non-technical graduate students. [\[course homepage, AIFS\]](#). Organized by Artificial Intelligence Institute for Next Generation Food Systems (AIFS)

Research

My research focuses on the application of machine learning, encompassing both classical and deep learning approaches, in diverse areas such as Internet of Things (IoT) devices, human activity recognition, and healthcare systems. I am particularly interested in leveraging machine learning algorithms to extract meaningful insights from complex datasets, enabling advancements in fields such as remote monitoring, personalized healthcare, and smart environments. By combining my expertise in applied machine learning with IoT technologies and healthcare domains, I have developed a solution (Walk4Me system) that enhances the efficiency, accuracy, and accessibility of healthcare systems while improving human well-being.

Certificates

- **CITI** Collaborative Institutional Training Initiative: (I) Biomedical Research, (II) Good Clinical Practice Course for Clinical Trials Involving Drugs. **RH134, RH254, & RH124** Red Hat System Administration I, II, & III. **NRS I** Alcatel-Lucent Scalable IP Networks. **IP/MPLS** Core Network Engineer & Internet Network Engineer. **CCNA** Cisco Certified Network Associate. **ICND1 & ICND2** Interconnecting Cisco Networking Devices Part I & II

Published apps

- 84,000+ users on: Google Play, AppStore, Amazon Appstore, Chrome extension, Firefox extension, Alexa skills.