ZAYNA WASMA

+971 50 577 0887 | zaynawkhaja@gmail.com | linkedin.com/in/zayna-wasma/ | github.com/heyitszayna

EDUCATION

Khalifa University — **Abu Dhabi, UAE**
M.Sc. Computational Data Science — *August 2025 – July 2026*

Abu Dhabi University — **Abu Dhabi, UAE**
B.Sc. Computer Engineering (AI Concentration) — *August 2021 – August 2025*

PROFESSIONAL EXPERIENCE

Abu Dhabi National Oil Company (ADNOC) Gas — **Abu Dhabi, UAE**
IT & Data Analytics Intern — *June 2025 – August 2025*

- Managed Active Directory tasks, IT asset logistics, user access provisioning, and ITIL-based incident/support management, providing hands-on support for hardware and software operations.
- Improved asset reliability insights by building a Power BI dashboard using upstream maintenance data and KPIs from ServiceNow.

Google Developer Groups (GDG) on Campus (ADU) — **Abu Dhabi, UAE**
Creative Lead — *September 2023 – February 2025*

- Drove a 45% rise in student engagement by designing branded visuals and templates for 10+ campus events using Google Workspace.
- Strengthened workshop participation by streamlining promotional assets for AI, app development, and cloud-focused sessions.

PROJECTS

Non-Invasive Vehicle Occupancy Detection Using mmWave Radar
Python, TensorFlow, Raspberry Pi

- Deployed CNNs on FMCW mmWave radar data for privacy-preserving vehicle occupancy detection; achieved 90%+ accuracy and streamed real-time predictions to a React/Firebase dashboard.
- **Related publication (review):** *mmWave Radar-Based Noninvasive Vehicle Occupancy Detection With Insights From Vision, RF, and Physical Sensors: A Review*, IEEE Sensors Journal (June 1, 2025) — DOI: 10.1109/JSEN.2025.3562685

Federated Learning at Scale on High-Performance Computing Clusters
Python, MPI (mpi4py), scikit-learn, HPC

- Designed and implemented a synchronous federated learning architecture using MPI, training distributed neural networks across up to 20 learners on a 581K-sample dataset while preserving data locality.
- Achieved >92% test accuracy, exceeding centralized baselines by 3-4.5%, and conducted a scalability analysis quantifying communication and computation tradeoffs under shared vs exclusive HPC execution.

Disentangled Representation Learning with Variational Autoencoders
Python, Deep Learning, Representation Learning

- Conducted a comparative study of Standard, Sparse (L1 + Laplace prior), and ICA-enhanced VAEs to learn interpretable latent embeddings on Fashion-MNIST.
- Improved Mutual Information Gap (MIG) by 43x and Separated Attribute Predictability (SAP) by 59%, demonstrating how inductive biases and post-hoc transformations influence disentanglement quality.

Time-Series Volatility Modeling with GARCH Variants
Python, Statistical Modelling

- Modeled financial time-series volatility using GARCH, EGARCH, and TGARCH to capture asymmetric effects, regime shifts, and volatility clustering in real market data.
- Performed model selection and risk estimation using AIC/BIC and Value-at-Risk, translated statistical outputs into interpretable risk and stability insights.

SKILLS & INTERESTS

Programming Languages: Python, SQL, MATLAB, Bash, HTML/CSS

Machine Learning & Data Science: TensorFlow, PyTorch, scikit-learn, distributed ML, time-series modelling, statistical analysis

Systems & Data Tools: MPI, Git, Linux-based environments, HPC/SLURM workflows, Firebase, Power BI

Interests: Applied machine learning, data-driven problem solving, model evaluation & analysis, embedded ML, reading, travel