

# Mashaan Alshammari

Riyadh, Saudi Arabia

Senior Machine Learning Engineer | Applied Deep Learning & MLOps

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Senior Machine Learning Engineer with a PhD in Computer Science and strong hands-on experience building **deep learning systems** across computer vision, graph learning, and optimization. Proven ability to design, train, and deploy scalable models using **PyTorch, JAX, and cloud-based GPU/TPU infrastructure**. Experienced in **MLOps, API-based model serving, and performance optimization**, with applied work spanning banking, energy, and large-scale research environments.

## CORE SKILLS

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<b>Programming</b>	- Python, Linux Shell, Git
<b>Deep Learning</b>	- PyTorch, Hugging Face Transformers, Lightning.AI, JAX, Flax
<b>Model Types</b>	- Vision Transformers, CNNs, GNNs, NeRF, recommendation models
<b>Computer Vision</b>	- DETR, DINOv2, object detection, image segmentation
<b>MLOps &amp; Deployment</b>	- FastAPI, Docker, model serving, REST APIs
<b>Cloud &amp; Compute</b>	- Google Cloud Platform (Compute Engine, TPU, GPU)
<b>Data &amp; Storage</b>	- SQL (Oracle, SQL Server, MySQL), data preprocessing pipelines
<b>Performance</b>	- Profiling, optimization, distributed training

## APPLIED MACHINE LEARNING PROJECTS

### Object Detection API (DETR) *PyTorch, Hugging Face, FastAPI, Docker*

- Built and deployed a **production-ready object detection** service using Facebook's DETR model for real-time inference.
- Implemented a FastAPI /predict endpoint returning annotated images with confidence-scored bounding boxes.
- Containerized the service with Docker and deployed it on a managed cloud environment for scalable inference.

### JAX Model Performance Optimization

*JAX, XLA, TensorBoard*

- Profiled and optimized JAX training workloads across varying batch sizes and hardware configurations.
- Identified compute vs. communication bottlenecks in distributed training setups.
- Delivered actionable optimization recommendations to improve model throughput and training efficiency.

### 3D Scene Reconstruction (NeRF)

*PyTorch, Lightning.AI, Google Cloud TPU*

- Designed and trained NeRF pipelines for high-fidelity 3D scene reconstruction from video data.
- Orchestrated large-scale training on **Google Cloud TPUs**, achieving high-quality reconstructions (PSNR ~45).
- Automated multi-resolution dataset preparation and experiment configuration for reproducible training runs.

## PROFESSIONAL EXPERIENCE

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<b>Senior Data Scientist</b> <i>SAB Bank</i>	Aug 2025 to Present Riyadh, Saudi Arabia
● Designed and deployed <b>machine learning and optimization models</b> in a highly regulated banking environment, supporting workforce planning, operational efficiency, and decision automation.	
● Built <b>production-grade Python pipelines</b> integrating data ingestion, feature engineering, model training, and inference across Oracle, SQL Server, IBM DB2, and TRIRIGA data sources.	
● Delivered <b>model-driven dashboards and decision-support tools</b> by integrating ML outputs with Tableau and downstream BI systems.	
● Collaborated closely with business stakeholders, data engineers, and BI teams to translate operational requirements into <b>deployable ML solutions</b> .	
<b>YouTube Creator (Machine Learning)</b> <i>Self-employed</i>	Sep 2023 to Aug 2025 Riyadh, Saudi Arabia
● Designed and implemented <b>advanced deep learning models</b> (Vision Transformers, Swin, DINOv2, GNNs) across PyTorch and JAX on GPU/TPU platforms.	
● Built reproducible ML pipelines covering <b>data preprocessing, training, hyperparameter tuning</b> .	
● Developed and deployed model APIs and inference services using <b>FastAPI and Docker</b> .	
● Produced <b>50+ technical ML tutorials</b> and open-source examples focused on applied deep learning and performance optimization.	
<b>Assistant Professor</b> <i>University of Hail</i>	Jan 2021 to Sep 2023 Hail, Saudi Arabia
● Taught graduate-level courses in <b>Machine Learning for Big Data</b> , and applied analytics.	
● Supervised applied ML projects covering <b>model development, evaluation, and deployment</b> .	
● Mentored students on bridging research concepts with production-ready ML systems.	
<b>Educational Program Developer</b> <i>Sydney Polytechnic Institute</i>	Sep 2020 to Jan 2021 Sydney, Australia
● Designed and delivered <b>industry-aligned curricula</b> in machine learning, data science, and cloud.	
● Developed hands-on labs covering <b>model training, deployment, and scalable cloud architectures</b> .	
<b>System Engineer</b> <i>SABIC</i>	Aug 2010 to May 2012 Jubail, Saudi Arabia
● Supported secure, air-gapped infrastructure in a high-security industrial environment.	
● Led server upgrades and system migrations with zero operational downtime.	

## EDUCATION

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<b>PhD in Computer Science</b> , The University of Sydney,	2017 to 2021
<b>MSc in Computer Science</b> , KFUPM,	2013 to 2016

## ADDITIONAL

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- **Languages:** Arabic (native), English (fluent)
- **YouTube:** [youtube.com/@mashaan14](https://youtube.com/@mashaan14)
- **LinkedIn:** [linkedin.com/in/mashaan](https://linkedin.com/in/mashaan)