Mohamad Ali Al Saidi

AI & Machine Learning Engineer

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Profile

PhD candidate in Artificial Intelligence with deep expertise in machine learning and deep learning designing, training, and validating models across computer vision, natural language processing, time-series forecasting, anomaly detection, recommendation systems, reinforcement learning, and TinyML applications on edge devices.

Skilled in model architecture design, hyperparameter optimization, and performance evaluation using PyTorch, TensorFlow, and TensorFlow Lite to achieve state-of-the-art results on both benchmark and real-world datasets.

Experienced in end-to-end AI workflows: data ingestion & feature engineering, distributed training on GPU clusters, deployment to cloud and embedded platforms, A/B testing, and continuous monitoring & iteration to meet production SLAs.

Education

Ph.D. in Computer Engineering, Artificial Intelligence & Robotics **2023 – Present**
Ferdowsi University of Mashhad *Mashhad, Iran*

Doctor of Business Administration (DBA) **2024 – 2026**
University of Tehran *Tehran, Iran*

Master of Business Administration (MBA) **2022 – 2023**
Ferdowsi University of Mashhad *Mashhad, Iran*

M.Sc. in Computer Engineering, Artificial Intelligence & Robotics **2020 – 2022**
Ferdowsi University of Mashhad — GPA: 3.9/4.0 *Mashhad, Iran*

- *Thesis:* Hierarchical Solving of Euclidean Geometry Ruler and Compass Construction Problems Using Visual Knowledge Representation and Curriculum Learning

B.Sc. in Computer Engineering, Artificial Intelligence **2016 – 2020**
Ferdowsi University of Mashhad — GPA: 3.9/4.0 *Mashhad, Iran*

Experience

Airline System Developer **2018 – 2025**
Sky Gift — Beirut, Lebanon

- Architected and implemented a modular airline reservation and management platform supporting high-volume daily bookings.
- Engineered an AI-driven OCR module for passport data extraction using computer vision–based OCR techniques and models, achieving 95% accuracy and reducing manual processing time by 80%.
- Developed interactive UI components and dashboards to visualize real-time booking metrics.
- Designed and maintained robust ETL pipelines in Python and SQL, ensuring 99% data integrity across passenger and flight records.
- Managed Windows servers and network infrastructure, and enforced security, backup, and disaster recovery protocols—achieving 99.9% system uptime.

System Administrator Intern **2017 – 2018**
ICT Department, Ferdowsi University of Mashhad — Mashhad, Iran

- Maintained university ICT infrastructure: installed, configured, and troubleshot Windows/Linux servers, workstations, and network equipment.
- Led deployment of security patches and system upgrades, reducing critical vulnerabilities by 90%.
- Automated routine maintenance tasks with Bash and PowerShell scripts, cutting weekly manual effort by 50%.

Projects

Large Language Models (LLMs) & NLP ***BERT, GPT, T5, Transformers, Hugging Face, Python***

- Fine-tuned BERT, GPT, and T5 transformer models on specialized datasets for tasks including text summarization, question-answering, and classification.
- Developed a Persian medical report summarization system achieving improved readability and 30% faster clinical information extraction.
- Implemented NLP pipelines for Named Entity Recognition (NER), token classification, knowledge graph extraction, and document clustering.

Reinforcement Learning Agents ***Q-Learning, SARSA, DQN, PPO, Actor-Critic, MCTS, Python***

- Created reinforcement learning agents trained across various environments including Atari games, CartPole, mazes, and custom shooter scenarios.
- Optimized agents with advanced reward shaping, exploration strategies, and hyperparameter tuning, consistently exceeding baseline performances.

Computer Vision & Object Detection ***YOLOv8, RCNN family, OpenCV, TensorFlow, PyTorch***

- Built real-time object detection and segmentation systems using YOLOv8, Mask RCNN, and Faster RCNN, deployed on GPUs and Arduino Nano 33 BLE devices.
- Developed a passport information extraction pipeline leveraging YOLOv8 achieving high accuracy and significantly reducing manual processing time.
- Performed advanced image processing tasks including image stitching, restoration, enhancement, and fisheye distortion correction using OpenCV.

TinyML & Embedded Systems ***MCUNet, TensorFlow Lite Micro, Arduino Nano 33 BLE, NAS***

- Applied model pruning, quantization, and Neural Architecture Search (NAS) to develop ultra-compact deep learning models for low-power embedded devices.
- Successfully deployed optimized TinyML models on Arduino Nano 33 BLE, maintaining high inference accuracy with minimal power usage.

Robotics & Simulation ***ROS, Gazebo, TurtleBot3, LiDAR, Python, C++***

- Programmed autonomous navigation and object manipulation tasks using TurtleBot3 and robotic arms in ROS and Gazebo simulation environments.
- Integrated LiDAR sensors for real-time perception, SLAM-based localization, and obstacle avoidance, achieving reliable autonomous behaviors.

Machine Learning & Pattern Recognition ***Scikit-learn, SVM, Decision Trees, Bayesian Networks***

- Designed and evaluated classical machine learning models on diverse sensor, time-series, tabular, and visual datasets, consistently achieving high accuracy and robust performance.
- Developed custom pattern recognition algorithms tailored for structured data and visual pattern extraction.

Security & System-Level Projects ***AES, RSA, Steganography, Linux Kernel, Shell scripting***

- Built secure communication modules using AES and RSA encryption, along with custom hashing algorithms.
- Created steganography tools and enhanced Linux OS capabilities through kernel modifications and advanced shell scripting.
- Implemented secure key-exchange systems utilizing an MIT-based open-source solution.

Software Engineering & Development ***Python, Java, PHP, SQL, Verilog, MATLAB***

- Developed scalable applications including a car rental platform, recommender systems, and high-throughput web crawlers.
- Engineered a custom compiler, designed CPU architecture in Verilog, and implemented optimization algorithms using MATLAB and Python.
- Built secure and responsive desktop and web systems leveraging Java, PHP, and SQL databases.

Technical Skills

Programming Languages: Python, Java, C/C++, PHP, SQL, Prolog

AI & Machine Learning Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, Hugging Face Transformers, MCUNet

TinyML & Embedded Systems: TensorFlow Lite Micro, Arduino Nano 33 BLE, Edge Impulse, MCUNet, model pruning, quantization

Computer Vision Libraries: OpenCV, YOLO (v5/v8), Mask R-CNN, Faster R-CNN

Robotics & Simulation: ROS, Gazebo, TurtleBot3, LiDAR integration

Web Development: HTML5, CSS3, XML, JavaScript

Tools & Platforms: Git, Docker, Linux, Shell scripting, MATLAB, LaTeX

Languages

Arabic: Native

English: Fluent (C1)

Persian: Fluent (C2)