Zaid Ghazal

Machine Learning Engineer, Applying to TORC

Address: Ann Arbor, Michigan, United States • Phone: +1-603-531-0349 • Email: zghazal@umich.edu
LinkedIn: linkedin.com/in/zaid-ghazal

Machine Learning Engineer with 3+ years of experience developing AI solutions for clients like Aramco, British Petroleum, and the Dubai Government. Worked on fraud detection systems and contributed to building an easy to use SaaS platform that helps businesses adopt AI without coding. Key achievement: a 70% reduction in fraud detection overhead for Aramco, resulting in $1.5M in cost savings and around 50% faster deployment cycle.

RELEVANT WORK EXPERIENCE

Beyond Limits, Los Angeles, CA July 2021 – January 2025
Machine Learning Engineer

- Engineered a real-time edge-hosted computer vision system for subway and airport security gates, achieving <1 second latency with 2 camera feeds analyzed in parallel using a custom compiled model through TensorRT to gain more performance when using NVIDIA GPUs and boards.
- Implemented centroid tracking with <1.5% missed objects, and integrated detection, tracking, and depth estimation into a single modular pipeline-successfully live-tested in Europe with 100% pass rate.
- Led the design of a new Ray-based distributed training framework on AWS to enable large-scale model training for complex and multitask architectures.
- Designed and implemented the data science service within the SaaS platform Blend Optimizer, providing end-to-end Machine Learning capabilities hosted on a High-Performance Computing (HPC) infrastructure. This solution enables clients to manage datasets, perform exploratory data analysis, and train and evaluate ML models all through an intuitive no-code user interface.
- Followed AGILE methods (Jira) to ensure smooth team collaboration and tasks handling.
- Delivered advanced AI solutions to major clients (such as Aramco, Dubai Government) in collaboration with Caltech, leveraging PyTorch and statistical analysis for perception and planning in edge and cloud instances such as AWS EC2 g5.4xlarge.
- Deployed robust APIs for remote model access and optimized deep learning performance (using CuDNN and quantization) to enable production-quality integration.
- Developed and maintained production-quality code adhering to strict coding standards including object oriented programming and unit testing, resulting in around 80% reduction in bug occurrence at staging (quality assurance) phase, compared to unit testing-free development.

Holoteq USA LLC, Dearborn, MI June 2019 – September 2019
Mechatronics Engineering Intern

- Developed an embedded system to detect driving mistakes during road tests using real-time vehicle data.
- Resolved the issue of slow data processing by upgrading to multiprocessing controller (Shield Buddy - TC275), which made the processing 3x faster compared to previously used controller.
- Integrated OBD II module with the controller to streamline data collection.
- Designed the falsification algorithm for detecting driver mistakes accurately in real-time.

EDUCATION

University of Michigan-Dearborn, Michigan, United States January 2024 – July 2025
Master of Science — Artificial Intelligence

University of Jordan, Amman, Jordan September 2017 – June 2021
Bachelor of Science — Mechatronics Engineering

SKILLS

Programming Languages: Python, C++, MATLAB.
Software Tools and Packages: Pandas, NumPy, SciPy, Scikit-Learn, PyTorch, SQLAlchemy, PostgreSQL, FastAPI, Docker, AWS, SQL, Metaheuristic Optimizers.
Edge Devices: NVIDIA Jetson boards, Infenion ShieldBuddy TC275, Arduino.
Development Tools: Jira, Bitbucket, Git, GitHub, Agile.

Research and Publications

- **Using Systematic Evaluation of Initial States and Exploration-Exploitation Strategies in PID Auto-Tuning: A Framework-Driven Approach Applied on Mobile Robots,** *submitted to IEEE ICARM 2025 conference*

- **Using Genetic Algorithm to Create Optimized ML Model for PV Power Generation Forecasting**
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