Mohammadreza Hosseini

Applying for: AI/ML Engineer

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Experience

Computer Vision Engineer — AWENTIA — Nov 2024 - Present

- Developed comprehensive C++ SDK for cross-industry computer vision applications with unified interface and integrated AI models into edge devices using comprehensive testing frameworks.
- Engineered real-time image processing pipeline using GStreamer, Hailo Edge AI Processors, and NVIDIA DeepStream with TensorRT optimization, achieving minimal latency performance on edge devices.
- Implemented data warehousing solutions using BigQuery for large-scale computer vision datasets and optimized SQL schemas achieving 40% faster query performance through strategic indexing.
- Orchestrated containerized deployments using Kubernetes for scalable computer vision model serving and established CI/CD pipelines reducing deployment time by 60%.

AI Integration Engineer — N0VA XR — Apr 2024 - Jul 2024

- Engineered low-latency pipeline streaming camera feeds to AI server, achieving 20 ms inference time and 13 ms network latency using WebSockets.
- Enabled real-time 30 fps integration within Unreal Engine using C++, Python, JavaScript, Docker, PostgreSQL, Redis, and Nginx.
- Implemented data warehousing with PostgreSQL for AI model metrics, creating SQL dashboards for system health monitoring.
- Containerized AI services using Docker and Kubernetes for scalable model serving and load balancing.
- Established DevOps workflows reducing manual work by 90% through automation projects.

Teaching Assistant — University of Bologna — Sep 2022 - Present

- Mentored 300+ AI students in Python, algorithms, and AI languages, improving their academic and practical success.
- Collaborated with Professors Simone Martini and Michael Lodi on course material preparation and assignment grading.
- Developed BigQuery data warehousing solutions tracking student performance metrics across multiple semesters.
- Created SQL analytics dashboards for student progress monitoring and at-risk student identification.
- Implemented Docker and Kubernetes environments for consistent student development setups.

Freelance Python Developer — Self-employed — Feb 2019 - Aug 2021

- Optimized Python scripts achieving up to 40% execution time reduction and integrated 50+ third-party APIs into applications.
- Developed and deployed 10+ RESTful APIs using Flask and Django, implementing unit tests for improved code reliability.
- Automated repetitive tasks achieving 50% time savings in administrative workflows through intelligent scheduling systems.
- Implemented BigQuery data warehousing solutions for client projects, enabling efficient storage and analysis of large datasets.
- Established DevOps practices with Docker, Kubernetes, and CI/CD pipelines, reducing client project delivery time by 30%.

Education

University of Bologna, Bologna, Italy — Master of Science (M.S.) in Artificial Intelligence — Sep 2021 - Oct 2024

- GPA: 3.78
- Thesis: Integration of AI models into Unreal Engine

University of Damghan, Damghan, Iran — Bachelor of Science (B.S.) in Computer Science — Feb 2015 - Feb 2019

Projects

Medical Abbreviation Disambiguation — NLP — University of Bologna

- Developed a medical abbreviation disambiguation system using negative sampling.
- Fine-tuned TinyBert, BioBert, and SciBert models, achieving F1 score of 0.81 with SciBert.
- Performed error analysis and post-processing, boosting F1 score from 77\

Generation of Clinical Skin Images — CV — University of Bologna

- Developed and implemented a machine learning pipeline using ControlNet.
- Trained ControlNet on skin tone-based prompts.
- Achieved Avg PSNR of 27.19, Avg SSIM of 0.67, and FID of 69.

Publications

Comparative Analysis of Transfer and Continual Learning for Vision Based Particle Classification in Plastics Sorting for Recycling
Shami, S., Haecker, B., Aberger, J., Hosseini, M., Pestana, J., Krisper, M., 2024.
Proceedings of the Recy & Depotech Conference 2024, Montanuniversität Leoben

Skills

Programming Languages: Python, C++, JavaScript, Prolog, Bash

AI/ML Frameworks: PyTorch, TensorFlow, Scikit-learn, LangChain

Python Libraries: Apache Spark, Hadoop, SpaCy, NLTK, Transformers, OpenCV, Pandas, NumPy, Matplotlib, Seaborn

Database & Query Languages: SQL, PostgreSQL, Redis, SQLite

Cloud Computing: AWS, Azure, GCP

Data Warehouses & Big Data: Apache Spark, Hadoop, Snowflake, Amazon Redshift, BigQuery

DevOps and MLOps: CI/CD pipelines, Docker, Kubernetes, MLflow, Apache Airflow

Web Development: Django, Flask, Gradio, React

Tools & Technologies: NVIDIA TensorRT, NVIDIA DeepStream, Tableau, Unreal Engine, Git, Huggingface, LLM, GenAI

Certifications & Languages

- AWS Cloud Quest | Cloud Practitioner
- The Protection of Personal Data (GDPR and Cybersecurity)
- Neural Networks and Deep Learning (Andrew Ng)
- English (C1)
- Italian (A1)

Additional Information

Specialized Areas: Computer Vision, Natural Language Processing (NLP), Automation

Hobbies: Hiking, Chess, Table Tennis