Monteiro Del Prete

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PROFESSIONAL EXPERIENCE

Teoresi Group, Italy **03/2023 – Present**
AI Software Engineer

- Designed and implemented a custom 2D recursive packing algorithm for pallet loading optimization. Reduced spatial waste and increased production throughput by 20% through algorithmic complexity refinement.
- Engineered a high-throughput data ingestion pipeline for statistical analysis, optimizing query patterns and caching strategies to handle large-scale data processing efficiently.
- Built a real-time anomaly detection system for pharmaceutical machinery sensors. Achieved sub-second latency while processing 500+ simultaneous sample points, enabling immediate fault intervention.
- Integrated Large Language Models into the data workflow to automate complex topic extraction and content summarization, streamlining the unstructured data processing pipeline.
- Architected a cloud-native video processing pipeline for traffic analysis and road sign detection.

TECHNICAL SKILLS

Languages: Python, C++, SQL (PostgreSQL, SQL Server)
Cloud & DevOps: Docker, AWS, Azure, Linux/Ubuntu, Git, CMake
AI & Machine Learning: TensorFlow, LangChain, Computer Vision, Reinforcement Learning, Deep Learning
Core Engineering: Algorithm Design & Complexity Analysis, System Architecture, Real-time Systems, Software Performance Optimization

EDUCATION

University of Naples "Federico II" **12/2020 – 07/2023**
Master of Science in Artificial Intelligence 110/110 cum laude *Naples, Italy*

University of Naples "Federico II" **09/2017 – 12/2020**
Bachelor's Degree in Computer Science 110/110 *Naples, Italy*

PROJECTS

Proximal Humerus Fracture (PHF) Recognition *Python, Tensorflow* **03/2023**

- Developed a hybrid 2D/3D Deep Learning architecture (Triplanar U-Net) for medical image segmentation, achieving 85% IoU on a clinical dataset
- Reduced training energy consumption by 40% through hybrid input processing strategies

Real-time Hand Gesture Recognition *Python, Tensorflow* **01/2023**

- Built a high-performance gesture recognition system achieving 30 FPS inference speed with 92% accuracy on standard hardware
- Implemented geometric computer vision techniques, applying homographic transformations and Hough circle detection for robust heuristic classification without heavy reliance on black-box models

Self-Driving Car with Reinforcement Learning *C#, Unity* **09/2022**

- Trained autonomous agents using Reinforcement Learning (PPO & SAC) within Unity. Designed custom reward shaping functions to optimize agent convergence
- Conducted comparative algorithmic analysis, demonstrating PPO's superiority (89% completion rate) over SAC (76%) regarding sample efficiency and stability in this specific environment

Convolutional Neural Network from scratch *Python* **07/2022**

- Implemented complete CNN framework including forward/backward propagation, convolutional layers, and gradient descent without ML libraries

CERTIFICATIONS

British Council IELTS **07/2022**
English Student - 7.0/9.0 Score *Naples, Italy (IT)*

Kaplan International Languages **08/2018**
English Student - B2 Level *Santa Barbara, California (US)*