Pierpasquale Colagrande

Artificial Intelligence Engineer
Milan, Italy

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native
fluent

Experience

Artificial Intelligence Engineer
Feb 2024 - Present

Blimp.ai • Full-time
Milan, Italy

R&D for the company's flagship product, a computer vision sensor designed for urban monitoring and analysis

- Optimized and streamlined codebase for reduced complexity and increased inference speed
  - **Increased inference speed by 130% on NVIDIA Jetson Nano** (from 3 to 7 FPS)
  - **Inference speed further increased by 155%** through codebase porting to newer **NVIDIA Jetson Orin Nano** (from 7 to 18 FPS)
- Developed and optimized AI models for **object detection and tracking**
  - **Achieved 26% increase in accuracy of people counting** models in challenging conditions by hyperparameter fine-tuning
  - **Further increased people counting accuracy by 30%** by upgrading from MobileNetV2+SORT to **Ultralytics YOLOv11-Small**
  - **Achieved 63% accuracy (mAP50-95) on detection of additional objects** by fine-tuning YOLOv11-Small
- Trained, tested, and deployed **image classification** networks
  - **Achieved 92% accuracy on staff member classification**
- **Created, cleaned, and prepared datasets for image classification and object detection**
- **Reduced offline sensors by 65%** by designing and developing a **robust input module for reliable IP camera connectivity** and frame acquisition

Development of additional features

- **Created and maintained an updater tool** for seamless deployment of packages, patches and new features to sensors in production
- Created and maintained a GUI-based tool for remote sensor management
- Developed **REST APIs** to deliver features tailored to clients' needs

Data Scientist
May 2023 - Jan 2024

Lutech • Full-time
Cinisello Balsamo, Italy

R&D AI projects

- **AI-driven MRI analysis for assisting neurodegenerative disease diagnosis**
  - Designed and developed a Proof of Concept (PoC) computer vision system to assist in diagnosing neurodegenerative diseases
  - **Fine-tuned deep learning vision models (CNNs, ViTs)** for detection and classification on **MRI images & multimodal datasets** using **Hugging Face**
- **AI-driven hydraulic plant automation and optimization**
  - Designed and developed an intelligent pump automation system leveraging **Reinforcement Learning and Physics-Informed Deep Learning**
  - **Created algorithms to convert hydraulic plant schematics into Deep Neural Network (DNN) architectures** via modular building blocks
  - **Implemented and trained custom neural networks** for predictive, adaptive and efficient plant management

AI consulting projects

- Delivered **Large Language Models (LLMs) and Retrieval-Augmented Generation (RAG) solutions**, including chatbots and text document analysis
- Implemented vision systems with **Vertex AI and Google Cloud Platform**
- Built CI/CD pipelines using **Docker, Kubernetes**, and Mia-Platform

Master's Thesis Intern
Mar 2022 - Jul 2022

Univrses • Internship
Stockholm, Sweden

R&D of a copy-paste data augmentation method for generating synthetic object detection datasets, including training experiments using the company's pipeline

Education

Artificial Intelligence
Sep 2019 - Feb 2023

University of Bologna • Master's Degree
Bologna, Italy

Relevant courses: **Machine & Deep Learning; Natural Language Processing; Computer Vision; Reinforcement Learning; Knowledge Engineering;** Probability and Statistics
GPA: 3.73/4

Computer Science
Sep 2015 - Apr 2019

University of Bari • Bachelor's Degree
Bari, Italy

Relevant courses: **Algorithms and Data Structures**; Databases; **Object-Oriented Programming**; Software Engineering; Web Development
GPA: 3.86/4

Publications

CRISPRLearner: A Deep Learning-Based System to Predict CRISPR/Cas9 sgRNA On-Target Cleavage Efficiency

MDPI, Electronics • December 2019
G. Dimauro, P. Colagrande, R. Carlucci, M. Ventura, V. Bevilacqua, D. Caivano

Projects

MPRNet: CNN for Super Resolution — Sep - Dec 2022
Deep Reinforcement Learning for Atari 2600 — Jul - Sep 2022
BERT Fine-tuning for Question Answering — Jan - Apr 2021
Conditional GAN for Face Generation — Apr - Jul 2020

More on **GitHub**

Technical & Soft Skills

Artificial Intelligence: Image Classification, Object Detection and Tracking, Embedded and on-edge AI, CNNs, Transformers, **GenAI, AI Agents, LLMs, RAG**, Reinforcement Learning, Machine & Deep Learning
Languages: **Python, Shell Scripting**, HTML/CSS, PHP, **SQL**, JavaScript, **C, C++**, Java, Scala
Cloud & Database: **Google Cloud Platform, Vertex AI**, SLURM, Dremio
DevOps & MLOps: **Git, GitHub, GitLab, BitBucket**, PyTest, **Docker, Kubernetes, GitHub Actions**, CircleCI, Wandb, TensorBoard
Frameworks & Libraries: **PyTorch, TensorFlow, OpenCV, Ultralytics, NVIDIA Jetson, TensorRT, Keras, OpenAI, OpenAI Gym, Scikit-learn, HuggingFace, Pandas, NumPy, Flask, FastAPI**
Soft Skills: Problem Solving, Leadership, Self-learning, Proactivity, Curiosity, Ambition, Teamwork, Self-promotion, Attention to detail