Alberto Raimondi

Machine Learning Engineer

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Experience

Machine Learning Engineer · **Standard.ai** May 2022 - Present

- Implemented active learning for Human Pose Estimation (HPE), reducing labeling costs by ~30% and improving the representativeness of the training data distribution.
- Developed a service to automatically manage Human-in-the-loop feedback, streamlining the data labeling process and enhancing model accuracy (PostgreSQL, GCP App Engine, Celery).
- Directed the full life-cycle management of advanced deep learning models for diverse applications including action recognition, employee-customer classification, and precise interaction/product localization, leveraging cutting-edge techniques to boost performance and efficiency.
- Improved and maintained our distributed production pipeline by optimizing data flow through a Directed Acyclic Graph (DAG), ensuring reliable and high-speed frame processing from store sites to cloud machines (PubSub, Protobuf, Vertex)

Machine Learning Engineer · **Helixa.ai** Apr 2021 - May 2022

- Developed a recommendation system for item-user matching using collaborative filtering (Implicit library, PyData stack).
- Worked with different linear and non-linear machine learning models to predict user preferences and behavior (PyTorch,XGboost, Scikit-Learn, SciPy).
- Ported legacy code to modern cloud infrastructure (AWS batch, MetaFlow, MLflow, CircleCI) reducing time to market of the final product.
- Optimized unsupervised clustering system to reduce runtime by 40% and improve performance (AWS step, AWS Lambda, cProfile, Apache Arrow/Parquet).

Machine Learning Consultant · **Freelance** Since 2020

- Sporadically collaborating with clients on interesting projects.
- Managed the deployment and fine-tuning of a pre-trained UNet model for medical image segmentation on AWS.
- Enabled non tech-savvy medical researchers to autonomously run experiments by implementing the resulting system (PyTorch, AWS EC2).

Assistant Researcher · **Imaging and Vision Lab** Nov 2019 - Mar 2021

- Designed a state of the art beamforming system to mitigate active interference in antenna signals and optimize electromagnetic (EM) signal transmission.
- Employed state of the art convolutional neural networks to model EM signals as images, enabling effective signal manipulation and analysis.
- Successfully achieved best in category response times in an adversarial context, ensuring efficient and reliable signal transmission and consistent advantages over competing commercial solutions.
- Implemented complex differentiable operations in PyTorch, enabling the utilization of loss functions in the complex domain for accurate signal optimization (ONNX, TensorFlow Lite).

Research Intern · **Imaging and Vision Lab** Jun 2018 - Oct 2018

- Developed a back-end system for a "Smart Mirror" IoT device to allow data collection and analysis aimed to improve senior citizens assistance.
- Built a messaging system to allow remote neural network inference on IoT devices (Flask, ZeroMQ).

Skills

Programming Languages
Python, Javascript, SQL, Rust, MatLab, R

Libraries & Frameworks
PyTorch, TensorFlow, Transformers, Diffusers, Svelte, PostgreSQL

Tools & Platforms
Linux, Git, Docker, GCP, AWS, WandB, DataBricks, DVC, LaTeX

Publications

U-WeAr: User Recognition on Wearable Devices through Arm Gesture
IEEE Transactions on Human-Machine Systems (2022)

AESA Adaptive Beamforming Using Deep Learning
IEEE Radar Conference (2020)

Education

M.Sc. Data Science · 2019
Graduated Magna Cum Laude
Università degli studi Milano Bicocca

B.Sc. Finance · 2017
Università degli studi Milano Bicocca

Languages

Italian · Native

English · CEFR C2

Achievements

Public Speaker on AI · Present
I deliver accessible talks to diverse audiences about the impacts of AI

Erasmus Traineeship · 2019
Universidad Autónoma de Madrid

Python programming Teaching Assistant · 2019 & 2020
Università degli studi Milano Bicocca