Federico **Izzo**

Machine Learning Engineer - Software Developer

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Skills

Programming Python (expert), Bash (proficient), C (intermediate), TS/JS (intermediate), Rust (beginner), Java (beginner).
Python Lib PyTorch, Numpy, Pandas, Scikit Learn, Matplotlib, xarray, SciPy.
Misc Linux (expert), Docker (proficient), SQL (proficient), Git (proficient), Airflow (inter.), Kubernetes (beginner).
Languages English (professional working proficiency), Italian (native).

Work Experience

Machine Learning Engineer
Trento, Italy

Bruno Kessler Fundation (DSIP) *Jan 2021 – now*

- Built a tool for the abstraction of the usage of containerization for the lifecycle of a DL model inside SLURM environments.
- Developed hyper-resolution ($300m$ to $10m$) deep convolutional networks for Sentinel-2 UAV images.
- Started experiencing with Kubernetes and other SOTA tools for DevOps and MLOps world.
- Tested a set of methods for estimation of grapes harvesting metrics: LSTM, GRU, genetic optimizations of parameters.
- Been a team leader of a team-based project interacting with stakeholders using an AGILE approach.

Machine Learning Engineer
Trento, Italy

Bruno Kessler Fundation (MPBA) *Jan 2020 – Jan 2021*

- Deployed a production pipeline of ~ 80 docker containers with Apache Airflow for predictions in the field of agriculture.
- Devised time-series regressor with Recurrent and Convolutional Neural Networks for estimation of ripening of a plant.
- Designed solutions for the integration of georeferenced data using GDAL/GIS suite.
- Conceived a multi-layer and resolution python library based on Zarr compression for georeferenced data.

Education

Master's degree in Artificial Intelligence Systems - Computer Vision path
Trento, Italy

University of Trento *Sep 2021 – Exp: Sep 2023*

- Relevant courses: Machine Learning, Deep Learning, Computer Vision, Fundamentals of AI, Bio-Inspired Artificial Intelligence.

Bachelor's degree in Computer Science
Trento, Italy

University of Trento *Sep 2018 – Jul 2021*

- Grade: 110/110. GPA: 4.0.
- Relevant courses: Algorithms and Data Structures, Operative Systems, Probability and Statistics, Databases, Calculus.

Projects

Camera Pose Estimation
ML, DL, COLMAP, Python

Team Leader

- Proposed a dataset generation pipeline through structure from motion techniques: mapped an entire floor of $700m^2$.
- Implemented deep learning models for absolute and relative pose estimation with mean absolute error of $1.3m$.
- Created a FastAPI application to deploy the final model on a Bootstrap Vanilla JS frontend.

Domain Adaptation
ML, DL, DA, Python

Team Leader

- Tested SOTA technique for the domain adaptation task in the field of Computer Vision.
- Proposed a DL model with original contributions increasing general accuracy of $\sim 2\%$ during the domain change.
- Generated a modular development environment for the Adaptiope dataset.

Eating Planner for Organized Creature
TypeScript, FoalJS, MongoDB, CI, CD

Team Leader

- Developed a Node.js FoalTS REST API to arrange a meal planner based on user preferences using a MongoDB storage with more than 5000 recipes.
- Designed a responsive Bootstrap Web App to interact with the REST API.
- Implemented a pipeline for continuous integration (Travis CI and GitHub Actions) and continuous deployment (Heroku).

File Analyzer
C, Unix, SystemProgramming

Team Leader

- Built a multi-process and multi-thread solution in C that is able to analyze 51 files/second and produce statistics.
- Worked with low-level API of UNIX structure.