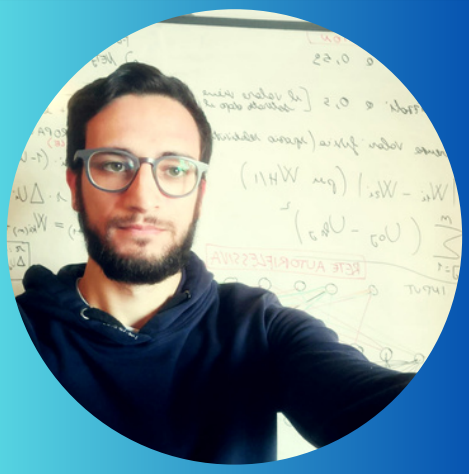

Davide Grimaldi

Computer scientist, ML engineer, research operations analyst

Eclectic computer scientist capable of managing data throughout the entire data science process, from raw data management, to modeling, to product release. Strong ability to prototype new solutions to give insight into any complex problem. Resilient with field-tested capabilities to handle multiple projects and high workloads.

Contact

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Github https://github.com/Ishikawa7

Key Skills

General: #Machine learning, #Deep learning, #Operation Research, #Reinforcement Learning, #Programming, #Anomalies detection, #Time series analysis, #Genetic Algorithms, #Heuristic algorithms, #Network Analysis, #Optimization, #Machine learning control, #Forecasting, #Cloud, #Datascience, #MLOps, #Applied Math, #Computer Vision

Programming languages: Python, Rust, C, Cython, C++, Java , Javascript, C#, Haskell

ML/Deep learning frameworks: Tensorflow, OpenCV, Scikit-learn, XGBoost, SHAP, Pytorch

Data science libraries: Pandas, Polars, Numpy, SciPy, Spark, NetworkX, Pyomo

Optimization algorithms: Genetic Algorithms, Particle Swarm, Ant-Colony Optimization, Simulated Annealing

Visualization: Plotly-dash, Tableau, Google Data Studio, Flourish, Streamlit, Matplotlib, Seaborn, D3j

Databases: Mysql, Postgress, Neo4j, MongoDB, SQLite

Web development/devops/MLOps: Flask, Django, Docker, MLflow, google cloud, google Bigquery, Git, FastAPI, Reactjs

Experience highlited

AI to optimize production and sales processes

for: Mangini International (Mangini group), delivered to: VRM **08-2024 - now**

Data preprocessing and exploration.Data preprocessing and exploration of data regarding fish sales and farming. ***Development of simulation and forecasting models for farming cycles, fish growth and fishing, development of a model to recommend the best time window to fish the fish with respect to cost-opportunity parameters****. Implementation of sales forecasting models, sales segmentation through clustering,* ***development of a recommendation engine based on collaborative filtering to suggest where to place the fish in a push sales model.***

AI and Engineering: Enhancing Machinery and Industrial Processes

for: Nicomac s.r.l. (Mangini group) **01-2024 - now**

Development of advanced algorithms tailored to enhance the capsule coating process, employing techniques from reinforcement learning and machine learning control. ***Engineering of an algorithm to improve process efficiency, this innovation has been showcased at ACHEMA (World Forum for the Process Industries) and at CPHI Milan 2024.*** *Development of an analytics system to monitor and analyze processes, including an anomaly detection system.*

AI and investigative analysis for one of Europe's main special investigative bodies

for: Semeion research center, delivered to: ROS **04-2023 - 01-2024**

The Raggruppamento Operativo Speciale (ROS), or Special Operations Group, is the main investigative arm of the Carabinieri, dealing with organized crime and mafia
Data preprocessing and exploration, study, conversion, adaptation and testing of custom models and related Semeion indices. ***Gaining of investigative insights leveraging deep learning and network analysis****. Back-end development, front-end application with graphical interface with annexes interactive visualizations of the generated graphs and the indices obtained on them.*

Malware analysis and classification project for Italian military reference institution

for: Semeion research center, delivered to: COR (italian military division for cyber security) **04-2023 - 01-2024**

"COR is responsible for the conduct of operations in the cyber domain, as well as the safe technical-operational management of all Defense Information & Communications Technology/C4 Systems."
Data preprocessing and exploration. ***Study, conversion, adaptation and testing of the Semeion custom deep learning models. High performance custom ensamble deep learning model deployment.*** *Development of back-end and front-end applications with graphical interface with results visualizations.* ***Study, implementation and testing of model retrain policies.*** *Definition of control and validation rules on data provided.* ***Malwares clustering using deep learning. Anomaly detection model for malwares.***

Education

Graduating: BSs Computer Eng.
Università di Catania
Key University subjects:
Object oriented programming 30/30 (w.h.)
Computer forensics 30/30 (w.h)
Database and web development 30/30
Physics 30/30

Key MOOC: Stanford *CS229 Machine learning* (Andrew Ng), Stanford CS230 *Deep learning* (Andrew Ng), MIT 6.006 *Intro to Algorithms*, University of Washington *Engineering Mathematics*, Neo4j certification GraphAccademy, OpenCV bootcamp certificate, ZTM Tensorflow Developer certificate.

Languages:

Italian - Fluent
English - Proficient

Research project on data analysis of the HORECA sector

04-2023 - 07-2023

for: IULM University of Milan

Preprocessing of a big amount (over 10 million rows) of data *collected over the course of a year regarding all the accommodation facilities in the province of Trento. Data analysis. Creation of visualizations.* ***Creation of models to estimate the placement of an accommodation facility in the area compared to the competition.***

Restructuring Semeion MQ model: neural networks and interpersonal perception

for: Semeion research center (Rome) **08-2022 - 08-2023**

Restructuring the MQ model created in the 1980s by Professor Massimo Buscema at the Semeion research center. The model used neural networks to ***simulate interpersonal perception*** *in a given group of subjects of contexts and modals. The aim here is to use new technologies and frameworks to modernize and extend the model of that time.* ***Creation of a companion model based on conjoint analysis using deep learning.***

Data science and AI consultancy for a leading restaurant sector group

for: Gruppo Ethos **02-2022 - 02-2023**

Pre-processing of managerial and commercial data. *Data exploration with interactive charts on Tableau.* ***Data-driven analysis with machine learning tools.*** *Presentation of test results with graphs and interactive visualizations.* ***Personal allocation optimization*** *with genetic algorithms and processing of possible shifts. Weekly* ***forecast using deep learning techniques. Development of a data pipeline architecture to manage data flows*** *and computational workloads on Google Cloud Platform.* ***Dish recommendation system using deep learning****.*

Development of machine learning models aimed at improving decision-making processes in public administration

for: Gianfranco Mancuso, delivered to: Province of Trento **01-2021 - 06-2022**

Managing, exploring and analyzing economical *data of province of Trento.* ***Preprocessing of great ammount of data: real world complicated, unbalanced and incomplete datasets. Spatial analysis by economic sectors*** *on the province of Trento.* ***Clustering analysis*** *by municipality.* ***Network analysis*** *with the aim of identifying hubs and key nodes from an economic point of view.* ***Retrospective analysis of public funds*** *disbursed for research and development projects to companies by the province.* ***Creation of model to identify "what if" scenarios*** *for possible redistributions of funds based on budget indicators. Creation of model for* ***classification of the financed companies*** *on balance sheet performance profiles. Interactive graphics to give an overview on funds disbursed.*