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DAVIDE MONACO

OBJECTIVE

Highly motivated and adaptable Data Scientist & Engineer with a strong background in automation engineering, statistical modeling, and AI-driven solutions. Experienced in deploying Python-based algorithms, working with distributed systems (Hadoop, Spark), and building robust machine learning models. Adept at end-to-end software development and currently conducting research on VOC detection using genetic algorithms, with potential for patent submission. Skilled in data engineering, intelligent system design, and AI frameworks, with hands-on experience in cloud platforms and modern development tools. Brings a strong foundation in statistics, optimization, and systems modeling, with a deep commitment to innovation and continuous learning.

SKILLS & ABILITIES

- ✓ Programming: Python, R, Java, MATLAB
- ✓ Data & ML Frameworks: PyTorch, TensorFlow, Keras, Scikit-learn, Spark, Hadoop, Kafka, PySpark
- ✓ Data Handling: SQL (MySQL), NoSQL (MongoDB), ETL Pipelines
- ✓ Visualization: Tableau, Matplotlib
- ✓ Tools & Platforms: Git, GitHub, Jupyter, Google Colab
- ✓ AI & Algorithms: CNN, RNN, BERT/GPT, Reinforcement Learning (Q-learning, SARSA), Genetic Algorithms, Symbolic Regression
- ✓ Mathematics & Statistics: Linear Algebra, Optimization, Hypothesis Testing, Bayesian Inference, DAGs, Regularization
- ✓ Other: HTML, XML, GDPR compliance, Network protocols (TCP/IP, MQTT), Control Systems (PLC, feedback, stability analysis)

EXPERIENCE

Data Scientist & Research Engineer (Thesis-based Research)
NanoTech Analysis Srl (NTA), Turin | *Nov 2024 – Present*

- Conducting advanced research on volatile organic compounds (VOCs) using genetic algorithms to develop a predictive model from raw data collected via MEMS/NEMS devices.
- Developed a custom Python framework from scratch to solve identification tasks using evolutionary computing, with patent-pending potential.
- Applied data preprocessing, feature selection, and optimization techniques in a high-stakes R&D environment.

TECHNICAL PROJECTS

Deep Learning Models on Resource-Constrained Hardware *(Team Project)*

- Implemented Neural Architecture Search (NAS) with training-free metrics to build efficient CNNs for the Visual Wake Word dataset.
- Achieved up to 82% accuracy on ultra-lightweight architectures using mutations and random search.

Code Review & Project Workflow Analysis using Git Data *(Team Project)*

- Utilized Large Language Models (LLMs) to summarize commits, analyze workflows, and classify developer intent.
- Applied prompt engineering and natural language interpretation for better CI/CD pipeline efficiency.

Genetic Programming Toolbox – Symbolic Regression ***(Solo Project)***

- Built a symbolic regression framework using genetic algorithms in Python for mathematical function discovery.
- Focused on extensibility and optimization with dynamic bounding and operator control.

Sentiment Analysis on Twitter Dataset ***(Team Project)***

- Built and evaluated a pipeline of NLP preprocessing and supervised learning algorithms to classify tweet sentiment.

Student Career Simulation **&** **Animal Ecosystem Simulator** ***(Solo Projects)***

- Designed simulators for academic performance modeling and ecological trait-based survival dynamics using Python.
- Modeled decision-making, evolution, and migration dynamics.

Pirelli Innovation Strategy ***(Team Project)***

- Developed a luxury product concept for exclusive Pirelli wheels inspired by motorsport icons.
- Delivered a business model innovation strategy to elevate brand prestige in high-end markets.

EDUCATION

M.Sc. in Data Science and Engineering
***Polytechnic University of Turin (Taught entirely in English) (Tourin, Italy)* – Graduating: Sept 2025**
Thesis: Design and development of intelligent algorithms for the analysis of raw data acquired through highly miniaturized devices for VOC identification.

Coursework: Machine Learning, Deep Learning, Computational Intelligence, Big Data, Data Engineering, Probability & Statistics.

B.Sc. in Automation Engineering
***Polytechnic University of Bari* – Jul 2021**
Thesis: Comparative analysis of channel models for Internet of Drones communication.

CERTIFICATIONS

University of Michigan: Programming for Everybody (Python) & Python Data Structures

Johns Hopkins University: HTML, CSS, and JavaScript for Web Developers

AWS Cloud (in progress): Introduction to IT and AWS Cloud

LANGUAGES

Italian – Native

English – Fluent