

WILLIAM BONVINI

MSc in Computer Science and Engineering | focus on Machine Learning & Computer Vision

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PROFESSIONAL EXPERIENCE

Senior Software Engineer

Sky Italia

📅 March 2023 – Present

📍 Milan, Italy

Currently working on the **Data Platform and Analytics** Platform for Sky, a well-known broadcaster in Italy.

My responsibilities include optimizing the data ingestion pipeline by adding new features and creating abstraction layers. Stack: **GCP**, **Python**, **FastAPI**, **YoloV7**, **OpenCV**, **Angular**, **Scala**, and **Neo4J**.

Machine Learning Engineer

Machine Learning Reply

📅 June 2021 – Present

📍 Milan, Italy

- Successfully employed NLP techniques to gather insights from financial reports for an Italian Bank. Stack : **Top2Vec**, **BERTopic**, and **LDA** (**topic modeling** techniques). **GCP's** DocumentAI **OCR** processor and **FAISS** (for semantic search).
- Developed **6 Python** internal libraries and an internal website to improve knowledge management and team collaboration.
 - *Example:* A Python wrapper for DocumentAI, Tesseract OCR, and PaddleOCR. It includes a **breadth-first searcher** that finds approximate matches between a user's query and the hierarchically structured extracted elements.
- Holding periodically a course for the Politecnico di Torino on building a **visual similarity** recommender system from scratch using **Autoencoders**.
- Implemented a hybrid **recommender system** that combines the strengths of **content-based** and **collaborative** approaches, significantly enhancing user interaction within the company's social network platform.
- Optimized a job order clustering and monitoring tool that manages over **10,000** projects annually. I isolated components, clarified dependencies, and employed multiprocessing. → Resulted in cutting the pipeline's execution time by half, **from 8 to 4 hours**. Stack: **Python**, **Pandas**, **Numpy**, **Random Forests**, **Dialogflow**, **AWS**, **MySQL** & **Docker**.

Graduate Computer Vision Researcher

Politecnico Di Milano

📅 Mar 2020 – April 2021

📍 Milan, Italy

I developed a novel **unsupervised deep learning** approach to identify data points belonging to multiple models in a single pass, demonstrating its effectiveness in tasks like **homography estimation** and circle fitting. Stack: **Tensorflow** and **Python**.

Tutor / Academic Tutor

📅 Sep 2015 – Present

📍 Milan, Italy

PUBLICATIONS

👥 Conference Proceedings

- Bellante, Bonvini et al. (2023). "Quantum Eigenfaces: Linear Feature Mapping and Nearest Neighbor Classification with Outlier Detection on a **Face Recognition task**." In: *Proceedings of the IEEE International Conference on Quantum Computing and Engineering*. Bellevue, Washington.

📖 Thesis

- Bonvini, William (2021). *Unsupervised Learning for Multi-Model Consensus Maximization Problems in 3D Computer Vision problems*. Politecnico di Milano, Italy.

EDUCATION

MSc in Computer Science - focus on Machine Learning - 106/110

Politecnico di Milano

📅 Sep 2018 – Apr 2021

- **Competitions and workshops on:** Image Segmentation; Image Classification; Visual Q&A.

BSc in Computer Science - 96/110

Politecnico di Milano

📅 Sep 2015 – Sep 2018

OPEN SOURCE

- **Hugging Face - Computer Vision Course** - written and reviewed course on **deep computer vision architectures** and applications. Focused on **Synthetic Datasets** generation - 2024.
- **Shawn:** a command line **chatbot** built on top of **OpenAI's API** - 2023.
- **Sydraw:** a **Python** library to **synthesize 2D parametric models** - 2022.
- [Link to the rest of my personal projects](#)

CERTIFICATIONS

- Sentiment Analysis with Deep Learning using **BERT** and **Pytorch** - Coursera
- Diabetic Retinopathy Detection with **Pytorch** - Coursera