

Stefano Racca

SOFTWARE DEVELOPER · ML/AI STUDENT

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Education

University of Trento

MASTER'S DEGREE IN ARTIFICIAL INTELLIGENCE SYSTEMS - CURRENT GPA 28 / 30

- **Key Courses:** Machine Learning, Deep Learning, Applied NLP, Computer Vision

Trento, Italy

Sep. 2024 - Pres.

University of Turin

BACHELOR'S DEGREE IN COMPUTER SCIENCE - FINAL GRADE 110 / 110

- **Key Courses:** Algorithms and Data Structures, Databases, Website Development

Turin, Italy

Sep. 2021 - Jul. 2024

I.I.S. Arimondi-Eula

SCIENTIFIC HIGH SCHOOL DIPLOMA

Racconigi (Cuneo), Italy

Sep. 2015 - Jun. 2020

Projects

ExplainableCNN

PYTHON, PYTORCH, TORCHCAM, CAPTUM, STREAMLIT

- Developed an end-to-end CNN training pipeline for common vision datasets (Fashion-MNIST, MNIST, CIFAR-10) with YAML-based configuration and CLI overrides.
- Integrated explainability methods (Grad-CAM, Grad-CAM++) via TorchCam and Captum to visualize class-discriminative heatmaps.
- Built an interactive Streamlit app to load checkpoints, run inference, and visualize explanations in real time.
- Implemented logging, metrics tracking, and checkpoint management with TensorBoard and Lightning.

App | Code

2025

Smart Delivery Agents (SDA): Multi-Agent Delivery System

NODE.JS, JAVASCRIPT, PDDL, SINGLE/MULTI AGENT, BDI SYSTEM

- We develop a multi-agent delivery system for Deliveroo using a BDI (Belief-Desire-Intention) architecture with MASTER/SLAVE coordination.
- Implemented adaptive planning (PDDL + BFS fallback), coordinated decision-making, and guidance protocols between agents in a competitive environment against other agent teams.

Code

2025

Language Modeling & Natural Language Understanding

PYTORCH, LSTMS, BERT, NLP

- Implemented LSTM-based language models on Penn Treebank, experimenting with dropout, weight tying, variational dropout, and NT-ASGD for regularization.
- Developed joint intent classification and slot filling models on the ATIS dataset using BiLSTM and fine-tuned BERT encoders.
- Compared baseline architectures, advanced regularization techniques, and pre-trained models to evaluate trade-offs in performance and generalization.

Code

2025

Facial Emotion Recognition

PYTHON, OPENCV, MEDIAPIPE, DEEPFACE

- Developed a Jupyter notebook with two complementary pipelines for facial emotion recognition: a rule-based method using MediaPipe Face Mesh landmarks and an AI-based approach with DeepFace pretrained CNNs.
- Implemented real-time and recorded-video processing with OpenCV Haar Cascade face detection, supporting visualization and comparison of both methods.

Code

2024

Handmade Catalog Website

NEXT.JS, DATABASE, TAILWIND CSS

- Built a full-stack e-commerce catalog for handmade products with Next.js App Router, Supabase (Postgres, Auth, Storage), and Tailwind CSS.
- Developed public catalog with filters, product detail pages, client-side favorites, and share buttons.
- Implemented an admin dashboard to manage categories, products, images, product options, and site configuration with JSON import/export.
- Integrated optional Snipcart support for cart/checkout and deployed the application on Vercel with Supabase backend.

Code

2025