DAVIDE PALLESCHI

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SUMMARY

Applied AI Researcher specializing in Large Language Models and Multi-Agent Systems. I excel at prototyping and scaling advanced AI architectures, from **RAG** to hierarchical **agent orchestration**. By integrating research-focused experimentation with professional software engineering principles, I deliver reliable AI solutions that solve complex automation tasks through rigorous benchmarking and model optimization.

EXPERIENCE

DeepPlants   Rome, Italy
AI Researcher   09/2024 – Present

- Prototyping and researching advanced multi-agent architectures (**LangGraph**) for complex automation and multi-step user objectives.
- Conducted comparative analysis and fine-tuning (**LoRA/PEFT**) on open-source LLMs to identify optimal models for product-specific reasoning tasks.
- Designed and executed experiments to benchmark LLM interaction patterns, focusing on tool use, stepwise reasoning, and output reliability.
- Engineered context management systems (retrieval augmentation, memory persistence, grounding) for high-reliability agent orchestration.

Sapienza S.r.l.   Rome, Italy
Software Engineer   04/2018 – 07/2024

- Managed the end-to-end digital ecosystem, acting as the primary technical lead for software development, infrastructure maintenance, and internal tool architecture.
- Developed and deployed custom Python applications to automate internal business processes, streamlining manual workflows and improving overall operational efficiency.
- Maintained and optimized backend systems and databases, ensuring data integrity and high availability for all company-specific digital services.

EDUCATION

Sapienza University of Rome — *M.Sc., AI and Robotics*   09/2020 – 03/2024
- Grade: 102/110   •   Erasmus: Polytechnic University of Valencia (2022)
- Thesis: *Privacy-Oriented Object Detection (low-resolution video, YOLOv8)*

University of Rome Tor Vergata — *B.Sc., Computer Engineering*   09/2015 – 08/2020
- Grade: 101/110   •   Erasmus: Imperial College London (2018–2019)

SKILLS

Agentic Systems: Multi-agent orchestration, Hierarchical agents (Planner-Executor), LangGraph, LangChain, Tool routing

LLM Research & Fine-Tuning: PEFT/LoRA Fine-tuning, Comparative Analysis, Hugging Face **Transformers**, Model Benchmarking

Software Engineering & Stack: **Python**, **PyTorch**, FastAPI, Docker, vLLM, Streamlit, SDLC, Database Management, API Design, Software Architecture

Languages: Italian (Native), English (Professional)