Luca Capezzuto

luca.cpz@pm.me \cdot lcpz.gitlab.io \cdot linkedin.com/in/lcpz \cdot github.com/lcpz

PhD and MSc (Hons) in Computer Science with 8 years of engineering experience across Big Tech, government R&D, and academia. Expertise in Large-Scale Multi-Agent Optimization for Real-Time Systems. Continuous learner with a passion for Computational Sustainability and Effective Altruism.

Experience

Software Engineer

Meta

Jul 2024 – Present London, UK

- Meta-wide infrastructure for Security Ops and Incident Response. Tech stack: MLOps (Information Retrieval and Ranking), LLMOps (Multi-Modal Multi-Agent Systems), Python, Rust, Hack, TypeScript.
- Invited reviewer for the Journal of AI Research (JAIR).

Software Engineer

Amazon

Sep 2022 – Jun 2023 London, UK

- Scaling of transport networks in US, Canada, Europe, and India. Tech stack: Machine Learning, Python, C++, Java, Scala, React, SQL, AWS (Lambda, Step Functions, SageMaker, Kinesis, EKS).
- Official commendation at the 2023 Q1 All-Hands for my operational excellence (out of 42 people), which led to 50x faster data ingestion services, and minimized on-call burden.
- Reduced failure rate from 13% to 0% for a flagship internal product, for which the Prime Day 2023 week was the most successful in 7 years regarding reliability and performance. Completed the migration from Amazon ECS to EKS for a critical monitoring tool, which saves 200k USD per year in running costs.
- Built 4 React UIs to replace legacy dashboards, improving the usability score from 53 (below average) to 84 (great), and enabling a cost-savings opportunity of 68.1M USD in EU.
- Implemented path-level fungibility for a main optimization process, which decreased WAPE by 8-32%, thus reducing manual effort, and providing a more accurate basis for short and medium term forecasts.
- Invited reviewer for the 14th and 15th workshops on Optimization and Learning in Multi-Agent Systems (AAMAS 2023 and 2024), Springer Nature Computer Science, and the Journal of AI Research (JAIR).

Research Engineer

University of Southampton

- Member of the centers for Machine Intelligence and Maritime Futures. Advising a team of 8 people, I helped define and implement Shell's strategy to reduce greenhouse gas emissions from maritime transport.
- Mentor of 16 AI postgraduate students. Demonstrator for the Computer Science (BSc) course. Invited reviewer for the EURASIP Journal on Wireless Communications and Networking, the 13th Workshop on Optimization and Learning in Multi-Agent Systems (AAMAS 2022), and the Journal of AI Research (JAIR).

Software Engineer

ENEA Research Centre

- End-to-end development of wireless sensor networks for data acquisition and harmonization. Implementation of a real-time web layer for monitoring and predicting the seismic activity of historical and cultural sites. The work was part of the national redevelopment project for areas hit by the 2009 L'Aquila earthquake.
- Ideation-to-iteration product development of MONICA, a citizen-science device for raising awareness of urban air quality. The project received extensive coverage in the national media and won a EU grant.
- Tech stack: C++, Java and MongoDB (backend, sensor programming); Python and Scikit-learn (MLOps); MEAN stack, RESTful, JSON and XML (frontend).

Oct 2018 – Jun 2022 Southampton, UK

Jun 2013 - Sep 2015

Portici, Italy

Education

PhD in Computer Science

University of Southampton

- Supervisors: Sarvapali D. Ramchurn and Danesh Tarapore.
- Topics: Distributed Constraint Optimization, Multi-Agent Planning (Routing and Scheduling), Large-Scale and Dynamic Multi-Robot Task Allocation, Real-Time Systems. Tech stack: Java, C++, Python, CPLEX. Funded by EPSRC and AXA Research Fund.
- Invited publication in a special issue of the journal Springer Nature Computer Science.
- Implemented novel real-time multi-agent coordination algorithms, and created a real-world dataset (1.34 million entities) for simulating the mobilization of fire-fighting UAV swarms.

Master of Science (Summa Cum Laude) in Computer Science	2015 - 2017
University of Naples Federico II	Naples, Italy

- Second-year scholarship awarded by the Italian government for outstanding academic performance.
- Development of LURCH, an AI-powered robotic assistant for elderly care. Implemented functionalities: collision avoidance, SLAM, human tracking, voice commands. Tech stack: Robot Operating System (ROS), Gazebo, C++, Pioneer 3-DX, Microsoft Kinect, LAMP stack, MATLAB, Shell scripting (Bash).

Bachelor of Science in Computer Science	2009 - 2013
University of Naples Federico II	Naples, Italy

• Invited thesis presentation at EuNetAir 2nd Scientific Meeting, December 2013, University of Cambridge, UK.

2018 – 2021 Southampton, UK