Claudio Coppola

PhD in Robotics, Machine Learning Expert *London, UK*

Phone: +44 7482843438 **E-mail:** claudiocoppola90@gmail.com blog.claudiocoppola.com **Github** raziel90 **Scholar** Publications

Robotics AI researcher. Experienced in AI for Robotics, Computer Vision and Time Series Forecasting.
Driving positive change with AI.

For additional information, please consult my LinkedIn profile - **linkedin.com/in/clcoppola**

Experience

Machine Learning Applied Scientist

Amazon

July 2022 – Current ***London, UK***

- Orchestrated, developed, and deployed on AWS ML solutions using DeepAR and statistical models for **cost estimation** and **volume forecasting**.
- Scoped projects, defined customer requirements, and led cross-functional teams in defining data requirement acquisition.
- Submitted articles to internal conferences, wrote a literature review on time-series forecasting models, and explored the usage of S4 and LLM for forecasting.
- Took part in the hiring process and mentored interns and new hires.

Postdoctoral Researcher

Queen Mary University of London

May 2019 – June 2022 ***London, UK***

- Team Leader of the EPSRC MAN^3 Project in collaboration with *Shadow Robotics*, *Ocado*, and *Deepmind*, advancing dexterous robotic manipulation.
- Conducted research on robot learning by demonstration for robot manipulation by building a *teleoperation platform* and a demonstration segmentation system.
- Developed a robust grasp exploration algorithm using Bayesian Optimization and Unscented Transform for stable and adaptive robotic manipulations.
- Mentored and supported PhD and MSc students in their research projects, fostering a collaborative and innovative research environment.

Lead Data Scientist

Buzzoole

April 2018 – Oct 2018 ***Napoli, Italy***

- Data science team lead. Worked on Machine Learning Projects central to raise $8.9M funding for the company.
- Trained an Inception-net for object recognition on 20K+ social media images achieving over 80% accuracy.
- Trained an RNN Model for language translation.

Research Associate

University of Lincoln

May 2017 – May 2018 ***Lincoln, UK***

- Developed state-of-the-art Human Activity Recognition and Re-identification systems used in the EU H2020 research projects ENRICHME and FLOBOT.
- Teaching Assistant for courses on Artificial Intelligence and Mobile Robotics.

Other Experiences

- **BrainStation** - *Instructor* - (Nov 2023-*Current*):
  Instructor for the Data Science & AI course. Delivered the Course material to professionals. Advised students on their final project.
- **2Watch** - *Data Scientist Contractor* - (Jan-Dec 2020):
  Developed an OCR system extracting information from gaming dashboards.
- **Entrepreneur First** - *LD11 Cohort Member* - (Oct 2018 — Jan 2019)
  Took the Role of CTO in the ideation of a new startup, taking part in the process of customer validation, market sizing and product development.
- **KPMG** - *Business Intelligence Consultant* - (Jan-Jun 2014):
  Automated daily Business Intelligence (BI) maintenance tasks with a speed-up above 90% and developed SQL queries to generate BI reports.

Technical Skills

- **Machine Learning & AI** - Deep Learning, SVM, Bayesian Optimization, Ensembles, GMM, HMM, K-Means, PCA, Kalman/Particle Filters.
- **Frameworks** - ROS, Pytorch, Scikit-learn, Streamlit, Docker, React, Kinect SDK2, OpenCV, React.
- **Methodological** - Computer Vision, Machine Learning, Signal Processing, Control Theory, Software Engineering, Optimization, Scientific writing.

Programming Skills

Proficient: Python, Matlab, SQL.

Experienced: C, C++, C#, Java, Javascript

Education

PhD in Robotics

University of Lincoln

Jul 2014 – Aug 2018 ***Lincoln, UK***

- Built Human Social Activity and interaction recognition systems based on RGB-D data.
- Developed ML models based on a probabilistic multi-modal mixture of Experts (DBMM)
- Associated with the EU H2020 Projects ENRICHME and STRANDS.
- AI: SVM, GMM, Ensemble, Bayesian Nets, Random Forest, Deep Learning, Computer Vision.

MSc cum Laude in Computer Science Engineering

University Federico II of Napoli

Oct 2011 – Dec 2013 ***Napoli, Italy***

- Top 5% Student
- Focus: Computer Vision, Machine Learning, Signal Processing.
- Thesis: *Iris Liveness detection for authentication systems based on Iris Recognition*

BSc in Computer Science Engineering

University Federico II of Napoli

Oct 2011 – Dec 2013 ***Napoli, Italy***

- Top 5% Student
- Thesis: *Algorithm and systems for voice recognition.*
- Focus: Software Engineering, Artificial Intelligence, Control.

Certifications

→ **Machine Learning** - *Stanford University on Coursera, Prof. Andrew Ng*
→ **Deep Learning Specialization** *deeplearning.ai on Coursera, Prof. Andrew Ng.*
→ **Deep Reinforcement Learning Nanodegree** *Udacity*
→ **Fundamentals of Reinforcement Learning** *University of Alberta on Coursera*
→ **BMVA Computer Vision Summer School 2015** *Swansea University.*

Awards

2022 *PD Enrichment Awards - Alan Turing Institute*
2022 *AI-Net PostDoc Awards - DAAD*
2020 *Hult regionals winner - Hult Foundation*
2016 *Research Travel Award - Santander*
2016 *Research Travel Awards - EURAI*

Publications & Invited Talks

Invited Talks

- "Human Activity Recognition and Monitoring" Symposium of the British Machine Vision Association 2017 (BMVA), *London, UK.*
- Learning Human Actions: from Perception to Robot Learning, University of Leeds, UK
- Learning Human Actions: from Perception to Robot Learning, University of Lincoln, UK

Journals

[1] Xompero, A., Donaher, S., Iashin, V., Palermo, F., Solak, G., Coppola, C., ... & Cavallaro, A. (2022). The CORSMAL benchmark for the prediction of the properties of containers. IEEE Access.

[2] Siddiqui, M. S., Coppola, C., Solak, G., & Jamone, L. (2021). Grasp Stability Prediction for a Dexterous Robotic Hand Combining Depth Vision and Haptic Bayesian Exploration. Frontiers in Robotics and AI, 237.

[3] Coppola, C., Cosar, S., Faria, D., & Bellotto, N. (2019). Social Activity Recognition on Continuous RGB-D Video Sequences. International Journal of Social Robotics, 1–15.

Conferences & Workshops

[4] Dawood A. B., Coppola C. & Althoefer K.(2023). Learning Decoupled Multi-touch Force Estimation, Localization and Stretch for Soft Capacitive E-skin. IEEE International Conference of Robotics and Automation (ICRA) 2023

[5] Coppola C., & Jamone L.(2022). Master of Puppets: Multi-modal Robot Activity Segmentation from Teleoperated Demonstrations. In 2022 IEEE Conference on Development and Learning (ICDL).

[6] Coppola C., Solak G. & Jamone L.(2022). A portable and affordable system for the teleoperation of dexterous robotic hands using Leap Motion hand tracking and vibrotactile feedback. In 2022 31st IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN).

[7] Zenha R., Denoun B., Coppola C. & Jamone L. (2021). Tactile Slip Detection in the Wild Leveraging Distributed Sensing of both Normal and Shear Forces. In Intelligent Robots and Systems (IROS), 2021 IEEE/RSJ International Conference on.

[8] Xompero, A., Donaher, S., Iashin, V., Palermo, F., Solak, G., Coppola, C., ... & Cavallaro, A. (2021). Multi-modal estimation of the properties of containers and their content: survey and evaluation. arXiv preprint arXiv:2107.12719.

[9] Siddiqui, M. S., Coppola, C., Solak, G., & Jamone, L. (2021, September). Discovering Stable Robot Grasps for Unknown Objects in Presence of Uncertainty Using Bayesian Models. In Annual Conference Towards Autonomous Robotic Systems (pp. 46-55). Springer, Cham.

[10] Iashin V. and Palermo F. and Solak G. and Coppola C. (2020). Filling Mass Estimation Using Multi-modal Observations of Human-robot Handovers. CoRR, abs/2012.01311.

[11] Coppola, C., Cosar, S., Faria, D., & Bellotto, N. (2017). Automatic detection of human interactions from RGB-D data for social activity classification. In 2017 26th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN) (pp. 871-876).

[12] Fernandez-Carmona, M., Cosar, S., Coppola, C., & Bellotto, N. (2017). Entropy-based abnormal activity detection fusing RGB-D and domotic sensors. In 2017 IEEE International Conference on Multisensor Fusion and Integration for Intelligent Systems (MFI) (pp. 42-48).

[13] Coppola, C., Faria, D., Nunes, U., & Bellotto, N. (2016). Social activity recognition based on probabilistic merging of skeleton features with proximity priors from RGB-D data. In Intelligent Robots and Systems (IROS), 2016 IEEE/RSJ International Conference on (pp. 5055–5061).

[14] Cosar, S., Coppola, C. & Bellotto, N. (2017). Volume-based Human Re-identification with RGB-D Cameras. In VISIGRAPP (4: VISAPP) (pp. 389–397).

[15] Coppola, C., Krajnik, T., Duckett, T., & Bellotto, N. (2016). Learning temporal context for activity recognition. In European Conference on Artificial Intelligence (ECAI2016).

[16] Coppola, C., Mozos, O., Bellotto, N.(2015). Applying a 3d qualitative trajectory calculus to human action recognition using depth cameras. In IEEE/RSJ IROS Workshop on Assistance and Service Robotics in a Human Environment.

Peer-Review Work

Actively contributed to the academic community through rigorous peer review for the following prestigious conferences and Journals on Robotics and Machine Learning:

Conferences: IROS; ICRA; ICAR; ICDL; IJCNN; ROMAN;

Journals: Nature Machine Intelligence; Transaction of Robotics; Cognitive Systems Research; IEEE Transactions on Haptics; IEEE RA-L; MDPI Applied Sciences;