MATTIA RACCA

Research Scientist – Human-Robot Interaction

@ mattia.racca@naverlabs.com   ☎ +33 476614115

🔗 mattiaracca.github.io   ○ github.com/mattiaracca

🏠 **Living at 293 Allée de Chamrousse – 38330 St. Ismier (FRANCE)**

♨ **Born in Carmagnola (ITALY) on 18/07/1991**

CURRENT POSITION

Research Scientist

NAVER LABS Europe

📅 September 2022 – ongoing   📍 Grenoble, FRANCE 🇫🇷

Social Robot Navigation, within the Human-Robot Interaction team.

PAST POSITIONS & EXPERIENCES

Postdoctoral Researcher

Idiap Research Institute

📅 October 2020 – June 2022   📍 Martigny, SWITZERLAND 🇨🇭

Supervisors: Dr. Sylvain Calinon and Dr. Jean-Marc Odobez
End-User Programming as front-end for Robot Optimal Control.

Doctoral Studies

Aalto University, Intelligent Robotics Group

📅 January 2016 – September 2020   📍 Helsinki, FINLAND 🇫🇮

- **Doctoral candidate** on the topic of Robot Learning and Human-Robot Interaction, supervised by Professor Ville Kyrki.
- **Teaching assistant** for the Robotic Vision course (2016-18), taught by Professor Ville Kyrki.
- **Master's thesis advisor** on the following topics:
  - From Demonstrations to End-User Programming
  - Robot Policy Situated Generation of Explanations
  - 3D Object Reconstruction via Robot Hand-held Camera
  - Human Gaze-driven Attention Maps on RGB-D Cameras
- **Visiting Researcher** at **University of Washington**

  📅 February 2019 – June 2019   📍 Seattle (WA), USA 🇺🇸

  Research visit under the supervision of Professor Maya Cakmak, working at the intersection of Active Learning and End-User Robot Programming.
- **Intern** at **Fraunhofer IPA, Care-O-bot Lab**

  📅 June 2017 – July 2017   📍 Stuttgart, GERMANY 🇩🇪

  Training as robot administrator for Aalto University's Care-O-bot 4, with a focus on ROS Open Source Software Development.

EDUCATION

Doctor of Science (Technology)

Aalto University

📅 2016 – 2020   📍 Helsinki, FINLAND 🇫🇮

Dissertation's title: Teacher-Learner Interaction for Robot Active Learning
Supervisor: Professor Ville Kyrki
Opponent: Professor Tony Belpaeme

M.Sc. in Computer Engineering

Politecnico di Torino

📅 2013 – 2015   📍 Turin, ITALY 🇮🇹

Major: Automation and Control
Final grade: 110 / 110 *cum laude*

B.Sc. in Computer Engineering

Politecnico di Torino

📅 2010 – 2013   📍 Turin, ITALY 🇮🇹

Final grade: 109 / 110

TECHNICAL SKILLS

OS: `Linux` `Windows`

Programming: `Python` `git` `Docker` `Bash` `C++` `PyQt`

Machine Learning: `Active Learning` `Mixture Models` `Markov Models`

Robotics: `ROS 1 & 2` `NAV2 stack` `Franka Panda` `Care-O-bot 4` `NAO` `Traditional Computer Vision`

Human-Robot Interaction: `User Study` `Statistical Analysis` `Experiment Design`

Writing and Editing: `LaTeX` `TikZ` `Notion` `Inkscape` `GIMP`

SELECTED PUBLICATIONS

- J. Jankowski, **M. Racca**, and S. Calinon (2022). "From Key Positions to Optimal Basis Functions for Probabilistic Adaptive Control". In: *Robotics and Automation Letters (RA-L) and ICRA 2022*.
- M. Axelsson, R. Oliveira, et al. (Oct. 2021). "Social Robot Co-Design Canvases: A Participatory Design Framework". In: *J. Human-Robot Interaction* 11.1.
- **M. Racca**, V. Kyrki, and M. Cakmak (2020). "Interactive Tuning of Robot Program Parameters via Expected Divergence Maximization". In: *2020 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. ACM.
- **M. Racca**, A. Oulasvirta, and V. Kyrki (2019). "Teacher-Aware Active Robot Learning". In: *2019 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. IEEE.
- **M. Racca** and V. Kyrki (2018). "Active Robot Learning for Temporal Task Models". In: *2018 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*. ACM.
- **M. Racca**, J. Pajarinen, et al. (2016). "Learning in-contact control strategies from demonstration". In: *2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE.

Complete list and preprints available at mattiaracca.github.io/publications/.

COMMUNITY DUTIES

2024 Organizer of the 2nd International HRI Symposium, organized by NAVER LABS Europe.

2024 Program Committee member for the 27th European Conference on Artificial Intelligence (ECAI).

2024 Main organizer of the 3rd Human Interactive Robot Learning Workshop, held at HRI 2024.

ROBOTIC FRIENDS

Rookie — *from NAVER LABS*

NAVER LABS Autonomous Service Robot, the platform of choice for our social navigation research.

FRANKA RESEARCH *aka* **Panda** — *from FRANKA Robotics*

I implemented an end-user programming framework in ROS, C++, and Python (similar to the Desk environment) to showcase our active parameter tuning approach.

Care-O-bot 4 — *from Fraunhofer IPA & 4am Robotics*

I was the administrator of Aalto University's *Rosie*, maintaining an internal manual, instructing new users, and performing routine check-ups.

NAO — *from Softbank Robotics*

Aalto University's *Nemo* was the learning agent in two of my user studies about Human-Robot Active Learning.

GRANTS & AWARDS

Nomination "Best Doctoral Dissertation in the Field of Technology" in Finland in 2020

📅 January 2021   💼 TEK & TFiF

Travel Grant from Ernst Wirtzen's fund

📅 December 2018   💼 Ernst Wirtzen's fund

Funds (4000 €) for the research visit at the University of Washington.

Aalto ELEC Doctoral School scholarship

📅 May 2017   💼 Aalto University

Funds covering my salary for 2 years and 9 months of my doctoral studies.

LANGUAGE SKILLS

Italian ●●●●●   **English** ●●●●●
French ●●●○○   **German** ●○○○○

HOBBIES & INTERESTS

Hiking   Climbing   History

Board/Card/Video games

REFERENCES

Professor Ville Kyrki – PhD supervisor

Aalto University

✉ ville.kyrki@aalto.fi

Danilo Gallo - Team Leader

NAVER LABS Europe

✉ danilo.gallo@naverlabs.com

More references available upon request.