MATTIA RACCA

Research Scientist – Human-Robot Interaction

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🏠 **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 🇫🇷

Focusing on Interactive 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. Jean-Marc Odobez and Dr. Sylvain Calinon
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 (2017-18), 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
- **Research visit 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.
- **Internship 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 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   Bash   C++   PyQt

Machine Learning: Active Learning   Mixture Models   Markov Models

Robotics: ROS   Franka Emika Panda   Care-O-bot 4   NAO   Kuka LWR   Traditional Computer Vision

Human-Robot Interaction: User Study   Statistical Analysis   Experiment Design

Writing and Editing: LaTeX   TikZ   Notion   Inkscape   GIMP   pycairo

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.wordpress.com/publications.

ROBOTIC FRIENDS

FRANKA RESEARCH *aka* Panda — *from FRANKA EMIKA*

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 & Mojin 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

Climbing   Hiking   History
Board/Card/Video games
Generative Art

REFERENCES

Professor Ville Kyrki – PhD supervisor
Aalto University
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Professor Maya Cakmak
University of Washington
✉ mcakmak@cs.washington.edu

More references available upon request.