Alessandro Roncone, Ph.D.

ROBOTICIST · COMPUTER SCIENTIST · TEAM LEAD

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PERSONAL SUMMARY

I work at the intersection of Artificial Intelligence, Robotics, and Human-AI Teaming, designing embodied AI systems that extend and augment human capabilities. My work focuses on robots performing in complex environments that were not possible before, enabling new levels of collaboration and autonomy. I am driven by the challenge and opportunity of achieving societal impact through robotics, tackling significant real world problems, and ultimately creating systems that enhance human productivity and decision-making in challenging environments.

My research is both human-inspired and human-centered. I believe that to build truly capable and general-purpose robots, we must look at people not just as users, but as models of intelligence. Two pillars of human cognition guide my work: EMBODIED INTELLIGENCE [LINK], i.e. our ability to learn through embodied interaction with the physical world, and SOCIAL INTELLIGENCE [LINK], i.e. our capacity for social intelligence in complex, cooperative settings.

RELEVANT EXPERIENCE

Assistant Professor CS DEPARTMENT, CU BOULDER — BOULDER, CO, USA — AUGUST 2018 – PRESENT

At CU Boulder, I lead the HUMAN INTERACTION AND ROBOTICS GROUP [HIRO]. We develop human-centered technologies for the next generation of robot workers, assistants, and collaborators. Our work is interdisciplinary and brings together insights from the neurosciences, psychology, and cognitive sciences to advance the field of *human-robot interaction (HRI)*. I built a diverse team of 40+ graduate and undergraduate students coming from top institutions. My lab won multiple best paper awards, nominations, as well as individual fellowships. I fund my laboratory through competitive funding from the National Science Foundation, NASA, the Department of Defense (ARL, ONR), and industry (Apple).

Chief Technology Officer LABO, INC. — PORTLAND, OR AND ITALY — 2022 – 2024

I was founding member and CTO of a company working in advanced manipulation for logistics and warehousing. We build a general-purpose, full-stack, end-to-end system that combines designed-optimized hardware with custom AI and motor control, outperforming all competitors in automating a highly sought-after process in warehousing, i.e. autonomous trailer unloading. In two years, I built a full team that went from 0 to 30 engineers and brought in revenue from $0 to $4M in 2022 and to $26M in 2023. One of our customers is a Fortune 100 company. I left this role to focus on my faculty career and family and because the company required more than a part-time commitment. I stepped away on a high note: the company is thriving, recently emerged from stealth in March 2025, and continues to follow the technology strategy I developed during my tenure.

Post-Doc SOCIAL ROBOTICS LAB, CS DEPARTMENT, YALE UNIVERSITY — NEW HAVEN, CT, USA — 2015 – 2018

My research at Yale focused on: i) task and motion planning for Human-Robot Collaboration [**C, 2018**]; ii) robots that provide effective support to humans when they need it the most [**J, 2022**]; iii) agents that proactively ask questions and provide contextual information to better align with humans [**C, 2017**].

Post-Doc ICUB FACILITY, ITALIAN INSTITUTE OF TECHNOLOGY [IIT] GENOA, IT 2015

I worked on: i) body representations for humanoids [**J, 2016**]; ii) distributed whole-body motor control [**C, 2018**]; iii) optimization-based approaches to kinematics: my gaze stabilization and control framework [**C, 2014**, **C, 2016**] formally solved the problem of controlling a binocular head to gaze toward arbitrary 3D points in space, and concurrently exploiting redundancy to stabilize gaze.

Ph.D. Student ICUB FACILITY, ITALIAN INSTITUTE OF TECHNOLOGY [IIT] GENOA, IT 2012 – 2014

My research improved the sensorimotor capabilities of the iCub humanoid via a multisensory representation of the space around the its body (*Peripersonal Space*) [**C, 2014**, **C, 2015**, **J, 2016**]

Research Fellow ROBOTICS, BRAIN AND COGNITIVE SCIENCES, IIT GENOA, IT 2010 – 2011

EDUCATION

Ph.D. in Robotics ITALIAN INSTITUTE OF TECHNOLOGY [IIT] GENOA, IT 2012 – 2015

Thesis title: *"Expanding sensorimotor capabilities of humanoid robots through multisensory integration. A study on the implementation of peripersonal space on the iCub"* [**T, 2015**]. Supervisors: Giorgio Metta, Luciano Fadiga, Ugo Pattacini, Matej Hoffmann.

M.sc. in NeuroEngineering (110/110 *Summa cum Laude*) UNIVERSITY OF GENOA, IT 2008 – 2011

Thesis title: *"Visuo-Haptic Integration for Object Characterization in an Unstructured Environment"*. Supervisors: Matteo Fumagalli, Francesco Nori.

B.sc. in Biomedical Engineering (110/110 *Summa cum Laude*) UNIVERSITY OF GENOA, IT 2005 – 2008

Thesis title: *"Support Vector Machine Analysis applied to a Manipulator in a Non-Structured Environment"*. Supervisors: Luca Pulina, Lorenzo Natale, Armando Tacchella.

ISICT Fellowship INSTITUTE FOR ADVANCED STUDIES IN ICT [ISICT] GENOA, IT 2005 – 2008

Successfully selected for scholarship—only three positions available out of hundreds of candidates.

RESEARCH FUNDING

SUMMARY OF ACHIEVEMENTS: I have both obtained competitive funding as a single PI from multiple federal agencies and programs (ONR, ARL, and NSF), and built multi-institutional collaborations with leadership roles on large-scale efforts such as the NSF AI Institute in Student-AI Teaming and NSF RoboChemistry. In parallel, I have successfully to established industry partnerships, securing early funding from Apple, to expand the scope and reach of my research.

GRANTS AS PI – TOTAL FUNDING: 2.75M$ – SHARE: 1.75M$

- **SINGLE PI**, Apple, Inc. [2025, **30K$** donation].
- **SINGLE PI**, *On The Opportunity of Employing Hierarchical Structures in Zero-Shot Human-AI Teaming*, Army Research Laboratory (ARL) [2024, **100K$**, 1y, award number W911NF-24-2-0199].

- **SINGLE PI**, *Human Robot Co-Training: A Novel Paradigm for Symbiotic Human Robot Collaboration*, Office of Naval Research (ONR) [2022, **510K$**, 3y, award number N00014-22-1-2482].
- **PI**, *Policy Learning for Optimal Teaming via TF-Conditioned Metalearning (PLOT-Meta)*, Army Research Laboratory (ARL) [2021, **2M$**, 5y, award number W911NF-21-2-02905]. Co-PI: Bradley Hayes (CU Boulder).
- **SINGLE PI**, *Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)*, Army Research Laboratory (ARL) [2021, **100K$**, 1y, award number W911NF-21-2-0123].
- **SINGLE PI**, Facebook/Meta. [2020, **20K$** donation in the form of robots].

GRANTS AS CO-PI OR SENIOR PERSONNEL – TOTAL FUNDING: 23.3M$ – SHARE: 1.85M$

- **CO-PI**, *Collaborative Research: FW-HTF-R: RoboChemistry: Human-Robot Collaboration for the Future of Organic Synthesis*, National Science Foundation (NSF) [2022, **1.8M$**, 4y, award number 2222952/53]. PI: Carson Bruns, ATLAS Institute; Co-PI: Daniel Szafir, UNC Chapel Hill.
- **CO-PI**, *The co-evolution of Human-AI Adaptation*, Army Research Laboratory (ARL) [2022, **1.5M$**, 3y, award number W911NF-21-2-0126]. Prime: Ying-Choon Wu and Tzyy-Ping Jung (UCSD).
- **SENIOR PERSONNEL**, *NSF AI Institute in Student-AI Teaming*, 2020 National Science Foundation [2020, **20M$**, 5y, award number 2019805].

INTERNAL FUNDING – TOTAL FUNDING: 315K$

- **CO-DIRECTOR**, *Engineering Education and AI-Augmented Learning IRT*, one of six Interdisciplinary Research Themes sponsored by the College of Engineering and Applied Sciences. Our IRT is focused on developing a community and research capacity around a new science at the intersection of AI-augmented learning and K16 education research [2020, **250K$**, 2y].
- **PI**, *Towards equitable robot tutoring: an intersectional analysis of human-robot interaction in racially diverse classrooms*, IRT Seed Grant [2021, **15K$**, 1y]. Co-PI: Tiera Tanksley (CU Boulder).
- **PI**, *Programmable and reconfigurable soft robots for symbiotic soft/rigid robotic systems*, Research and Innovation Office [2020, **50K$**, 1y]. Co-PIs: Jianliang Xiao, Emiliano Dall'Anese (CU Boulder).
- **PI**, *Consortium Manager: Advanced Robotics for Manufacturing (ARM)*.

REJECTED GRANTS

Note: This list is a best-effort but incomplete. In particular, there is no way to track all the rejected grants I have submitted to the DoD (DARPA, ARL, ONR).

- **CO-PI**, *STRIVE: Scalable Teaming with Responsive Integration and Versatile Expertise*, Army Research Laboratory (ARL) [2025, **1.5M$**].
- **PI**, *TACTICS: Tactical Awareness of Competitors and Teammates for Implicit Coordination at Scale*, Army Research Laboratory (ARL) [2025, **1.5M$**].
- **PI**, *SMORES: A System for MOdular and REconfigurable robotS for Long-Term Lunar Surface Missions*, NASA [2024, NIAC Phase I accepted, Phase II rejected **150K$**].
- **PI**, *HAHA: Hierarchical Ad Hoc Agents*, Sandia National Laboratories [2024, Letter of Intent only].
- **PI**, *CAREER: In Touch with the Environment: Opportunistic, Whole-Body Contact-Seeking in Robot Manipulation*, National Science Foundation (NSF) [2023, **625K$**].

- **PI**, *Synthetic Skin for Enhancement of Robotic Systems Intelligence*, National Science Foundation (NSF) [2022, STTR with Mantel Technologies].
- **CO-PI**, *HCC: Medium: Achieving Adaptive Systems using Non-invasive Brain-Computer Interfaces and Reinforcement Learning and Deep Learning on Combined fNIRS, and fMRI Data*, National Science Foundation (NSF) [2021, **1.2M$**].
- **PI**, *CAREER: FRR: In touch with the environment: Peripersonal Space modeling for robust close-range perception and manipulation*, National Science Foundation (NSF) [2021, **600K$**].
- **CO-PI**, *Approaching Human Understanding of Language through Grounded Experience*, Google Research [2021, **50K$**].
- **PI**, *In Pursuit of the "ImageNet Moment" in Real-World Reinforcement Learning*, Google Research [2021, **50K$**].
- **PI**, *Tactile Intelligence Through Flexible Multifunctional Robotic Skin*, Sony Corporation of America [2021, **250K$**].
- **PI**, *Collaborative Research: Adaptive Human-Robot Collaboration Through Close-Proximity Awareness*, National Science Foundation (NSF) [2021, **423K$**].
- **PI**, *Exploring Use of Artificial Tactile Sensing for Proxemics and Communication in Social Human-Robot Interaction*, Oak Ridge Associated Universities [2020, **200K$**].
- **PI**, *RI: Small: Physics-informed autonomy for non-prehensile manipulation and tool use*, National Science Foundation (NSF) [2019, **500K$**].
- **PI**, *RI:Medium:Contact- and proximity-informed robot control and planning through whole-body artificial skin*, National Science Foundation (NSF) [2019, **1.2M$**].
- **CO-PI**, *NRI: FND: Safe and Flexible Robot Manipulation through Constraint-Aware Learning from Demonstration*, National Science Foundation (NSF) [2019, **750K$**].
- **PI**, *EFRI C3 SoRo Preliminary Proposal: Programmable and Reconfigurable Soft Robot for Symbiotic Soft/Rigid Robotic Systems*, National Science Foundation (NSF) [2019, **2M$**].
- **PI**, *RI:Small:What if I do this? Enabling autonomous exploration and skill acquisition through causal inference and retrospective analysis*, National Science Foundation (NSF) [2018, **488K$**].

MENTORING

SUMMARY OF ACHIEVEMENTS: I have built a large and diverse group currently composed of one post-doc, 15 Ph.D. students, multiple M.S. and undergraduate researchers, and several successful alumni in both academia and industry. I have consistently attracted top talent from leading institutions (MIT, UToronto, UT, Yale, USC, and more), and my mentees have gone on to secure prestigious roles in industry, as well as Ph.D. positions in top research universities. Despite the size of the lab, I place a strong emphasis on research independence and leadership: several of my students have received highly competitive fellowships and national awards (NSF, NASA, Apple, Chancellor's, ARL, and GEM Fellowships) as well as best paper awards and nominations at major conferences in my field (HRI 2023, HRI 2024). My lab is composed of 40% women or URM students, and includes the first Black recipient of the NASA GRO Fellowship (and first student in our Department), and the first woman from CU Boulder to receive the Apple Fellowship (and first student in our University).

Note: in red, best paper awards/nominations or individual fellowships.

- Alumni (Ph.D. Students or Post-Docs):

- **STEPHANE AROCA-OUELLETTE**, Ph.D. Student (2020-2025), co-advised w/ Katharina Kann, graduated in Summer 2025, now at Skyfall AI.
- **SHIRAN DUDY**, Post-Doc (2021-2023), co-advised w/ Katharina Kann, now Research Scientist at Northeastern University.
- **GUOHUI DING**, Ph.D. Student (2019-2021), co-advised w/ Lijun Chen, graduated in Spring 2021, now at Meta.

• Current Post-Docs:
- **JAKE BRAWER**, Post-doc (2023-ongoing), Yale Ph.D. (2023), co-advised w/ Bradley Hayes. ARL Postdoctoral Fellowship recipient (2023–2025), Best Paper Award (HRI 2023).
- **CLAIRE CHEN**, Post-doc (2025-ongoing), Stanford Ph.D. (2025).

• Current Ph.D. Students (15 Ph.D. students):
- **CALEB ESCOBEDO**, Ph.D. Student (2019-ongoing), exp. graduation: Fall 2025. *NSF GFRP* honorable mention (2020).
- **ANUJ PASRICHA**, Ph.D. Student (2019-ongoing), exp. graduation: Fall 2025.
- **YI-SHIUAN TUNG**, Ph.D. Student (2020-ongoing), co-advised w/ Bradley Hayes, exp. graduation: Spring 2026. Best Paper Award Nomination (HRI 2024).
- **NATALIYA NECHYPORENKO**, Ph.D. Student (2021-ongoing), exp. graduation: Spring 2026. NSF GFRP recipient (2021), Apple Fellowship recipient (2024).
- **CLARE LOHRMANN**, Ph.D. Student (2020-ongoing), co-advised w/ Bradley Hayes, exp. graduation: Spring 2026.
- **GILBERTO MARTINEZ**, Ph.D. Student (2021-ongoing), exp. graduation: Fall 2026. *GEM Fellowship* recipient, NASA NSTGRO recipient (2022).
- **KALEB BISHOP**, Ph.D. Student (2020-ongoing), co-advised w/ Bradley Hayes, exp. graduation: Fall 2026. Chancellor's Fellowship recipient (2020).
- **AVA ABDEREZAEI**, Ph.D. Student (2022-ongoing), exp. graduation: 2027.
- **CHI-HUI LIN**, Ph.D. Student (2022-ongoing), exp. graduation: 2027.
- **SRIKRISHNA BANGALORE RAGHU**, Ph.D. Student (2023-ongoing), exp. graduation: 2028.
- **NAREN SIGVANADASAN**, Ph.D. Student (2024-ongoing), exp. graduation: 2029.
- **JAY VAKIL**, Ph.D. Student (2024-ongoing), exp. graduation: 2029.
- **YUTONG ZHANG**, Ph.D. Student (2024-ongoing), co-advised w/ Bradley Hayes, exp. graduation: 2029.
- **CARSON KOHLBRENNER**, Ph.D. Student, (2025-ongoing), exp. graduation: 2030.
- **JOEWIE KOH**, Ph.D. Student (2019-ongoing), currently on leave.

• Mentor of external Ph.D. students/collaborators:
- **YAASHIA GAUTAM**, CU Boulder, ECEE Dept, w/ Marco Nicotra (2023—ongoing).
- **JAKUB ROZLIVEK**, Czech Technical University in Prague, w/ Matej Hoffman, (2021—2025), graduated 2025, now at Skoda (Robotics/Autonomous Driving).
- **SANDRA BAE**, CU Boulder, ATLAS, w/ Michael Rivera, Ellen Do, and Danielle Szafir, (2023—2025), graduated 2025, now Asst. Prof. at Arizona State University.
- **AOIFE HENRY**, CU Boulder, ECEE, w/ Lucy Pao, (2019—2023), graduated 2025.
- **MITCHELL MURRAY**, CU Boulder, ME Dept, (2024).
- **KELLY MERCKAERT**, Vrije Universitat Brussels, w/ Marco Nicotra and Bram Vanderborght, (2019—

2023), graduated 2023, now postdoc at University of Michigan.

- Primary advisor of Master-level students:
  - **NIKHIL HULLE**, AY 2023-2024, now at Cruise. First author on a conference paper.
  - **NIKHIL BARHATE**, AY 2022-2024, now at Scale AI.
  - **UPASANA BISWAS**, AY 2022-2023, now Ph.D. Student at Arizona State University. Co-author on a conference paper.
  - **TANMAY DESAI**, AY 2021-2023, now Ph.D. student at Colorado School of Mines.
  - **ANDER ARAMBURU FERNANDEZ**, Summer 2020. Co-author on a conference paper.
  - **KRISHNA KODUR CHAITANYA**, AY 2019-2020, now Ph.D. student at UT Arlington. Co-author on a conference paper.
  - **ANDREW CHEN**, AY 2018-2019, now at Amazon.
  - **CHI-JU WU**, AY 2018-2019, now at Zoox. Co-author on a conference paper.
  - Research advising of Master-Level students (independent study or paid research, in no particular order): Joseph Miceli, Klara Nitsche, Shamal Shaik, Sai Krishna Sriram, Sai Pretheek Kerthivenkata, Ashkai Bakshi, Yashwant Gandham, Rahul Shetty, Samiksha Patil, Divya Sai Sindhuja Vankineni, Mandar Deshmukh, Gyanig Kumar, Bhuvvaan Punukolu, Santosh Chaganti, Sarath Chandra Vajrala, Sri Kanth Popuri, Siva Gangadhar Pabbineedi, Sean Campbell, Anujay Sharma, Nikhil Barhate, Vatsal Verma, Idriss Djofack Teledjeu, Rithik Kumar Athiganur Senthil, Vatsal Verma, Niharika Sathyanarayana, Wyatt Rees (Ph.D.), Nishant Bhattacharya, Sijae Schiefer, Manjunath Nagaraja Rao, Abhilash Jahagirdar, Em Eldar, Dongming Chang, Sayali Sonawane, Mayank Yoshi, Mohana Krishna Sanagavarapu.
- Primary advisor of Bachelor-level theses:
  - **LIAM MERZ HOFFMEISTER**, now Ph.D. student at Yale University.
  - **SHREYAS KADEKODI**, co-author on a conference publication, now Ph.D. student at University of California San Diego.
  - **CONOR SIMMONS**, Spring 2023, now at Luxonis.
  - **MATTHEW ECCLES**, Spring 2023.
  - **MATT STRONG**, Spring 2021, now Ph.D. student at Stanford University. Honorable Mention at the *Computing Research Association's Outstanding Computer Science Undergraduate Researcher award* (national level). Recipient of the *Research Award* and *Active Learning Program Award* for 2021 (College level). Coauthor of two conference publications and first author of one workshop paper.
  - **BYUNGJIN KIM**, Spring 2021, then MS student at UMichigan.
  - **SOUSHEEL VUNNAM**, co-advised w/ Nisar Ahmed, Spring 2020, now at Amazon.
  - **JACOB FIOLA**, Spring 2020.
  - Research advising of Bachelor-level students (research opportunities for undergraduates or paid research, in no particular order): Anna Soukhovei, Jennifer Kim, Wei Jiang, Andrew Zha, Sophia Alves, Jose Caraveo Herrera, Escanor Schmidt, Ishaan Venkant, Lara Chunko, Nandini Nema, Alexander Gholmieh, Freddy Lin, Weston Brach, Carson Kohlbrenner (now incoming Ph.D. student in my lab), Caleb Kumar, Noah Liska, Yuri Han, Justin Brand, Joseph David Galloway II (SMART Summer Program for URM students), Mitchell Scott (DLA, then MS student at CU Boulder), Sean Shaifubahrim, Benjamin Page (DLA), Garrett Pierson (DLA), Eleanor Sarder (DLA), Kyle Yamek, William

Wang.

TEACHING

SUMMARY OF ACHIEVEMENTS: I have taught hundreds of undergraduate and graduate students across multiple core and advanced robotics courses. I created two graduate-level courses, of which one, *Deep Reinforcement Learning and Robotics*, will transition to a full, permanent course in the catalog in Fall 2025. On the undergraduate side, I regularly teach *Introduction to Robotics*, which has quadrupled from 60 to 240 students annually during my tenure in close collaboration with my colleagues. The course materials developed for CSCI 3302 were published in a textbook with MIT Press, now being adopted at other institutions. This course has had a transformational impact on students—many were introduced to robotics for the first time and went on to pursue research careers, including joining Ph.D. programs in labs at CU and across the country.

- **CSCI 3302** Introduction to Robotics—*Fall 2018, Spring 2020, Spring 2021, Spring 2022, Spring 2023, Spring 2025*. Grew the enrollment from 60 to 240 students per year divided in two courses with 120 students per semester. I alternate teaching this course with my colleague Prof. Nikolaus Correll. I contributed significantly to improving both the course materials and the assignments in collaboration with Prof. Correll and Hayes. Our textbook *Introduction to Robotics: Mechanics and Control* (MIT Press, 2024) as well as accompanying curriculum innovations are being adopted at other institutions.
- **CSCI 7000** Deep Reinforcement Learning and Robotics—*Summer 2020, Fall 2022, Fall 2025*. Average enrollment of 30 students per semester. I created this course, including lectures, assignments, and all the materials. It will transition to a full, permanent course in the catalog in Fall 2025. The course covers the foundations of deep reinforcement learning and its applications to robotics, which is both a very active area of research and in high demand in industry.
- **CSCI 7000** Physical Human–Robot Interaction and Robot Control—*Spring 2019, Fall 2020, Fall 2021, Fall 2023*. Average enrollment of 20 students per semester. I created this course, including lectures, assignments, and all the materials. The course covers the foundations of physical HRI as it pertains to robot control, which is a core pillar of the research in my lab (similar to my Deep RL course above).

SERVICE FOR THE UNIVERSITY

SUMMARY OF ACHIEVEMENTS: In addition to five years of service on the CS Graduate Committee, I have taken on two major leadership roles at the College level. As Co-Director of the IRT on Engineering Education and AI-Augmented Learning, I helped build a cross-campus faculty community around AI + Education and dispersed $250K in seed grants within and outside of the College. More recently, I became a founding member and Associate Director of the new MS and PhD Program in Robotics, where I lead admissions, recruiting, and strategic planning. Since Fall 2024, the program has welcomed 20–25 students per year and is rapidly becoming a hub for robotics research and education.

- *Associate Director and Gradcomm Chair*, MS and PhD Program in Robotics, AY 2023—present.
  - Welcomed 15 MS and 5 Ph.D. students in Fall 2024! We are expecting a similar cohort for Fall 2025.
- *Co-Director*, Interdisciplinary Research Theme in Engineering Education Research and AI-Augmented Learning, AYs 2020—2023.
- *Gradcomm Member*, Computer Science Department, AYs 2018—2023.
- Faculty advisor for CU Robotics, an undergraduate-led recognized student organization. *(Fall 2020—ongoing)*.

SERVICE FOR THE ROBOTICS COMMUNITY

SUMMARY OF ACHIEVEMENTS: I have been an active member of both the Robotics community at large and the HRI community in particular, regularly serving as organizer, reviewer, and editor. I have co-hosted workshops in collaboration with funding agencies and organized multiple workshops at major conferences. A highlight of my service was acting as Local Chair for HRI 2024, which brought 750 participants from around the world to Boulder and showcased our campus as a hub for human-robot interaction research.

- **ORGANIZER** of the Workshop on "Navigating Contact Dynamics in Robotics" at RSS 2025.
- **LOCAL CHAIR** for HRI 2024, the most prestigious conference in Human-Robot Interaction, held in Boulder in Mar 2024.
- **WORKSHOP CHAIR** for HAI 2024, the International Conference on Human-Agent Interaction, to be held in Swansea, UK in Dec 2024.
- **ORGANIZER** of the Workshop on "Strengthening Teamwork for Robust Operations in Novel Groups" (STRONG), held in Boulder in Mar 2024.
- **PANELIST** for the National Science Foundation, *2020, 2021, 2022, 2025*.
- **ORGANIZER** of the Workshop on "Close-Proximity Human-Robot Collaboration [LINK]" at RSS 2022.
- **ORGANIZER** of the Workshop on "Development of body representations in humans and robots", at ICDL 2015.
- **ASSOCIATE EDITOR** or **PROGRAM COMMITTEE MEMBER**: *IEEE Int. Conf. on Robotics and Automation* (**ICRA**), *IEEE/RAS Int. Conf. on Humanoid Robots* (**HUMANOIDS**), *ACM Int. Conf. on Human–Robot Interaction* (**HRI**), *Int. Conf. on Artificial Intelligence* (**AAAI**).
- **REVIEWER**: *IEEE Transactions on Robotics*, *IEEE Int. Conf. on Robotics and Automation* (ICRA), *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems* (IROS), *Frontiers in Robotics and AI*, *ACM Int. Conf. on Human–Robot Interaction* (HRI), *ACM Transactions on Human–Robot Interaction* (T-HRI), *Robotics and Automation Letters* (RA-L), *Robotics: Science and Systems* (RSS), *Frontiers in NeuroRobotics*, *IEEE/RAS Int. Conf. on Humanoid Robots* (Humanoids), *International Journal of Humanoid Robotics*, *IEEE Int. Conf. on Development and Learning and on Epigenetic Robotics* (ICDL-Epirob), *IEEE International Symposium on Robot and Human Interactive Communication* (ROMAN), *IEEE Int. Conf. on Robotics and Biomimetics* (ROBIO), *IEEE RAS/EMBS Int. Conf. on Biomedical Robotics* (BioRob).
- **EXTERNAL SERVICE**:
  - *Vice Chair* of the IEEE Denver Computer, Information Theory and Robotics Society (2020, 2019).
  - *Educational Advisor* for Artificial Intelligence Education, St. Vrain Valley School District, serving 37000 students in K-12 (2021, 2020, 2019).
- **TEACHING ASSISTANT** at the *2015 CBMM Summer School*, organized by MIT.
- Featured on the **IEEE SPECTRUM VIDEO FRIDAY** with my 2014 ICRA video [LINK] on self-calibration.

INVITED TALKS & PANELS

- *Panel with the AAAS Science Press Team* [September 2024].
- *Annual Meeting of the American Association for the Advancement of Science* [AAAS, March 2024]. Presented a talk and participated in a media briefing/panel on the future of Artificial Intelligence.
- *Int. Conf. on Humanoid Robots* [Humanoids, 2023]. Workshop titled *Building Bridges: A Workshop on Physical & Social Human-Robot Interaction*.

- *Johns Hopkins University*, Nov 2022.
- *Int. Conf. on Robots and Systems* [IROS, 2022]. Workshop on *Proximity Perception. Towards next-generation multi-modal sensing in soft structures*.
- *Robotics: Science and Systems* [RSS, 2022]. Workshop on *Close-Proximity Human-Robot Collaboration: challenges and opportunities*.
- *Samsung AI center in New York City* [2021].
- *Int. Conf. on Advanced Robotics* [ICAR, 2021]. Workshop on *Design, Learning and Control for Safe Human-Robot Collaboration*.
- *Colorado School of Mines* [2019].
- *iCub Facility*, Italian Institute of Technology [2017].
- *Computation and Cognitive Development Lab*, Yale University [2017].
- *Int. Conf. on Social Robotics* [ICSR, 2016]. Workshop on *Synthetic Method in Social Robotics*.
- *Yale University* [2015 and 2016].

PUBLICATIONS

Note #1: **'B'** → book, **'J'** → journal paper, **'C'** → conference paper, **'W'** → workshop paper, **'T'** → thesis.
Note #2: underlined authors are students I directly supervised.
Note #3: for some citations, clicking on the title leads to PDF of publication.
Note #4: all publications are peer reviewed.

BOOKS/THESES

[**T, 2025**] S. Aroca-Ouellette. **TOWARD HUMAN-INSPIRED AI: IDENTIFYING DATA, BUILDING STRUCTURES, AND HYPOTHESIS-DRIVEN LEARNING**. PhD Dissertation. University of Colorado Boulder.

[**B, 2022**] N. Correll, C. Heckman, B. Hayes, and A. Roncone. **INTRODUCTION TO AUTONOMOUS ROBOTS: MECHANISMS, SENSORS, ACTUATORS, AND ALGORITHMS**. In: *MIT Press*.

[**T, 2021**] G. Ding. **MULTI-AGENT REINFORCEMENT LEARNING AS APPLIED TO AUTONOMOUS SYSTEMS**. PhD Dissertation. University of Colorado Boulder.

[**T, 2015**] A. Roncone. **EXPANDING SENSORIMOTOR CAPABILITIES OF HUMANOID ROBOTS THROUGH MULTISENSORY INTEGRATION – A STUDY ON THE IMPLEMENTATION OF PERIPERSONAL SPACE ON THE ICUB**. PhD Dissertation. University of Genoa and Italian Institute of Technology.

JOURNAL PAPERS

[**J, 2025**] A. J. Ries, S. Aroca-Ouellette, A. Roncone, and E. J. de Visser. **GAZE-INFORMED SIGNATURES OF TRUST AND COLLABORATION IN HUMAN-AUTONOMY TEAMS**. In: *Computers in Human Behavior: Artificial Humans*, p. 100171.

[**J, 2024**] J. Rozlivek, A. Roncone, U. Pattacini, and M. Hoffmann. **HARMONIOUS—HUMAN—LIKE REACTIVE MOTION CONTROL AND MULTIMODAL PERCEPTION FOR HUMANOID ROBOTS**. In: *IEEE Transactions on Robotics* 41, pp. 378–393.

[**J, 2024**] C. Lohrmann, M. Stull, A. Roncone, and B. Hayes. **GENERATING PATTERN-BASED CONVENTIONS FOR PREDICTABLE PLANNING IN HUMAN–ROBOT COLLABORATION**. In: *ACM Transactions on Human-Robot Interaction* 13.4.

[**J, 2022**] O. Mangin, A. Roncone, and B. Scassellati. **HOW TO BE HELPFUL? IMPLEMENTING SUPPORTIVE BEHAVIORS AND PERSONALIZATION FOR HUMAN-ROBOT COLLABORATION**. In: *Frontiers in Robotics and AI*.

[**J, 2022**] A. Pasricha, Y.S. Tung, B. Hayes, and A. Roncone. **POKERRT: POKING AS A SKILL AND FAILURE RECOVERY TACTIC FOR PLANAR NON-PREHENSILE MANIPULATION**. In: *Robotics and Automation Letters [RA-L] and IEEE Int. Conf. on Robotics and Automation [ICRA]*.

[**J, 2022**] K. Merckaert, B. Convens, C. J. Wu, A. Roncone, M. M. Nicotra, and B. Vanderborght. **REAL-TIME MOTION CONTROL OF ROBOTIC MANIPULATORS FOR SAFE HUMAN–ROBOT COEXISTENCE**. In: *Robotics and Computer-Integrated Manufacturing* 73.

[**J, 2016**] A. Roncone, M. Hoffmann, U. Pattacini, L. Fadiga, and G. Metta. **PERIPERSONAL SPACE AND MARGIN OF SAFETY AROUND THE BODY: LEARNING VISUO-TACTILE ASSOCIATIONS IN A HUMANOID ROBOT WITH ARTIFICIAL SKIN**. In: *PLOS ONE*.

CONFERENCE PAPERS

Note #1: in red, best paper awards or nominations.

Note #2: acceptance rates of IJCAI, HRI, AAMAS, RSS, EMNLP, CORL = ∼25% or below.

Note #3: acceptance rates of IROS, ICRA, Humanoids, RO-MAN = ∼40% or below. ICRA and IROS are top conferences in my field.

[**C, 2025**] A. Pasricha, J. J. Koh, J. Vakil, and A. Roncone. **DYNAMICS-COMPLIANT TRAJECTORY DIFFUSION FOR SUPER-NOMINAL PAYLOAD MANIPULATION**. In: *9th Annual Conference on Robot Learning [CORL]*.

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[**C, 2025**] S. Aroca-Ouellette, M. Aroca-Ouellette, K. von der Wense, and A. Roncone. **IMPLICITLY ALIGNING HUMANS AND AUTONOMOUS AGENTS THROUGH SHARED TASK ABSTRACTIONS**. In: *International Joint Conference on Artificial Intelligence (IJCAI)*.

[**C, 2025**] S. Aroca-Ouellette, K. von der Wense, and A. Roncone. **RESEEDING LATENT STATES FOR SEQUENTIAL LANGUAGE UNDERSTANDING**. In: *The 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

[**C, 2025**] S. B. Raghu, C. Lohrmann, A. Bakshi, J. Kim, J. Caraveo Herrera, B. Hayes, and A. Roncone. **EMPLOYING LABAN SHAPE FOR GENERATING EMOTIONALLY AND FUNCTIONALLY EXPRESSIVE TRAJECTORIES IN ROBOTIC MANIPULATORS**. In: *IEEE Int. Conf. on Robot & Human Interactive Communication [RO-MAN]*.

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[**C, 2024**] A. Abderezaei, A. Pasricha, A. Klausenstock, and A. Roncone. **CLUTTER-AWARE SPILL-FREE LIQUID TRANSPORT VIA LEARNED DYNAMICS**. In: *2024 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems [IROS]*.

[**C, 2024**] A. Pasricha and A. Roncone. **THE VIRTUES OF LAZINESS: MULTI-QUERY KINODYNAMIC MOTION PLANNING WITH LAZY METHODS**. In: *IEEE International Conference on Robotics and Automation [ICRA]*.

[**C, 2024**] C.H. Lin, J. J. Koh, A. Roncone, and L. Chen. **ROMA-IQSS: AN OBJECTIVE ALIGNMENT APPROACH VIA STATE-BASED VALUE LEARNING AND ROUND-ROBIN MULTI-AGENT SCHEDULING**. In: *American Control Conference (ACC)*.

[**C, 2024**] G. Briscoe-Martinez, A. Pasricha, A. Abderezaei, S. Chaganti, S. C. Vajrala, S. K. Popuri, and A. Roncone. **EXPLORING HOW NON-PREHENSILE MANIPULATION EXPANDS CAPABILITY IN ROBOTS EXPERIENCING MULTI-JOINT FAILURE**. In: *2024 IEEE/RSJ Int. Conf. on Intelligent Robots and Systems [IROS]*.

[**C, 2024**] N. Hulle, S. Aroca-Ouellette, A. J. Ries, J. Brawer, K. V. D. Wense, and A. Roncone. **EYES ON THE GAME: DECIPHERING IMPLICIT HUMAN SIGNALS TO INFER HUMAN PROFICIENCY, TRUST, AND INTENT**. In: *33rd IEEE International Conference on Robot and Human Interactive Communication [ROMAN]*.

[**C, 2023**] J. Brawer, D. Ghose, K. Candon, M. Qin, A. Roncone, M. Vázquez, and B. Scassellati. **INTERACTIVE POLICY SHAPING FOR HUMAN-ROBOT COLLABORATION WITH TRANSPARENT MATRIX OVERLAYS**. In: *ACM/IEEE International Conference on Human-Robot Interaction [HRI]*. **Best Technical Paper Award**.

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[**C, 2022**] Y.S. Tung, K. Bishop, B. Hayes, and A. Roncone. **BILEVEL OPTIMIZATION FOR JUST-IN-TIME ROBOTIC KITTING AND DELIVERY VIA ADAPATIVE TASK SEGMENTATION AND SCHEDULING**. In: *IEEE Int. Conf. on Robot & Human Interactive Communication [RO-MAN]*.

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[**C, 2018**] S. Nirenburg, M. McShane, S. Beale, P. Wood, B. Scassellati, O. Mangin, and A. Roncone. **TOWARD HUMAN–LIKE ROBOT LEARNING**. In: *Int. Conf. on Applications of Natural Language to Information Systems*, pp. 73–82.

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WORKSHOP PAPERS

[**W, 2025**] A. Abderezaei, C. H. Lin, J. Miceli, N. Sivagnanadasan, S. Aroca-Ouellette, J. Brawer, and A. Roncone. **TOWARDS ZERO-SHOT COORDINATION BETWEEN TEAMS OF AGENTS: THE N-XPLAY FRAMEWORK**. In: *RSS Workshop on Scalable and Resilient Multi-Robot Systems: Decision-Making, Coordination, and Learning*.

[**W, 2025**] A. Soukhovei, C. Kohlbrenner, C. Escobedo, A. Gholmieh, A. Dickhans, and A. Roncone. **FORM-FITTING, LARGE-AREA SENSOR MOUNTING FOR OBSTACLE DETECTION**. In: *Humanoids Workshop on Contact-Rich Robotics [ConRich]*.

[**W, 2025**] Y. S. Tung, B. Hayes, and A. Roncone. **CRED: COUNTERFACTUAL REASONING AND ENVIRONMENT DESIGN FOR ACTIVE PREFERENCE LEARNING**. In: *RSS Workshop on Human-in-the-Loop Robot Learning: Teaching, Correcting, and Adapting*.

[**W, 2024**] R. J. Long, A. G. Ariyo, Z. I. Iwu, D. P. Azari, A. M. Madison, S. Aroca-Ouellette, A. Roncone, C. C. Tossell, and A. J. Ries. **TOWARDS AN ADAPTIVE SYSTEM FOR INVESTIGATING HUMAN-AGENT TEAMING: LET'S GET COOKING!** In: *Systems and Information Engineering Design Symposium (SIEDS)*.

[**W, 2024**] A. Pasricha and A. Roncone. **TOWARDS SUPER-NOMINAL PAYLOAD HANDLING: INVERSE DYNAMICS ANALYSIS FOR MULTI-SKILL ROBOTIC MANIPULATION**. In: *40th Anniversary of the IEEE Conference on Robotics and Automation [ICRA@40]*.

[**W, 2024**] C. Lohrmann, E. Berg, A. Roncone, and B. Hayes. **IMPROVING ROBOT PREDICTABILITY VIA TRAJECTORY OPTIMIZATION USING A VIRTUAL REALITY TESTBED**. In: *7th Intl. Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions (VAM-HRI)*.

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[**W, 2023**] J. Cao, R. Dickler, M. Grace, J. B. Bush, A. Roncone, L. M. Hirshfield, M. A. Walker, and M. S. Palmer. **Designing an AI Partner for Jigsaw Classrooms**. In: *Workshop on Language-Based AI Agent Interaction with Children [AIAIC]*.

[**W, 2023**] Y.S. Tung, M. B. Luebbers, A. Roncone, and B. Hayes. **IMPROVING HUMAN LEGIBILITY IN COLLABORATIVE ROBOT TASKS THROUGH AUGMENTED REALITY AND WORKSPACE PREPARATION**. In: *6th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions [VAM-HRI]*.

[**W, 2022**] K. Kann, A. Ebrahimi, J. J. Koh, S. Dudy, and A. Roncone. **OPEN-DOMAIN DIALOGUE GENERATION: WHAT WE CAN DO, CANNOT DO, AND SHOULD DO NEXT**. In: *Association for Computational Linguistics, fourth Workshop on NLP for Conversational AI*.

[**W, 2021**] A. Pasricha, Y.S. Tung, B. Hayes, and A. Roncone. **POKERRT: A KINODYNAMIC PLANNING APPROACH FOR POKING MANIPULATION**. In: *IEEE/RSJ Int. Conf. on Intelligent Robots and Systems [IROS], workshop on Impact-Aware Robotics*.

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