

Candidate Information Template

CANDIDATE NAME

Barbara Mazzolai

CANDIDATE EMAIL ADDRESS

barbara.mazzolai@iit.it

CANDIDATE AFFILIATION AND ADDRESS

Istituto Italiano di Tecnologia
Via Morego, 30 - 16163 Genova, Italy

IEEE MEMBER NUMBER

80376425

COUNTRY OF RESIDENCE

Italy

HOW WOULD YOU CATEGORIZE YOUR CURRENT ORGANIZATION?

- ☐ Government
- ☒ Academia
- ☐ Industry
- ☐ Retired
- ☐ Other

POSITION SOUGHT

IEEE RAS AdCom Member

BIOGRAPHY

Barbara Mazzolai is Associate Director for Robotics and Principal Investigator of the Bioinspired Soft Robotics Laboratory at the Istituto Italiano di Tecnologia (IIT), Italy. She holds a M.Sc. in Biology, an International Master Diploma in Environmental Management and Control, and a Ph.D. in Microsystems Engineering.

Her research focuses on bioinspired and soft robotics, with pioneering contributions to plant-inspired robotics, growing robots, soft-bodied robots, and environmentally sustainable robotic technologies. She pioneered the concept of Ecorobotics, promoting the integration of robotics within natural ecosystems to support environmental monitoring, biodiversity conservation, precision agriculture, and climate resilience. She has coordinated several major international research projects, including PLANTOID, GrowBot, I-Seed, and the ERC Consolidator Grant I-Wood. She has authored more than 260 scientific publications and actively promotes interdisciplinary research at the intersection of robotics, biology, materials science, and environmental sustainability.

IEEE ACTIVITIES

2024–2026

IEEE Robotics and Automation Society Administrative Committee (AdCom)

- Active member of AdCom
- Contributor to TAB, CAB, IAB and Sustainability initiatives

- Contributor to educational initiatives through the IEEE RAS U-RAS program

COMMITTEES/BOARDS:

- 2024 – 2025 Chair, Steering Committee, IEEE International Conference on Soft Robotics (RoboSoft)
- 2020 – present Member, Advisory Board, IEEE RoboSoft.
- Senior Editor — IEEE Robotics and Automation Letters, Soft Robotics

SOCIETY: IEEE and Robotics & Automation Society (RAS)

CONFERENCES:

- General Co-Chair of the 2022 IEEE International Conference on Soft Robotics (RoboSoft), April 4-8, 2022, Edinburgh, UK
- General Chair, Int. Conference on Biomimetics and Biohybrid Systems “Living Machines” 2023.
- General Co-Chair, Italian Conference on Robotics and Intelligent Machines (I-RIM 3D) 2020.
- Awards Co-chair for the 2026 IEEE International Conference on Soft Robotics (RoboSoft), April 7-11, Kanazawa, Japan
- Workshop Co-Chair for the 2020 IEEE International Conference on Soft Robotics (RoboSoft), April 6-9, 2019, Yale University, New Haven, USA
- Interdisciplinary Program Co-Chair for the 2018 IEEE International Conference on Soft Robotics (RoboSoft)
- Government Forum Co-Chair of the IEEE/RSJ International Conference on Intelligent Robots (IROS), October 9-14, Daejeon, Korea
- Publicity Co-Chair for the 2012 IEEE International Conference on Biomedical Robotics and Biomechatronics (BioRob), June 24-28, 2012, Rome, Italy

OTHER:

Selected IEEE leadership activities

Selected plenary presentations at IEEE Conferences

- Plenary Speaker at the 2026 IEEE International Conference on Robotics and Automation (ICRA), June 1-5, 2026, Vienna, Austria
- Plenary Speaker at the 2025 IEEE International Conference on Soft Robotics (RoboSoft), April 23-26, 2025, Lausanne, Switzerland
- Plenary Speaker at the 2021 IEEE International Conference on Soft Robotics (RoboSoft), April 6-9, 2021, Yale University, New Haven, USA
- Plenary Speaker at the 2017 IEEE International Conference on Robotics and Biomimetics (RoBio), December 5-8, 2017, Macau, China

Selected keynote presentations at IEEE Conferences

- Keynote Speaker at the IEEE/RSJ International Conference on Intelligent Robots (IROS), October 14-18, 2024, Abu Dhabi, UAE
- Keynote speaker at the IEEE International Conference on Robotics and Automation ICRA, May 13-17, 2024, Yokohama, Japan,
- Keynote Speaker at the IEEE International Conference on Robotics and Automation ICRA@40, September 23–26, 2024, Rotterdam, Netherlands
- Keynote Speaker at the 2018 - IEEE/RSJ International Conference on Intelligent Robots (IROS), October 4, 2018, Madrid, Spain
- Keynote Speaker at the 2018 IEEE International Conference on Robotics and Automation (ICRA), May 24, 2018, Brisbane, Australia

Selected Workshops, Forums and Panels at IEEE Conferences

- 2026 IEEE International Conference on Robotics & Automation, Vienna – “Panel 2 – Advancing Sustainability in Robotics: From Green Design to Real-World Impact”; Co-Chair and Speaker
- 2026 IEEE International Conference on Robotics & Automation, Vienna – “Workshop on Circular Robotics: Designing Sustainable Autonomy for a Finite World”; Invited Speaker, Best Pitch Award.

- 2024 IEEE/RSJ IROS, Abu Dhabi — Forum “Robots for Sustainability and Sustainable Robots”: “Environmental Intelligence and Ecorobotics”, Co-organizer.
- 2024 IEEE/RSJ IROS, Abu Dhabi — Workshop “The SOFT frontier”: “Adaptation across environments: lessons from Nature”. Invited Speaker.
- 2024 IEEE ICRA@40, Rotterdam — Debate and Panel “Ethics and Responsibility in Robotics”. Invited speaker.
- 2024 IEEE ICRA, Yokohama — Workshop “Food Handling from Farm-to-Consumer through Agri-Robotics”: “Plant-seed-like robots for precision agriculture”. Invited speaker.
- 2024 IEEE ICRA, Yokohama — Workshop “Robotics and Sustainability”: “Eco-Robots for Sustainability and Biodiversity”.
- 2024 IEEE ICRA, Yokohama — Workshop “Sustainable Soft Robots”: “Plants as exceptional brainless intelligent models for robotics”. Invited speaker.
- 2024 IEEE ICRA, Yokohama — Workshop “Cognition across species”: “Plants as exceptional brainless intelligent models for robotics”. Invited speaker.
- 2024 IEEE RoboSoft, San Diego — Workshop “Democratization of Soft Robotics through Embodied Intelligence”: “Embodied Intelligence in plants and plantoids”. Invited speaker.
- 2023 IEEE ICRA, London — Workshop “Soft Growing Robots: From Search-and-Rescue to Intraluminal Interventions”. Invited speaker.
- 2019 IEEE RoboSoft, Seoul — Workshop on Morphological Computation: “Morphological computation in plants for growing robots”. Invited Speaker.
- 2019 IEEE RoboSoft, Seoul — Workshop on Eversion and Growing Soft Robots: “GrowBots: towards a new generation of plant-inspired growing robots”. Invited Speaker.

Other activities:

- Perspective/position papers for the IEEE Robotics and Automation Magazine:
 - Laschi, C., Mazzolai, B., Nosengo, N., Delle Cave, V., Asfour, T., Floreano, D., ... & Hauert, S. (2018). The rise of the robots: the European robotics flagship [regional spotlight]. IEEE Robotics & Automation Magazine, 25(4), 121-122.
 - Laschi, C., & Mazzolai, B. (2016). Lessons from animals and plants: The symbiosis of morphological computation and soft robotics. IEEE Robotics & Automation Magazine, 23(3), 107-114.
 - Mazzolai, B. (2016). Biology for Robotics-A Multidisciplinary Approach to a Researcher's Life [Women in Engineering]. IEEE Robotics & Automation Magazine, 23(1), 114-115.
 - Salvini, P., Teti, G., Spadoni, E., Laschi, C., Mazzolai, B., & Dario, P. (2011). The Robot DustCart. IEEE Robotics & Automation Magazine, 18(1), 59-67.

QUALIFICATIONS

I combine scientific leadership with extensive experience in research management, international collaboration, technology transfer, education, and community building. Throughout my career, I have led multidisciplinary research teams, coordinated large international projects, served on scientific advisory boards, organized major conferences, and contributed to strategic initiatives spanning robotics, biology, materials science, and environmental sciences.

My first term as an elected RAS AdCom member has given me first-hand experience of the Society's governance, strategic priorities, and the needs of its diverse international community. Working across several AdCom activities has strengthened my ability to connect different communities, identify emerging research directions, and translate new ideas into concrete initiatives.

A notable example has been my contribution to establishing Sustainable Robotics as a strategic area within RAS. Through educational programs, conference activities, and interdisciplinary initiatives, I have contributed to transforming sustainability from an emerging discussion into a concrete area of activity for the Society.

I believe RAS has a unique role in shaping the future of robotics through scientific excellence, interdisciplinarity, education, responsible innovation, and strong interactions between academia, industry,

and society. My experience allows me to contribute to this mission from both scientific and strategic perspectives.

MAJOR ACCOMPLISHMENTS

- Served as elected IEEE RAS AdCom Member, contributing to strategic initiatives across multiple AdCom boards.
- Co-developed and launched the IEEE RAS University course on Sustainable Robotics, creating a dedicated educational initiative on Sustainability and Robotics topics, circularity and responsible robotics.
- Promoted sustainability as a strategic theme within RAS through conference initiatives, educational activities, and interdisciplinary community engagement.
- Co-organized the ICRA 2026 Panel "Advancing Sustainability in Robotics: From Green Design to Real-World Impact", fostering dialogue among academia, industry, and policy stakeholders.
- Continued supporting IEEE RoboSoft through the Steering Committee and conference organization, contributing to the long-term development of one of the Society's flagship conferences.

POSITION STATEMENT

During my first term as AdCom member, I worked to transform sustainability from an emerging discussion into a concrete area of activity within the Society. Through educational initiatives, conference programs, and interdisciplinary collaborations, I contributed to building a growing community interested in Sustainable Robotics and its role in addressing global societal and environmental challenges.

These experiences have given me the opportunity to actively contribute to several Society initiatives while promoting a broader vision of robotics that integrates sustainability, responsible innovation, and interdisciplinary collaboration. Among these efforts, I have supported educational initiatives such as the IEEE RAS U-RAS course on Sustainable Robotics, aimed at raising awareness and training researchers and students in the role that robotics can play in building a more sustainable future.

If re-elected, I would continue this effort while broadening its scope toward sustainable and responsible robotics. Robotics and automation are increasingly called upon to address critical societal challenges, including climate change, environmental monitoring, biodiversity preservation, resilient infrastructures, healthcare, food production, and support for aging populations. At the same time, our community must reflect on the sustainability of the technologies we develop, considering their full lifecycle, energy consumption, materials, circularity, and societal impact.

I believe RAS is uniquely positioned to lead this discussion and to transform it into concrete opportunities for its members. Building on the activities initiated during my first term, I would support actions focused on:

- Strengthening education and professional development in sustainable and responsible robotics through courses, tutorials, dedicated conference activities, and educational resources.
- Enabling interdisciplinary collaborations among robotics researchers, environmental scientists, material scientists, biologists, economists, ethicists, and industry stakeholders to address complex global challenges.
- Supporting the development of best practices and community discussions on sustainability metrics, lifecycle assessment, circularity, and responsible innovation in robotics.
- Encouraging stronger interactions between academia, industry, policymakers, and society to accelerate technology transfer and maximize the positive impact of robotics.
- Creating opportunities for students and early-career researchers to engage in emerging areas where robotics can contribute to environmental and societal well-being.

My objective is not only to continue these initiatives, but also to help embed sustainability, responsible innovation, interdisciplinarity, and societal impact as long-term strategic dimensions of the Society. My multidisciplinary background, spanning robotics, biology, environmental sciences, and technology development, has taught me the value of connecting diverse communities around common goals. As

AdCom member, I will continue fostering collaboration, inclusion, and forward-looking initiatives aimed at positioning RAS as the global reference community for robotics that advances scientific excellence, responsible innovation, interdisciplinary collaboration, and positive societal impact.

Looking ahead, I believe RAS has an extraordinary opportunity not only to respond to emerging scientific challenges but also to help define them. My goal for a second term is to help position RAS as the global reference for sustainable, responsible, and interdisciplinary robotics while continuing to strengthen education, international collaboration, technology transfer, and opportunities for students and early-career researchers.

COMMITMENT TO SERVICE

I, Barbara Mazzolai, hereby certify that if elected, I will serve in the position to which I am elected for the term of the office.