MISTYROBOTICS

Misty in Education and Research

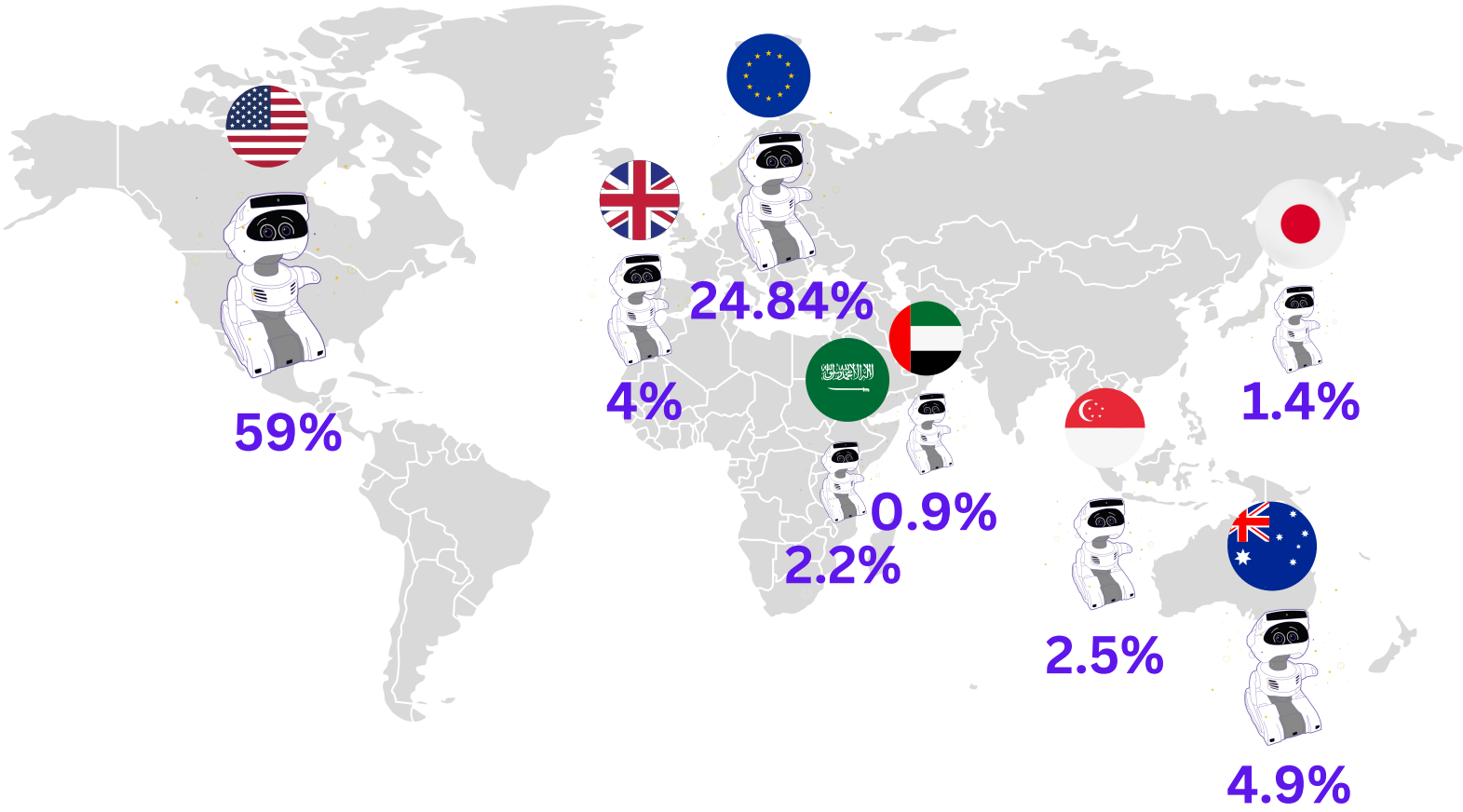
Introduction

In the ever-evolving landscape of robotics, the Misty robot has emerged as an educational platform that has captured the imagination of educators, researchers, developers, entrepreneurs and innovators around the world. Misty has achieved remarkable milestones that have helped to expand robotics in education and our understanding of human-robot interaction, as well as the potential applications of robots in our daily lives.

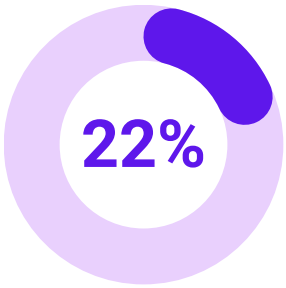
In this special report, we dive into the inspiring journey of Misty, exploring her applications across the ever-evolving landscapes of education and research, her groundbreaking achievements, and the exciting prospects she holds for the future.

Misty Robots in the world

Misty has made a significant impact on various industries and applications across the world, finding her way to almost all continents and contributing to a wide range of projects in Education, Research, Software Development, Healthcare and many more.

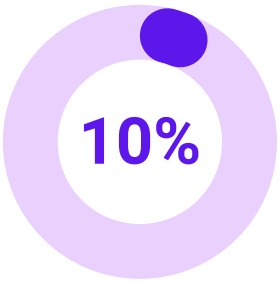


Out of all Mistys

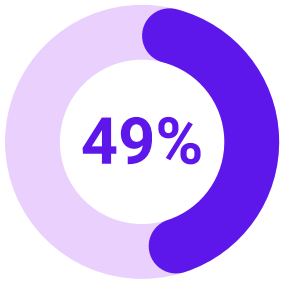


Used in Education and Research

Used in Software Development



Used for personal hobbies



Used for commercial applications

STEM Education

One of Misty's standout achievements in education is her role in promoting programming and engineering with robots in STEM (Science, Technology, Engineering, and Math) programs. Schools and institutions worldwide have embraced Misty as an innovative tool for enriching their curriculum with a fun and engaging educational robotics platform that fosters creativity and curiosity in students.

With Misty in their classroom, students get the opportunity to bring their code to life and gain a deeper understanding of STEM principles and concepts to create innovative solutions to real-world problems.

Applications in STEM Education

- Computer Science
- Robotics and Engineering
- Interactive Storytelling
- Language Learning and Practice

FRANKLIN & MARSHALL COLLEGE

At Franklin & Marshall College junior and senior students explore the outcomes and implications of using robots like Misty to aid children's learning and social development.

UNIVERSITY of WASHINGTON

Garfield's Girls Who Code Club visit University of Washington's robotics research lab to learn about robots, program their own interactions and discuss their preferences for different robots.

Linnæus University
Sweden

At Linnaeus, Misty is helping students to explore innovative ways to increase our understanding of how robots like Misty, paired with Generative AI and LLMs, can improve children's education and computational thinking.

PALO ALTO CITY LIBRARY

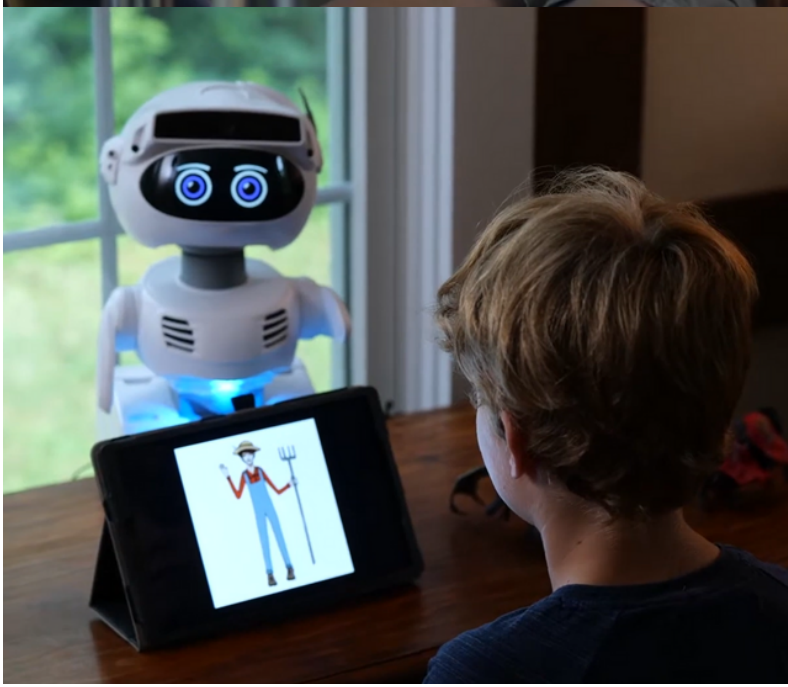
The Library conducts robotics classes for the local community with Misty, providing Python coding tutorials for absolute beginners to explore computer coding and develop computational thinking in a fun and interactive way.

Special Education

The utilization of Misty in special education (SPED) for children with autism spectrum disorder (ASD) holds significant promise as an innovative and impactful approach to improve learning and social development. **Recent research into child-robot interaction highlights the incredible potential that robots hold** to enhance teachers' ability to effectively engage and support children with ASD in various educational settings. While robots are programmed and are thus deterministic, they are more suited to the need of predictability and repetition for children with ASD.

Applications in SPED

- Friendly Playmate
- Behaviour Eliciting Agent
- Social Mediator
- Personal Therapist



ST. VRAIN VALLEY SCHOOLS
academic excellence by design

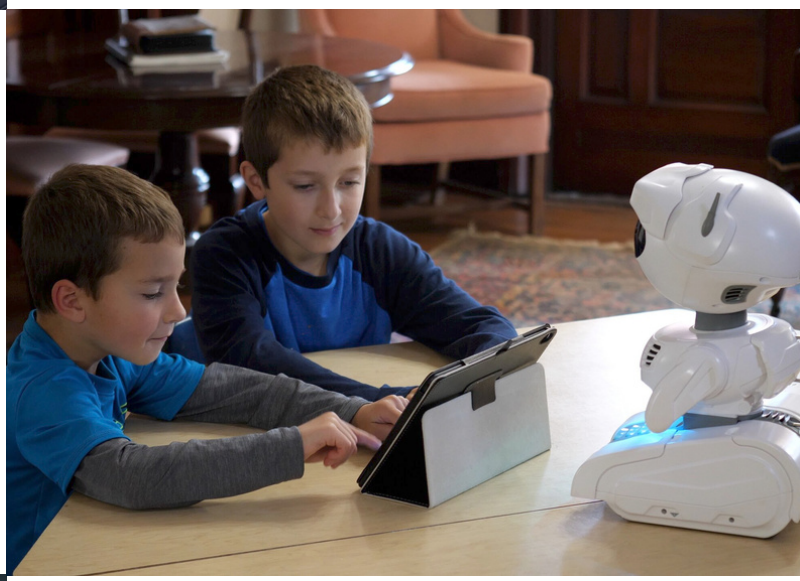
At St. Vrain Valley Schools Mistys help teachers engage special needs kids as socially-assistive robots in order to improve their communication skills and appropriate socialization.

Durango School District

At Durango Schools Misty helps students with everything from practicing interview questions, learning how to read facial expressions, and learning different types of coding.

MOVIA robotics

Movia Robotics is working with Misty to deliver life skills, daily living, learning readiness, and academic content to children and adults with ASD and other special needs.



ROSA
Robot-supported education for children with ASD

The ROSA project, led by the Norwegian Computing Center, will use Misty to create and evaluate a robot-based toolbox: Robot Supported education for children with ASD (ROSA) so that teachers can adapt to the unique needs of each child with ASD.

Human- Robot Interaction Research

Misty plays a pivotal role in Human-Robot Interaction (HRI) research by providing a versatile, accessible, and highly **capable platform for conducting experiments, and advancing our understanding of how humans and robots can interact in various environments**. Researchers today are conducting long-term user studies to assess the durability and effectiveness of robots in real-life applications. These studies provide valuable insights into the practical challenges and benefits of integrating robots into everyday life. Misty's contributions to this field continue to shape the development of more effective and socially aware robots.

Applications in HRI Research

- Robot Design
- Machine Learning
- Natural Language Processing
- Robot Assisted Learning
- Psychotherapy
- Human Cognition

WISCONSIN
UNIVERSITY OF WISCONSIN–MADISON

Researchers at Wisconsin use Misty as an autonomous reading companion for children in the natural and familiar setting of their homes, revealing novel design insights and opportunities for HRI.

UNIVERSITY OF CAMBRIDGE

Researchers explore the use of social robots as well-being coaches, unravelling insights into how humans perceive robots in accordance with their expectations and the robot form factor.

TATA CONSULTANCY SERVICES

Students from the The University of Tokyo and Keio University research innovative solutions for improving HRI and get a peek into TCS' innovative Human-Robot Interactive Ecosystem.

BOISE STATE UNIVERSITY

SLIM Research Lab draws inspirations from linquistics and cognitive science theories to develop practical dialogue systems and computational models with digital personal assistants and conversational robots to evaluate real life applications.

Michaelis, Joseph E., Bengisu Cagiltay, Rabia Ibtasar, and Bilge Mutlu. "Off Script:" Design Opportunities Emerging from Long-Term Social Robot Interactions In-the-Wild." In Proceedings of the 2023 ACM/IEEE International Conference on Human-Robot Interaction, pp. 378-387. 2023.

Cagiltay, Bengisu, Nathan Thomas White, Rabia Ibtasar, Bilge Mutlu, and Joseph Michaelis. "Understanding Factors that Shape Children's Long Term Engagement with an In-Home Learning Companion Robot." In Interaction Design and Children, pp. 362-373. 2022.

Spitale, Micol, Minja Axelsson, and Hatice Gunes. "Robotic mental well-being coaches for the workplace: An in-the-wild study on form." In Proceedings of the 2023 ACM/IEEE International Conference on Human-Robot Interaction, pp. 301-310. 2023.

Barfield, Jessica. "Designing Social Robots to Accommodate Diversity, Equity, and Inclusion in Human-Robot Interaction." In Proceedings of the 2023 Conference on Human Information Interaction and Retrieval, pp. 463-466. 2023.

Ciuffreda, Ilaria, Gianmarco Battista, Sara Casaccia, and Gian Marco Revel. 2023. People detection measurement setup based on a DOA approach implemented on a sensorised social robot. Measurement: Sensors, 25, p.100649.

Carnegie Mellon University

Liang, Wei, Ruoxin Xiong, Pengkun Liu, Pingbo Tang, and Erica Cochran. "Improving post-occupancy evaluation engagement using social robots." In Proceedings of the 9th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation, pp. 159-167. 2022.

Arizona State University

Miller, Jordan, and Troy McDaniel. "I enjoyed the chance to meet you and I will always remember you: Healthy Older Adults' Conversations with Misty the Robot." In 2022 17th ACM/IEEE International Conference on Human-Robot Interaction (HRI), pp. 914-918. IEEE, 2022.

UNIVERSIDADE FEDERAL DE SANTA CATARINA

Mois G, Vergara LG, Ali AF, Rakshe V, Mahajan H, Rogers WA. "Understanding the application of socially assistive robots in the home to support healthy aging." Gerontechnology 21, 2022

BOISE STATE UNIVERSITY

Torres-Fonsesca, Josue, and Casey Kennington. "HADREB: Human Appraisals and (English) Descriptions of Robot Emotional Behaviors." In Proceedings of the Thirteenth Language Resources and Evaluation Conference, pp. 5739-5748. 2022.

UNIVERSITÉ DE SHERBROOKE

Maheux, Marc-Antoine, Charles Caya, Dominic Létourneau, and François Michaud. "T-Top, a SAR Experimental Platform." In 2022 17th ACM/IEEE International Conference on Human-Robot Interaction (HRI), pp. 904-908. IEEE, 2022.

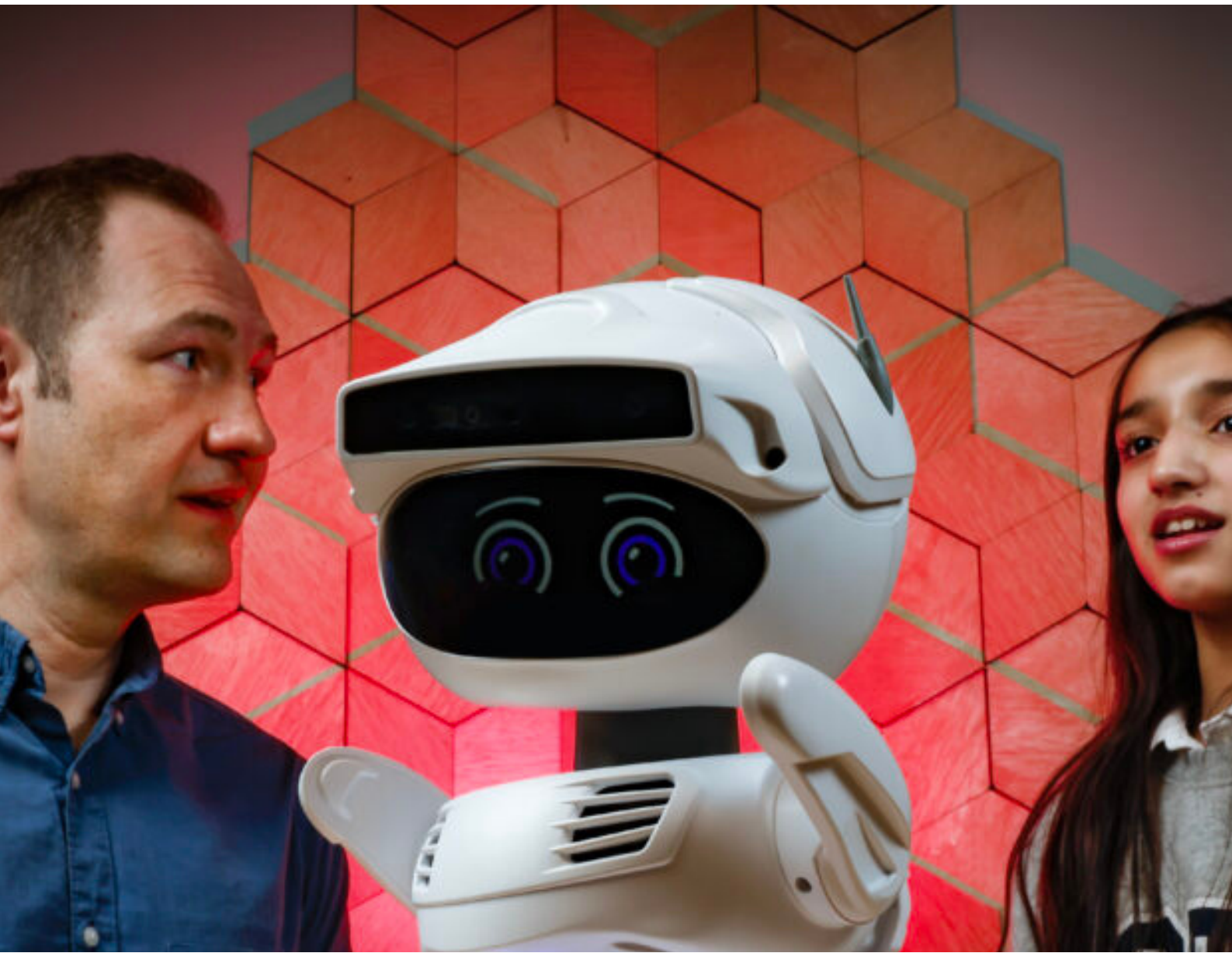
See full list of publications at mistyrobotics.com/publications

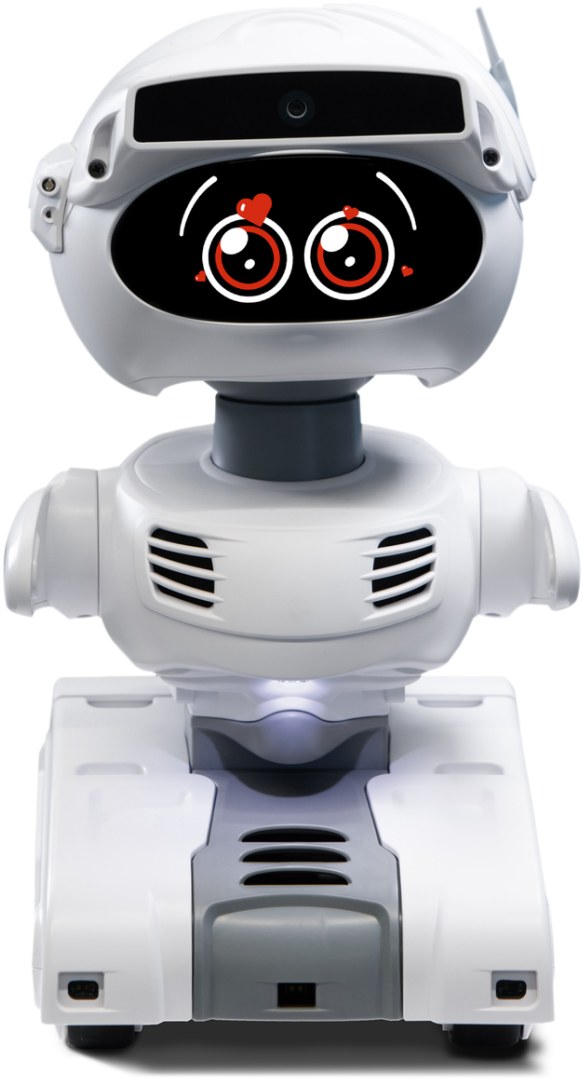
The future with Misty

Misty has proven to be more than just a tool for education and research; she empowers human creativity and potential while sparking our innate curiosity, drive, and imagination to create a better tomorrow.

As we continue to develop Misty and expand the Misty Community, we want to leverage the power of robotics to augment educators' capability in preparing the next generation of pioneers for the digital world ahead, while also responding to the urgent need for an open platform that can be used to better understand the future of computer science, engineering and human-robot interaction.

We invite you, our partners in this visionary journey, to join us in challenging traditional pedagogical models to unlock students' full potential and stretch the boundaries of human-robot interaction research by embracing the future with Misty.





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