Looking Back to Move Forward: A Recollection of Robotics at Carnegie Mellon

Hunt Library Gallery
January 19, 2022 – March 18, 2022

The University Libraries is pleased to present Looking Back to Move Forward: A Recollection of Robotics at Carnegie Mellon. The debut exhibition in the new first-floor gallery of Hunt Library provides a window into the ongoing work of The Robotics Project, an interdisciplinary approach to preserving the legacy of robotics through a partnership between the University Libraries and the School of Computer Science. Featuring more than 40 robots, archival artifacts, personal recollections from the people who made it all happen, and a look inside the process of archiving robots, this exhibition engages the ongoing interplay between the past and the future in robotics research.

Curators: Katherine Barbera & Kathleen Donahoe
Art Director: Heidi Wines Bartlett
Project Manager: Morgan Wobbert

Caption for Cover
Photograph of two dancers operating the Trojan Cockroach during field testing, 1993. Courtesy of the Carnegie Mellon University Archives.

Looking Back to Move Forward / A Recollection of Robotics at Carnegie Mellon presents a selection of compelling artifacts and archival material from the history of robotics at CMU. The story begins in the early 1980s with Terminet, a first-of-its-kind autonomous vehicle, and centers on the ongoing work of the University’s robotics program. As robotics continues to evolve, this exhibition also explores the challenges and opportunities for creating an archive of robotic research.

Robots have been part of Carnegie Mellon University for more than four decades. Founded in 1979 with seed funding from Westinghouse Electric Corporation, the Robotics Institute was the very first robotics department in the world. Any history of CMU, the Pittsburgh technology ecosystem, or the field of robotics would be incomplete without recognition of the research at Carnegie Mellon and its broader impact.

Recognizing the influence and responsibility of this legacy, the University created The Robotics Project in 2019 as an interdisciplinary approach to preserving the record of robotics through a partnership between the University Libraries and the School of Computer Science. The Robotics Project team is building an archive to house this legacy and contribute to a broader understanding of the technology as well as the development and evolution of the community of people who make it possible.

Roboticists embody a commitment to the future, yet as the field evolves over time and new half-century in the university environment, its legacy continues to grow through the stories, recollections, connections, and material evidence of its past.

Learn more about The Robotics Project and the Robot Archive by visiting the digital companion to this exhibition:

exhibit.library.cmu.edu/radiationproject

In the early 1980s, a team including Tetsuro Nakamura and William “Bill” Whittaker began working on a terrestrial rover capable of navigating outdoor, off-road terrain. Terminet, as it would become known, was the first of its kind and the first autonomous vehicle at Carnegie Mellon. This six-wheeled machine equipped with the latest technology of the time—video cameras, sonar ring, and a scanning laser range finder—operated as a small-scale but reliable testbed for the university’s earliest research in outdoor autonomy, deploying in a variety of settings, from Schenley Park to coal mines.

Instead of heading to a vending machine for a snack, what if a robot brought one to you? That was the concept behind Snackbot, a mobile robot designed to reinforce long-term positive relationships between humans and robots. Led by Joel Forlizzi in the Human-Computer Interaction Institute and a team of more than 20 interdisciplinary researchers from multiple institutions, Snackbot was created in 2009 as a way of studying human interaction and testing the design process. It delivered granola bars, cookies, and other treats to offices throughout the Mellon Hall.

In 1997, a team of Carnegie Mellon robotics students led by Manuel Veloso won the inaugural RoboCup World Cup championship. A few years later, Robot Soccer at Carnegie Mellon has become an international phenomenon. Veloso and his students have used soccer robots to study multi-robot planning and execution in a complex and uncertain environment—the soccer field.

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In the early 2010s, Siddharth Sarang, a postdoctoral researcher studying under Christopher Atkeson in the Robotics Institute, developed a soft robot prototype to assist the elderly and people with disabilities. The project demonstrated that a lightweight robot lacking a proper “skeleton” could still assist humans with tasks like wiping something with a washcloth. Donald Hall, a 3D director at Walt Disney Animation Studios, saw the soft robot arm while visiting the Robotics Institute on a research trip in the 2010s. He liked the idea of a huggable robot that could comfort humans and was inspired to create Baymax, the inflatable, friendly robot. Baymax premiered as a main character in the animated movie Big Hero 6 in 2014.

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Image Captions
Terrebot with members of the project team including a visit by Donald Hall, Pixar director at Pixar Animation Studios, in 2014.

Soft robot arm developed by Siddharth Sarang while studying under Christopher G. Atkeson at Carnegie Mellon, University of the Pittsburgh Technology Institute.