Robotics, Embodied AI and Learning:

Robots that perceive, act and collaborate.

The R(E)(A)L Center
Robotics • Embodied AI • Learning

Robotics, Embodied AI and Learning (REAL) is the integration of machine learning, computer vision, robot learning and language technologies, culminating in the "embodiment" of artificial intelligence: robots that can perceive, act and collaborate. Our goal is to create a community of researchers who understand how each of the components of Embodied AI interact with each other to create new technologies with novel applications. This emerging expertise is needed because the synthesis of machine learning, computer vision, robotics and language technologies presents new challenges, new opportunities, and new capabilities that do not exist when the components are considered independently.
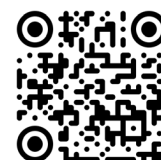
MISSION

To develop and deploy embodied learning models and methods related to locomotion and manipulation, navigation and object interaction, instruction following, and human-robot dialogue.

ABOUT

REAL is the integration of machine learning, computer vision, robotics and language technologies, culminating in the "embodiment" of artificial intelligence: robots that perceive, act and collaborate. Key faculty members focused on Embodied AI include:

- **Yonatan Bisk**
  Language Technologies Institute + Robotics Institute Courtesy

- **Katerina Fragkiadaki**
  Machine Learning Department + Robotics Institute Courtesy

- **David Held**
  The Robotics Institute

- **Deepak Pathak**
  Robotics Institute + Machine Learning Department Affiliate

- **Ruslan Salakhutdinov**
  Machine Learning Department

Carnegie Mellon University
School of Computer Science

Perceiving | Acting | Collaborating

PARTNERSHIP OPPORTUNITIES

We invite industry partners to join us in exploring research areas including:

- locomotion and manipulation,
- navigation and object interaction,
- instruction following, and
- human-robot dialogue.

PARTNERSHIP BENEFITS

- Sponsored research — capstone projects
- Sponsored co-advising
- Sponsorship of a colloquium series
- Student internships
- Visiting scholar
- Demo Days
- Early access to research results
- Recruitment

PUBLICATIONS

We have published many papers.
They are posted on our web pages listed below:

- Yonatan Bisk
- Katerina Fragkiadaki
- Deepak Pathak
- Ruslan Salakhutdinov

EXAMPLE COURSES

- Advanced Deep Learning
- Deep Learning for Robotics
- Deep Reinforcement Learning & Control
- Introduction to Robot Learning
- On-Device Machine Learning
- Multimodal Machine Learning
- Talking to Robots
- Seminar: Deep Reinforcement Learning for Robotics

Carnegie Mellon University
School of Computer Science

5000 FORBES AVENUE
PITTSBURGH, PA 15213-3890

f X @ in SCSatCMU

cs.cmu.edu

FOR MORE INFORMATION:

Yonatan Bisk
Assistant Professor
ybisk@cs.cmu.edu

George Darakos
Chief Partnerships Officer
412-268-3805 ▪ gdarakos@andrew.cmu.edu

cmu.edu/real