

How Do Humans Live with Robots?

Summary

Our project in one-sentence

The objective of this Growing Convergence Research (GCR) project is to lay the foundations for a convergent, transdisciplinary approach to robotic science that includes the robots, robotic scientists, and communities surrounding robotic deployments as interrelated objects of study.

What we plan to do

- Deploy a testbed-observatory consisting of a long-term autonomous robotic delivery service on UT campus.
- Multiple types of data will be collected and connected via a convergent data model that will allow transdisciplinary collaborative analysis of community interactions with long-term autonomous robots.
- Develop the new methods and transdisciplinary constructs required by the field of Community-Embedded Robotics.

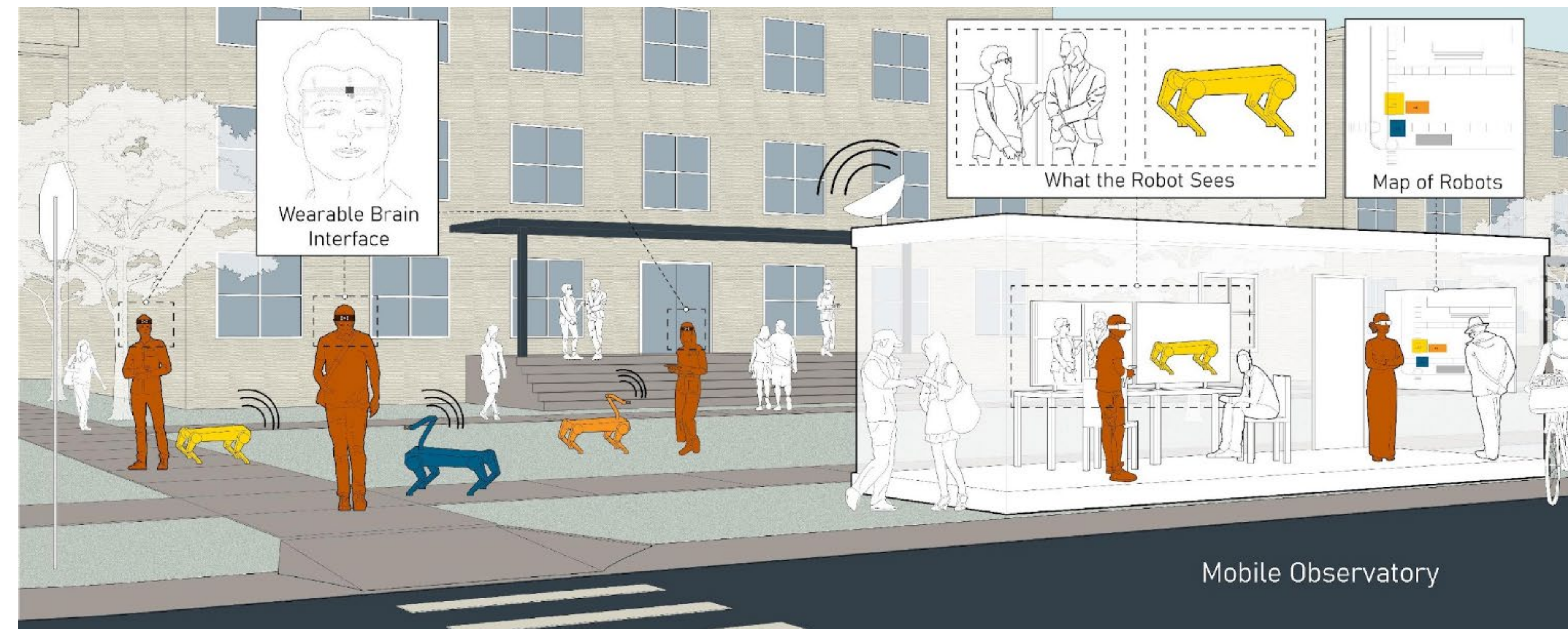
Intellectual Merit

- Expand robotics research by studying large, changing groups of humans interacting with autonomous robots longitudinally, in real-world environments.
- Convergent data model provide transformative scientific access to community-robot encounters.

Broader Impact

- Research outcomes will identify and address ethical, privacy, and safety concerns created when multi-purpose robots are deployed into communities.
- Widen the scope of robotics research to include the communities they impact and co-evolve with.

Testbed-Observatory

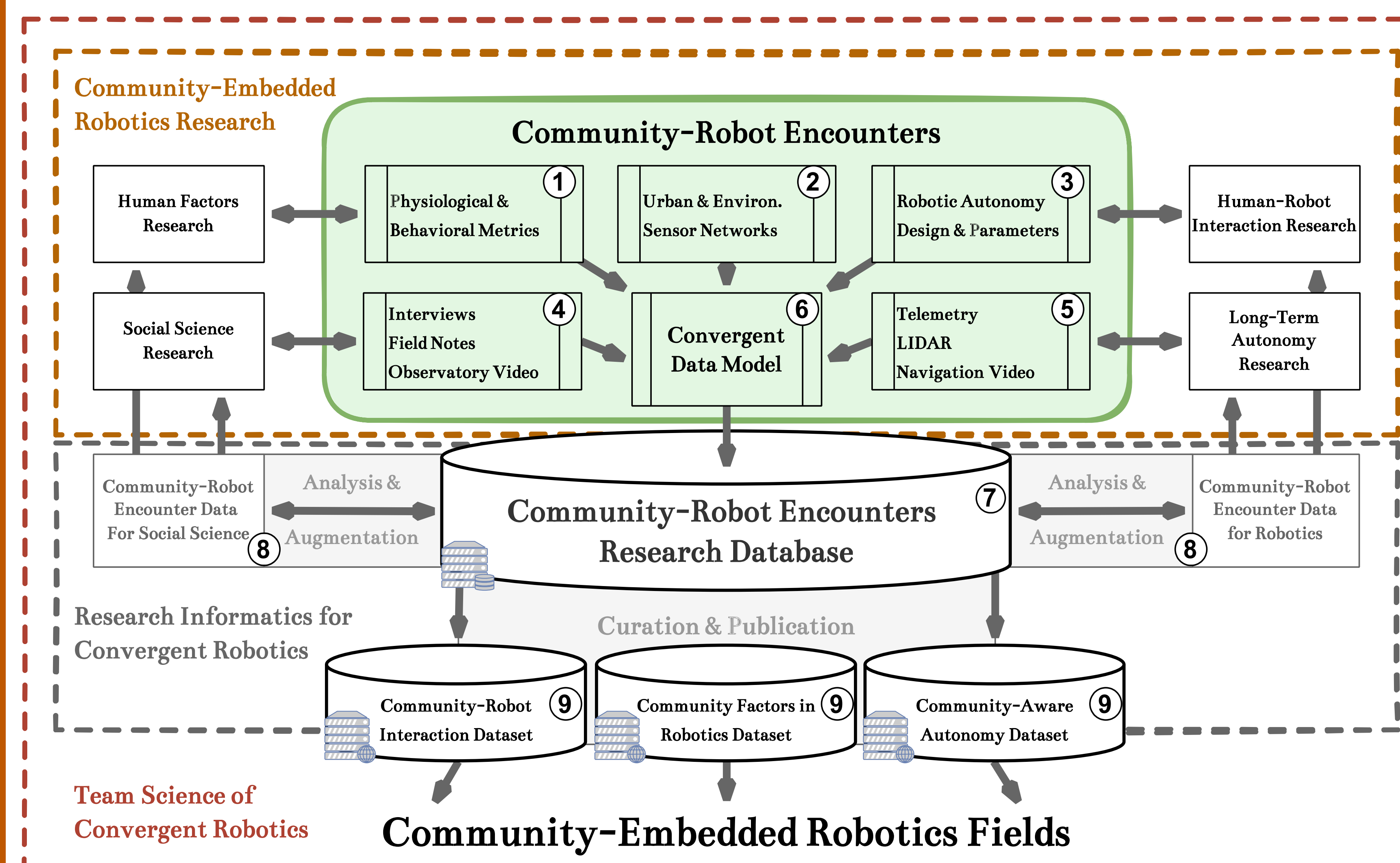


Data Source

- EEG/EOG Devices
- Robot Telemetry
- Robot Navigation video
- Observatory Video
- Interviews
- Fieldnotes

All of these data types enter our convergent data model and shared research informatics workflow.

Research Informatics



The project's convergent data model and the project's research infrastructure allow data to flow freely amongst the major research areas. This enables scientific convergence at the data workflow level.

Field of Study

Research Informatics

- Convergent Data Model
- Data Integration & Reuse

Community-Robot Interactions

- Robot Play
- Delivery

Community Factors in Robotic

- Pedestrian Safety
- Trust of Robot

Community-Aware Autonomy

- Competency-Aware Autonomy
- Preference-Aware Planning

The Team Science of Convergence

- Maintenance and Sustainability
- Data Afterlives