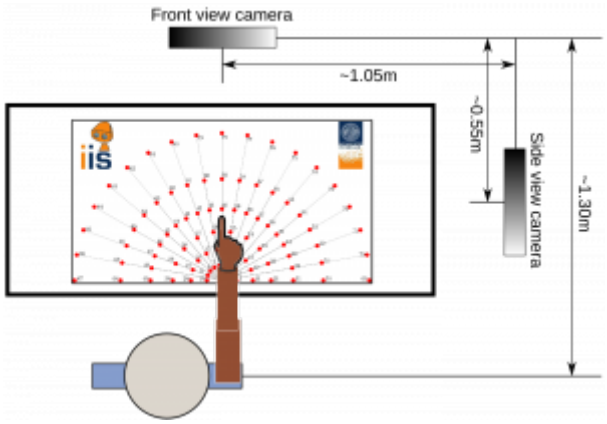
Innsbruck Multi-View Hand Gestures (IMHG) Dataset

Hand gestures constitute a natural forms of communication in human-robot interaction scenarios. They can be used to delegate tasks from a human to a robot. To facilitate human-like interaction with robots, a major requirement for advancing in this direction is the availability of a hand gesture dataset for judging the performance of the algorithms.

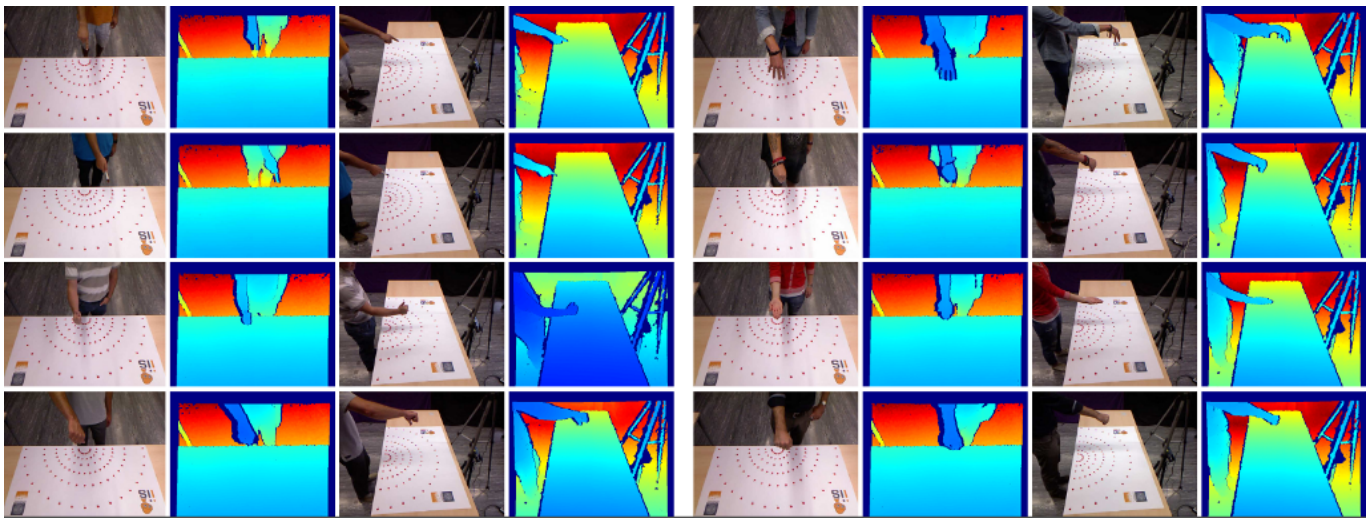
Dataset Features

- 22 participants performed 8 hand gestures in the context of human-robot interaction scenarios taking place at close proximity.
- 8 hand gestures categorized as:
    1. 2 types of referencing (pointing) gestures with the ground truth location of the target pointed at,
    2. 2 symbolic gestures,
    3. 2 manipulative gestures,
    4. 2 interactional gestures.
- A corpus of 836 test scenarios (704 reference gestures with ground truth, and 132 other gestures).
- Hand gestures recorded from two views (frontal and lateral) using an RGB-D Kinect sensor.
- The data acquisition setup can be easily recreated using a polar coordinate pattern as shown in the figure below to add new hand gestures in the future.



- Soon to be released publicly.
- Currently available for Download (~888MB) with authentication.

Sample Scenarios



Gestures recorded from frontal and side view. *T-B*: Finger pointing, Tool pointing, Thumb up (approve), Thumb down (disapprove), Grasp open, Grasp close, Receive, Fist (stop).

Reference

Dadhichi Shukla, Ozgur Erkent, Justus Piater, The IMHG dataset: A Multi-View Hand Gesture RGB-D Dataset for Human-Robot Interaction. Towards Standardized Experiments in Human Robot Interactions, 2015 (Workshop at IROS). Extended Abstract.PDF.

BibTex

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@InProceedings{Shukla-2015-StandardHRI,
  title = {{The IMHG dataset: A Multi-View Hand Gesture RGB-D Dataset for
Human-Robot Interaction}},
  author = {Shukla, Dadhichi and Erkent, Ozgur and Piater, Justus},
  booktitle = {{Towards Standardized Experiments in Human Robot
Interactions}},
  year = 2015,
  month = 10,
  note = {Workshop at IROS},
  url = {https://iis.uibk.ac.at/public/papers/Shukla-2015-StandardHRI.pdf}
}
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