



HUMBI dataset - high resolution multiview images of human body expressions

A large multiview dataset of human body expressions from a diverse population.

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Applications

- Computer vision
- Telepresence
- Virtual reality

Overview

Currently available human body expression datasets typically focus on one or two of the various human body expressions. For instance, the Panoptic Studio dataset consists of images focusing on hand and body expressions, and does not capture gaze, face or clothing. On the other hand, datasets like Columbia gaze and Eyediap are limited to gaze expression alone. Therefore, these datasets are not suitable for training networks that can capture complex social signaling and complete range of human body expressions.

To address this gap, researchers at the University of Minnesota have created HUMBI - a large multiview dataset of human body expressions (including gaze, face, hand, body, and garment) from a diverse population. The HUMBI dataset is composed of >14TBs of high resolution synchronized visual dataset with detailed appearance and geometry of human body expressions. HUMBI dataset can be used as a stand-alone training dataset, or in conjunction with other datasets, to create robust models. The researchers have shown that a vanilla network trained using HUMBI dataset outperformed the counterpart models trained using existing datasets. [Watch a brief video outlining HUMBI](#)

Properties of HUMBI dataset

Complete: Total body, including gaze, face, finger, foot, body, and garment, which are critical for studying holistic social signals. Dataset includes 20 distinctive dynamic facial expressions.

Dense: 107 GoPro HD cameras (72 body cameras and 35 face/gaze cameras) create a dense light field that can observe the minute body expressions with minimal self-occlusion. This dense light field provides the variation of appearance concerning the viewpoint changes.

Natural: The subjects are all voluntary participants (no actor/actress/student/researcher) with natural clothing. Their activities are loosely guided by multiple videos of performance instructions, which generates uncontrolled body expressions specific to them.

Diverse: 772 distinctive appearances include diverse clothing styles, skin colors, time-varying geometry of gaze, face, body, hand, and range of motion.

Fine: Multiview data, we reconstruct the high fidelity 3D model at a high frame rate (up to 60 Hz) in the form of 3D fine mesh models.

Subject Statistics

- Gender: 50.7% female; 49.3% male
- Age groups: 11% of thirties, 29% of twenties, and 26% of teenagers
- Skin colors: black, light brown, dark brown, and white
- Clothing: dress, short-/long-sleeve t-shirt, jacket, hat, and short-/long-pants

Researchers

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[External Link](http://www-users.cs.umn.edu) (www-users.cs.umn.edu)

Publications

HUMBI: A Large Multiview Dataset of Human Body Expressions.

CVPR 2020.,

External Links

[High Quality Mosaics from UAV Obtained Images](#)

[Robust Principal Components Analysis Algorithm](#)

Publications

HUMBI: A Large Multiview Dataset of Human Body Expressions. CVPR 2020.

Ready for Licensing

Dataset is now available for license! Please contact us to share your research or business needs and your licensing interests in this dataset.

<https://license.umn.edu/product/humbi-dataset---high-resolution-multiview-images-of-human-body-expressions>