# A Human Lying Posture Pressure-Map Dataset (HLPPDat)

The dataset consists of a set of tasks that must be passed in a pre-declared order. Failure to complete any of the items will lead to the removal of that sample from the published learning set. If a problem is detected, the responsible persons should be contacted in a timely manner.

Obsah obrázku interiér, zeď, nábytek, postel

Popis byl vytvořen automaticky

Figure 1 Tactile platform mattress

1. Selection of a suitable candidate:
   1. Must not exceed 180 cm in height!
   2. Must have all the limbs
2. Signing the measurement approval.
3. Preparing the candidate:
   1. Candidate must not wear shoes
   2. Ideally, one light layer of clothing (ideally: shirt, pants, skirt, ...) (must remove: sweatshirt, jacket, headgear (exception: religiously required headgear),
   3. No watches, belts, collars with thorns, or other accessories that may affect the pressure on the measuring mattress or damage it

pressure\_maps

folder contains 1280 .png pressure images. Lables for pictures are integrated in the Targets.csv table

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |

Figure 2 Pressure maps (supine, left lateral, right lateral, prone)

Measurement.csv

is bonus information about the personal dimensions of all participants

[SubjectId,Sex,Age,Height,Weight,Hip,Chest,Waist,Shoulders,Note]

|...SubjectId: Specifie the subject person metadata

**Obsah obrázku kloub, stojící

Popis byl vytvořen automaticky**|...Sex,Age,Height,Weight,Hip,Chest,Waist,Shoulders was measured as in the Figure 1

Figure 3 Body measurements

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SubjectId** | **Sex [m/f]** | **Age** | **Height [cm]** | **Weight [kg]** | **Hip [cm]** | **Chest [cm]** | **Waist [cm]** | **Shoulders [cm]** | **Note** |
| 1 | M | 22 | 181.0 | 74.1 | 102.0 | 88.5 | 93.0 | 48.0 |  |
| 2 | M | 23 | 185.0 | 88.1 | 101.0 | 102.5 | 102.0 | 50.0 |  |
| 3 | M | 26 | 168.5 | 52.7 | 83.0 | 89.0 | 68.0 | 45.0 |  |
| 4 | M | 27 | 179.0 | 72.0 | 101.0 | 90.0 | 87.0 | 48.0 |  |
| 5 | M | 39 | 177.3 | 94.0 | 104.0 | 115.0 | 108.0 | 49.0 |  |
| 6 | F | 23 | 168.3 | 62.7 | 98.5 | 89.5 | 68.3 | 38.0 |  |
| 7 | F | 20 | 162.0 | 61.2 | 99.0 | 89.0 | 74.0 | 40.0 |  |
| 8 | M | 26 | 171.0 | 66.0 | 91.0 | 91.0 | 85.0 | 41.0 |  |
| 9 | F | 22 | 171.0 | 59.9 | 87.2 | 90.5 | 68.0 | 38.0 |  |
| 10 | M | 22 | 172.2 | 61.3 | 88.0 | 94.5 | 72.5 | 39.5 |  |
| 11 | F | 23 | 175.0 | 113.0 | 125.0 | 130.0 | 110.0 | 47.0 |  |
| 12 | F | 19 | 163.2 | 55.2 | 94.1 | 80.3 | 67.5 | 37.8 |  |
| 13 | F | 19 | 175.3 | 89.9 | 113.0 | 111.5 | 107.5 | 45.7 |  |
| 14 | F | 27 | 168.0 | 65.3 | 99.0 | 94.5 | 78.0 | 37.0 |  |
| 15 | M | 22 | 184.0 | 84.4 | 104.2 | 109.8 | 98.5 | 47.8 |  |
| 16 | M | 21 | 180.0 | 68.7 | 103.5 | 92.0 | 84.5 | 45.0 |  |
| 17 | M | 50 | 175.0 | 81.3 | 104.0 | 104.0 | 102.0 | 45.0 |  |
| 18 | M | 69 | 176.0 | 96.9 | 108.2 | 124.5 | 117.0 | 49.5 |  |
| 19 | M | 40 | 178.5 | 82.9 | 99.0 | 103.5 | 96.5 | 43.5 |  |
| 20 | M | 21 | 175.0 | 66.1 | 95.5 | 97.5 | 83.0 | 45.3 |  |

Targets.csv

contains labels for classification and pressure image identification.

[FileName,Class,SubClass,SubjectId]

1. FileName: Identification of pressure image file in "pressure\_maps" folder
2. Class: Main laying posture label:
   1. 1 = supine
   2. 2 = left lateral
   3. 3 = right lateral
   4. 4 = prone
3. SubClass: Identification of variation of main postures 1-16 specified in section "Documentation/subClass\_images"
4. SubjectId: Segregates a dataset of pressure map images by study participants for LOSO verification.

## Scripts

The main script is *“assess\_classifiers\_bed\_data\_occlusions.m”* and other files are necessary functions for the main script.

Main script has coded options for method selection and hyperparameters search. Finally, options are:

* Select tested method
* Enabling of the occlusions
* Type of occlusions

Script using data from file *„newBedData20.mat“*  it contains same data as in folder „Data“

Outputs is test and files with accuracy rates and graphical hyperparam optimization space.

## Using of this HLPP Datset, scripts and material

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**Comparing Posture Classification: A Human Lying Posture Pressure-Map Dataset**

## For more information

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