

1. Experiment descriptions and data format

The device and recording method were the same as in collecting the training datasets. Two-channel PPG signals, three-axis acceleration signals, and one-channel ECG signals were simultaneously recorded from 8 subjects with age from 19 to 58. For each subject, the PPG signals were recorded from the wrist by two pulse oximeters with green LEDs (wavelength: 515 nm). Their distance (from center to center) was 2 cm. The acceleration signal was also recorded from the wrist by a tri-axis accelerometer. Both the pulse oximeter and the accelerometer were embedded in a wristband, which was comfortably worn. The ECG signal was recorded simultaneously from the chest using wet ECG sensors. All signals were sampled at 125 Hz and sent to a nearby computer via bluetooth. But in the testing datasets, ECG signals are not accessible to competition participants.

The eight subjects' information is listed below:

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Subject	Yrs	Weight	Height	Gender	Health/Body	Status
01	29	70kg	169cm	M	healthy	
02	21	77kg	188cm	M	healthy	
03	19	54kg	174cm	M	healthy	
04	20	64kg	162cm	M	healthy	
05	20	57kg	174cm	M	healthy	
06	19	70kg	180cm	M	healthy	
07	21	73kg	180cm	M	healthy	
08	58	70kg	156cm	F	abnormal heart rhythm and blood pressure	
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Each subject's data are named as "TEST_xxx_yyy", where xxx is the subject number ("S01", ..., "S08"), and yyy is the exercise type ("T01", "T02").

For the exercise type "T01", the subject performed many actions including various forearm and upper arm exercise (e.g. shake hands, stretch, push, and so on, which are common in arm rehabilitation exercise), running, jump, and push-up.

For the exercise type "T02", the subject mainly performed intensive forearm and upper arm movements (e.g. boxing).

Each dataset contains a variable named 'sig' of 5 rows. The first and the second rows are the two-channel PPG signals, while the other rows are the tri-acceleration signals.

Signal Sampling Rate: 125 Hz.

2. Estimation Requirement (more information is available on the website)

An algorithm should give the estimated heart rate in each time window of 8 seconds. Two successive time windows overlap by 6 seconds. Below are few examples.

- The first estimated heart rate value should be obtained from the data with the sampling indexes from the 1st to the 1000th.

- The second estimated heart rate value should be obtained from the data with the sampling indexes from the 251th to the 1250th. However, you can also utilize information from the previous time window (such as the previously estimated heart rate). **But note that you cannot use any data with the sampling indexes > 1250th (or associated information).**

3. Contact Information

If you have any questions, feel free to contact:

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