PAMAP Dataset: Aerobic Activity Monitoring

Note: This dataset is freely available for academic research given that the two references below are cited whenever the dataset is used. The first reference article also provides more information about the sensor setup and the data collection protocol. If you have any questions or suggestions, please contact Attila Reiss ([firstname].[lastname]@dfki.de). Also, please let us know if you have any publication that uses this dataset.

Data collection

- protocol: DataCollectionProtocol.pdf
- 8 test subjects (outdoor only with 7, subject1 missing)
  information on each of the test subjects, see: subjectInformation.pdf
- Hardware: 3 Colibri wireless IMUs (inertial measurement units) on hand, chest and shoe locations, and a HR-monitor
- missing data: from some activities, or from some of the sensors (missing values replaced with the value: -1.0e+6)
- synchronized and labeled raw data from all the sensors is merged into dat-files
  (1 indoor and 1 outdoor dat-file per test subject)

Data format

- each of the dat-files contains 45 columns per row
- the columns contain the following data:
  - 1 timestamp (s)
  - 2 activityID (see below)
  - 3 heart rate (bpm)
  - 4-17 IMU hand
  - 18-31 IMU chest
  - 32-45 IMU shoe
- IMU sensor data contains following columns:
  - 1 temperature (°C)
  - 2-4 3D-acceleration (ms^{-2})
  - 5-7 3D-gyroscope (rad/s)
  - 8-10 3D-magnetometer (μT)
  - 11-14 orientation (turned off during this data collection)

Activity IDs

- 1 lying
- 2 sitting
- 3 standing
- 10 walking very slow
- 11 normal walking
- 12 Nordic walking
- 13 running
- 14 ascending stairs
- 15 descending stairs
- 16 cycling
- 20 ironing
- 21 vacuum cleaning
- 22 rope jumping
- 23 playing soccer
- 0 other (transient activities)

References

1. A. Reiss and D. Stricker. Towards Global Aerobic Activity Monitoring. The 4th International Conference on Pervasive Technologies Related to Assistive Environments (PETRA), 2011.
2. A. Reiss, M. Weber and D. Stricker. Exploring and Extending the Boundaries of Physical Activity Recognition. IEEE SMC Workshop on Robust Machine Learning Techniques for Human Activity Recognition, 2011.