🗄 Database   🔓 Open Access

Combined measurement of ECG, Breathing and Seismocardiograms

Published: Dec. 12, 2014. Version: 1.0.0

New Database added: CEBSDB *(Dec. 12, 2014, 9 a.m.)*

Combined measurement of ECG, Breathing, and Seismocardiograms DataBase, CEBSDB. A dataset of 60 records from 20 volunteers has been contributed to PhysioBank by Miguel Angel Garcia Gonzalez and Ariadna Argelagos Palou from the Universitat Politecnica de Catalunya. Each record contains two ECGs, a respiration, and a seismocardiogram signals. The database was designed to check if errors in RR series are influenced by breathing, and if there is a significant variability in RR series estimated from ECGs versus seismocardiograms.

Data Description

The purpose of the database was twofold:

1. To check if slight errors in the detection of the RR time series when measuring it using two different leads are influenced by breathing.
2. To compare the RR time series obtained from the ECG and its surrogate measure obtained from the seismocardiogram or SCG (and to optimize beat detectors for SCG).

To construct the database, 20 presumed healthy volunteers were measured. Information of the subjects is summarized in the info.txt file. During the measurement, the subjects were asked to be very still in supine position on a comfortable conventional single bed and awake. After attachment of sensors, we recorded the basal state of the subjects by measuring during 5 minutes (records b001 to b020) After that, the subjects started to listening classical music during approximately 50 minutes (records m001 to m020) Finally, we monitored all subjects 5 minutes more after the music ended (records p001 to p020).

Data was acquired using a Biopac MP36 data acquisition system (Santa Barbara, CA, USA). Channels 1 and 2 of the system were devoted to measure conventional ECG (leads I and II respectively) with a bandwidth between 0.05 Hz and 150 Hz, channel 3 was employed to measure the respiratory signal obtained from a thoracic piezoresistive band (SS5LB sensor by Biopac, Santa Barbara, CA, USA) with a bandwidth of 0.05 Hz to 10 Hzand channel 4 was devoted to acquire the SCG using a triaxial accelerometer (LIS344ALH, ST Microelectronics) and a bandwidth between 0.5 Hz and 100 Hz. For the ECG measurement we used monitoring electrodes with foam tape and sticky gel (3M Red Dot 2560). Each channel was sampled at 5 kHz.

Note on detected incidences:

- Subject 4 shows some ectopy, especially on the m004 record
- Std II lead ECG quality on m018 record is low because of a bad electrode contact starting around minute 34 and ending around minute 38.

Contributors

This database was developed by Miguel Angel Garcia Gonzalez and Ariadna Argelagos Palou from the Electronic and Biomedical Instrumentation (IEB) research group of the Electronic Engineering (DEE) Department of the Universitat Politecnica de Catalunya (UPC).

Share

Access

Access Policy:
Anyone can access the files, as long as they conform to the terms of the specified license.

License (for files):
Open Data Commons Attribution License v1.0

Discovery

DOI (version 1.0.0):
https://doi.org/10.13026/C2KW23

Topics:

seismocardiogram   multiparameter   ecg   respiration

Corresponding Author

You must be logged in to view the contact information.

Files

Total uncompressed size: 2.7 GB.

Access the files

- Download the ZIP file (1.6 GB)
- Access the files using the Google Cloud Storage Browser here. Login with a Google account is required.
- Access the data using the Google Cloud command line tools (please refer to the gsutil documentation for guidance):
  ```
  gsutil -m -u YOUR_PROJECT_ID cp -r gs://cebsdb-1.0.0.physionet.org DESTINATION
  ```
- Download the files using your terminal: `wget -r -N -c -np https://physionet.org/files/cebsdb/1.0.0/`
- Download the files using AWS command line tools: `aws s3 sync s3://physionet-open/cebsdb/1.0.0/ DESTINATION`

📈 Visualize waveforms

Folder Navigation: <base>

Name		Size	Modified
📄 README.txt	⬇	2.8 KB	2014-11-25
📄 RECORDS	⬇	300 B	2014-12-10
📄 RECORDS.txt	⬇	2.1 KB	2014-11-25
📄 SHA256SUMS.txt	⬇	13.4 KB	2019-02-20
📄 b001.atr	⬇	6.4 KB	2014-12-08

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🗋 b002.atr	⤓	6.7 KB	2014-12-08
🗋 b002.dat	⤓	11.4 MB	2014-11-25
🗋 b002.hea	⤓	251 B	2014-12-11
🗋 b003.atr	⤓	7.4 KB	2014-12-08
🗋 b003.dat	⤓	11.4 MB	2014-11-25
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🗋 b009.atr	⤓	6.9 KB	2014-12-08
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m005.hea		258 B	2014-12-11
m006.atr		66.9 KB	2014-12-08
m006.dat		114.4 MB	2014-11-25
m006.hea		261 B	2014-12-11
m007.atr		56.2 KB	2014-12-08
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m008.atr		107.8 KB	2014-12-08
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p009.hea		267 B	2014-12-11
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p011.dat		11.4 MB	2014-11-25
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p012.dat		11.4 MB	2014-11-25
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p013.dat		11.4 MB	2014-11-25
p013.hea		264 B	2014-12-11
p014.atr		7.4 KB	2014-12-08
p014.dat		11.4 MB	2014-11-25
p014.hea		267 B	2014-12-11
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p016.dat		11.4 MB	2014-11-25
p016.hea		261 B	2014-12-11
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🗋 p020.dat	⬇	11.4 MB	2014-11-25
🗋 p020.hea	⬇	264 B	2014-12-11

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