

ER-flow Application Description Template

Application Name: CQRS
Application domain: Biosignalprocessing
Brief description of application CQRS is an algorithm to detect QRS-complexes in overnight ecg signals recorded within a polysomnography. It is a prerequisite for further analysis of the heart frequency variability.
Data: input data format: mit-Format (2 files: one header-file (filebase.heg, one datafile filebase.dat) output data format: Textfiles (filename_\$method.dat) sample data: b000301_ecg (heg, dat)
Application: <ul style="list-style-type: none">run_FD1_AF2_DF2.shrun_CQRS.sh,FD1_AF2_DF2CQRSMatlab_mcr(2013b) (www.mathworks.de/products/compiler/mcr/)
Documentation: on Linux-Systems: Prerequisite: You need the matlab_mcr 2013b installed. Download zip-File, unzip, run in Terminal: <code>\$PATH2MATLABMCR/install</code>
Programm execution: First run FD1_AF2_DF2, then CQRS Run in Terminal <code>\$PATH2APPLICATION/run_FD1_AF2_DF2.sh \$PATH2MCR \$PATH2ODATA/b000301_ecg</code> If processed correctly, the following files are created <ul style="list-style-type: none">b000301_ecg_fd1.datb000301_ecg_af2.datb000301_ecg_df2.dat Run in the same directory <code>\$PATH2APPLICATION/run_CQRS.sh \$PATH2MCR \$PATH2ODATA/b000301_ecg</code> If processed correctly, a file called b000301_ecg_cqrs.dat is created
Publication D. Krefting, H. Loose, T. Penzel, and T. Penzel. Employment of a Healthgrid for evaluation and development of polysomnographic biosignal processing methods. Conf Proc IEEE Eng Med Biol Soc, 1:268–271, 2010.
Execution environment middleware: openStack workflow system: WS-PGRADE
Execution characteristics data size (per unit, typical number of units): input: 12 MB, tens to hundreds output: 2 MB, hundreds processing time (per unit): few seconds memory usage: n.a. disk usage: minimal
Target users Sleep researchers of the German Sleep Society (http://www.charite.de/dgsm/dgsm/?language=english) number of users: prospected: about 20 direct users user type: end-user

Usage scenario for workflow in the ER-FLOW

The application was originally integrated into the German national grid infrastructure, but the used middleware is no longer supported. Therefore the application needs to be ported to the openStack-Based cloud provided by HTW.

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