

Completion of Dialysis 1 and 2

Nazrul Anuar Nayan

I. OBJECTIVE

The main objective is to store all available data sets into our OURR folder using the same data structure or format as was used in 'Oxford Respiratory Rate Toolbox'.

II. COMPLETED TASKS

A. *Data sets*

The information on the data sets has been updated as shown in Table I in Appendix A. Currently, 6 data sets (MIMICII, CapnoBase, Fantasia, Dialysis 1 (HM), Dialysis 2 (OB), Dialysis 3 (DF)) have been successfully formatted and uploaded to 'OURR' bsprojects9 shared folder. For the past two weeks, Matlab scripts are generated to process Dialysis 1, 2 and 3 data sets. Dialysis 2 and 3 are straightforward as the ECG, Belt and PPG data are given in .mat format. However, a little challenging when facing the Dialysis 1 as the PPG data are in 'WaveformLogger*.log' format. They need to be converted to .mat format using 'LoadWaveform_0p3.m' and 'LC_convert_hex_to_timeseries.m' functions. The timestamps have also been converted to match the format used in Dialysis 2 and 3. The uploaded data size for Dialysis 1,2 and 3 are 96, 576 and 374, respectively. In Dialysis 1, six data with corrupted ECG signals are detected. On 30 Mar 2015, a meeting with Alistair to discuss the data from PICRAM has been done. He has uploaded PICRAM data files into 'bsprojects12'. Mr. Marco has volunteered to format PICRAM and CALMS2 datasets. Hopefully I could complete this by next week.

B. *Machine Learning Conference*

On this conference which will be held on the 21 September 2015, I am updating the presenter names who has given a 'yes' to be at the event. A tentative programme has been designed. After we have confirmed the programme, I will inform Ms. Jacqueline Fossey, the conference and event manager at Balliol College.

III. PREVIOUS REPORTS

All the progress reports are stored in <http://goo.gl/5yASrs>

- 20 Feb 2015 - Datasets for respiratory estimation
- 06 Mar 2015 - Format of the Datasets for Respiratory Rate Estimation
- 20 Mar 2015 - Dialysis 1, 2 and 3 data sets
- 01 Apr 2015 - Completion of Dialysis 1 and 2

APPENDIX A
DATASET INFORMATION

TABLE I

Name	MIMICII 2012	CapmoBase 2015	Fantasia 2015	Dialysis 1 2011	Dialysis 2 2012	Dialysis 3 2014	CALMS2 2014	PICRAM 2015	Listen 2014	Vortal 2014
Updated Publicly Available Formatted/ ↑ bsprojects9	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Raw data	physionet1_temp	URL	URL	bsprojects7	bsprojects7	bsprojects7	bsprojects5 (very few)	bsprojects12 ICU X, ward ✓	✓	✓
ECG Signal	✓	✓	✓	✓	✓	✓	✓	ICU X, ward ✓	✓	✓
Accelerometry Signal	patient	patient	healthy	patient 3-4h post Dialysis	patient on Dialysis	patient on Dialysis	post-surgery ^a post-op ward	adult ICU, ward	post-cardiac surg ICU, ward	healthy(young/elderly) laboratory
Subject Population	ICU	post-surg	✓	s	s	s	s	ICU s,v / ward s,v ^c	s,v	s,v
Clinical Setting	s, v	s,v	s	s	s	s	s	ICU > 9000, ward 441	196	42 young, 14 elderly
Breathing (s/v) ^b	1017 ^d	42	40	96	576	374	~ 250	✓	✓	✓
No. of records	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Neonates (<1 y.o.)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Paediatrics (1-18)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Young Adult (19-40)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Adult	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Elderly (>70 y.o.)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Unwell?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chronically Unwell?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Acutely Unwell?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ambulatory?	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Recording Time	~8 min	8 min	~2:00 h	24 h	4h	4h	1:30 h	ward ✓ ward 1-2 d	✓, X	✓, X
ECG/PPG Acq. Equip.	PPG ^f	PPG ^f	PPG ^f , ECG ^h	Hidalgo belt	Hidalgo belt	Black Shadow belt	IP nurse	ICU ^j , ward ^k	2d ICU, 5d ward	ICU ^j , ward ^k
Continuous RR Signal	pCO ₂ ^m	pCO ₂ ^m	IP	Hidalgo belt	Hidalgo belt	Black Shadow belt	IP nurse	ICU ^j , ward ^k	ICU ^j , ward ^k	IP
Other Reference RR	annotation	annotation	✓	✓	✓	✓	✓	ICU ⁿ , ward (nurse)	ICU ⁿ , ward (nurse)	IP
Availability	✓	✓	✓	✓	✓	✓	✓	✓	✓	> 3 months

^agastro-intestinal

^bspontaneous/ ventilated

^cnon-invasive

^dthe extraction from matched subset of 4492 records

^eyoung: 10 mins at rest (supine), (2 mins walking approx 5 mins running)- 10 mins at rest (supine) after exercise, elderly: 10 mins at rest (no exercise)

^fDatex Ohmeda (100 Hz)

^gNonin (75 Hz)

^hHidalgo (256 Hz)

ⁱPPG: Nonin 4100 Bluetooth Enabled

^jPhilips bedside monitor (PPG 125 Hz, ECG 125 Hz)

^kPhilips telemetry (PPG, ECG)

^lPhilips bedside monitor (ECG 125 Hz, PPG 125 Hz), Nonin wearable sensor (PPG 75 Hz)

^mcapnometry waveform (25 Hz), airflow

ⁿventilator or manual