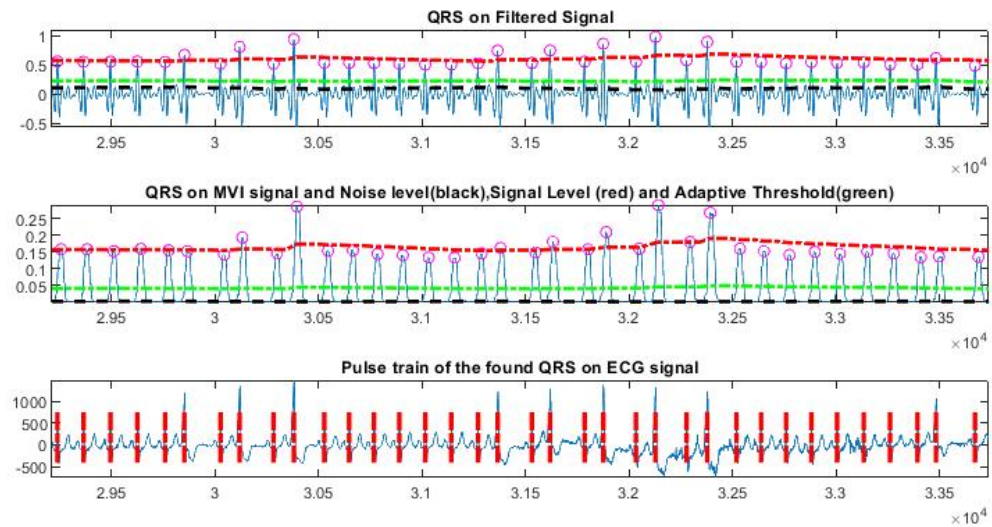
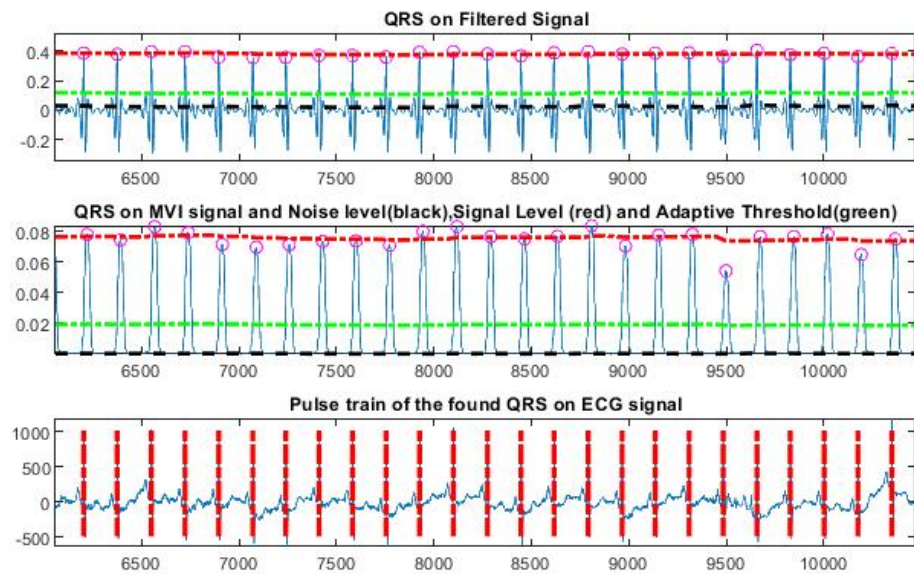


1. (1) Ecg1 是 PVC,



(2) Ecg2 是 Normal.



2. 取 ecgpvc.dat 的檔案做運算

```
[qrs_amp_raw,qrs_i_raw,delay]=pan_tompkin(ecg,fs,1);
PT = qrs_i_raw;
newPT = [];
for i = 1 : length(PT)-1
    newPT = [newPT PT(i+1)-PT(i)]; %計算 RR Values
end
RR_AVG = mean(newPT);
RR interval average : 125.13ms
[qrs_amp_raw,qrs_i_raw,delay]=pan_tompkin(ecg,fs,1);
PT = qrs_i_raw;
FFAVG = [];
for i = 1 : length(PT)-1
    RR_RMS = rms(ecg(PT(i):PT(i+1)));
    RR_AVG = mean(ecg(PT(i):PT(i+1))); %第二題 RR AVG
    FF = RR_RMS/RR_AVG; % 第二題 FF
    FFAVG = [FFAVG FF];
end
FF_AVG = mean(FFAVG);
```

Form factor (FF) :取每段 RR 之間的波做 FF 值為 1.0064

3. Use a duration of 80 samples (400 ms) spanning the QRS - T portion of each beat to compute FF.

取第 14752~14832 點

```
RR_RMS = rms(ecg(14752:14832));
RR_AVG = mean(ecg(14752:14832));
FF = RR_RMS/RR_AVG;
```

FF = 1.0256

4. The P wave need not be considered in the present exercise. Compute the mean and standard deviation of the FF and RR values for the normal beats and the PVCs. Evaluate the variation of the two parameters between the two categories of beats.

Data ECG1: RR_Value std = 0.1182 / RR_Value mean = 0.5835

FF std = 0.0038 / FF mean = 1.0064

Data ECG2: RR_Value std = 0.1080 / RR_Value mean = 0.4135

FF std = 0.0051 / FF mean = 1.0062

MATLAB R2021a - academic use

HOME PLOTS APPS EDITOR PUBLISH VIEW

File Edit Breakpoints Run Run and Advance Run and Time

Current Folder: C:\Users\Albert\Downloads\HW3\ecgproc.m

```

10 - ecgproc = @(ecgvec,fs)
11 - %ecgproc
12 - fs = 200;
13 - % [1:fs*len]/fs;
14 -
15 -
16 - [qrs_avg,ttv,ctv,ltv,rtv,rlt,rtv]=pca_tmv(ecg,fs,1);
17 - PT = qrs_avg;
18 - newPT = [];
19 - for i = 1 : length(PT)-1
20 -     newPT = [newPT PT(i+1)-PT(i)]; % 计算 RTV 的差值
21 - end
22 - RR_avg = mean(newPT);
23 -
24 - [qrs_avg,ttv,ctv,ltv,rtv,rlt,rtv]=pca_tmv(ecg,fs,1);
25 - PT = qrs_avg;
26 - FF_avg = [];
27 - for i = 1 : length(PT)-1
28 -     RR_avg = max(ecg(PT(i):PT(i+1)));
29 -     RR_avg = mean(ecg(PT(i):PT(i+1))); % 计算 RR 的平均值
30 -     FF = [RR_avg,RR_avg,5 第二组 FF
31 -     FF_avg = [FF_avg FF];
32 - end
33 - FF_avg = mean(FF_avg);
34 -
35 -
36 -
37 - RR_avg = max(ecg(14752:14832));
38 - RR_avg = mean(ecg(14752:14832));
39 - FF = [RR_avg,RR_avg,5 第二组 FF
40 - FF = [RR_avg,RR_avg];

```

Workspace

Name	Value
delay	15
ecg	50000x1 double
ecg1	50000x1 double
ecg2	50000x1 double
FF	1.0256
FF1	1.0145
FF2	1.0070
FF_avg	1.0064
FF_avg	1x559 double
fs	200
i	291
newPT	1x559 double
newPT1	1x559 double
newPT2	1x559 double
newPT3	1x559 double
PT	1x559 double
PT1	1x559 double
PT2	1x559 double
qrs_avg_raw	1x559 double
RR_avg	2.0752e+03
RR_avg1	125.1333
RR_avg2	171.2440
RR_avg3	2.0498e+03
RR_avg4	2.0510e+03
RR_avg5	126.9470
RR_avg6	172.4392
RR_avg7	2.1023e+03
sin	50000
t	1x50000 double

Details

Select a file to view details

Command Window

```

>> ecgproc
>> ecgproc
>> ecgproc
>> ecgproc
>> ecgproc

```

UTF-8 isolet Ln 33 Col 22

啟用 Windows
移至 [設定] 以啟用 Windows