

ECG Changes in Diabetes while Driving



INITIAL RESULTS – 12 PATIENTS

DR. SHAI TEJMAN YARDEN
MEY GELBART

Study Design



- Study parameters:
- Glycemic status
 - Euglycemic
 - Hyperglycemic
- Driving protocol
 - Urban (5 scenarios)
 - Highway (4 scenarios)
- Different driving scenarios in each setting
- Each subject is compared to his-/herself in the same setting & analyzed with the same mathematical parameters

Hypotheses



- We can detect acute minor changes in HR in correlation to stressful events during driving.
- A hyperglycemic state will effect the CV response to these events.

Results



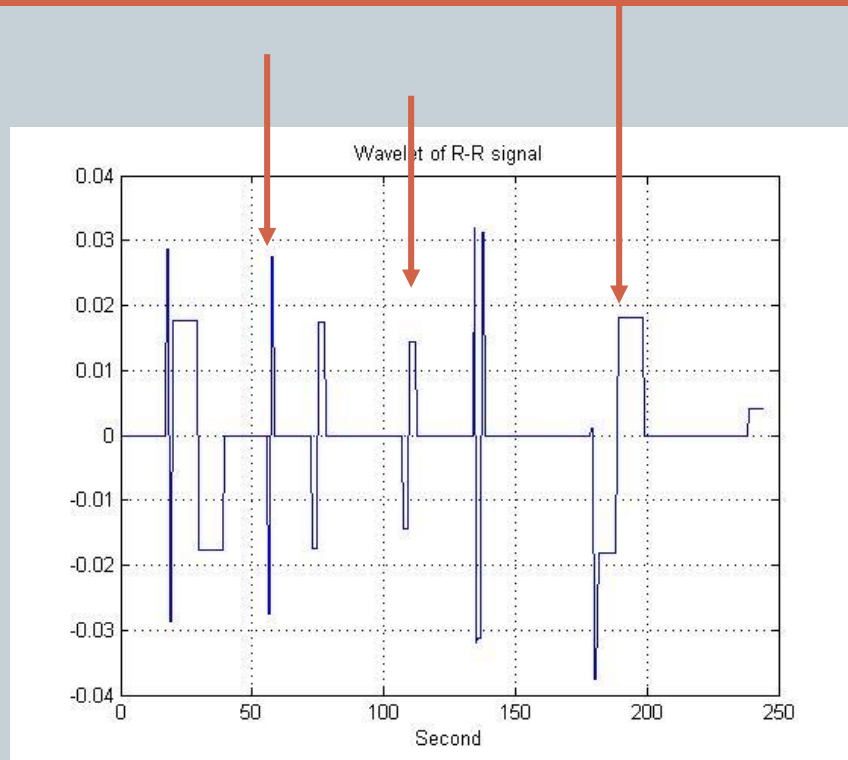
- No difference
- Hypersensitive
- Non-responsive

No difference

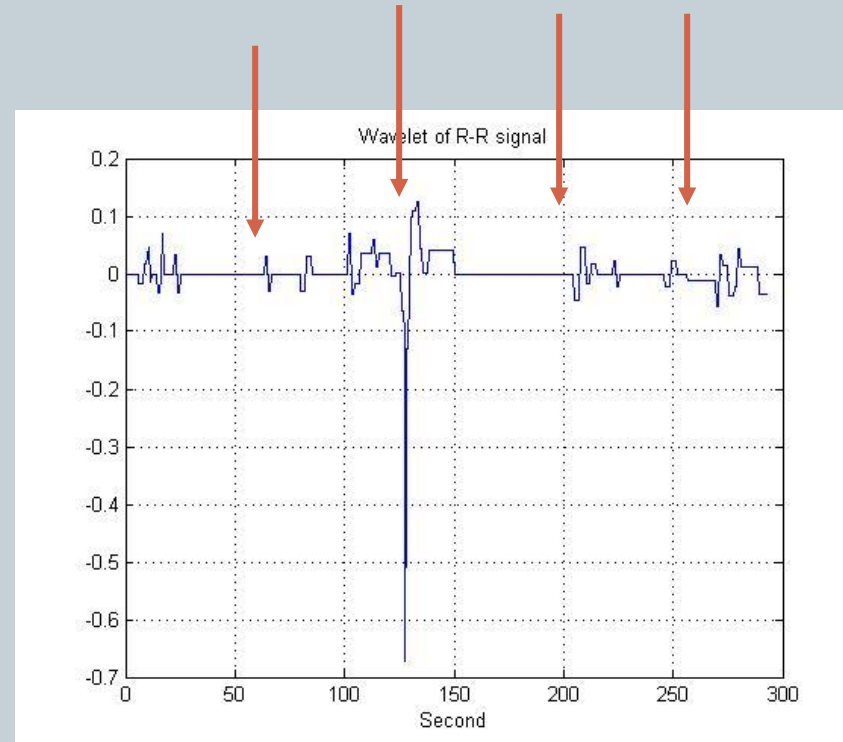


BGU4 – HIGHWAY

Euglycemic

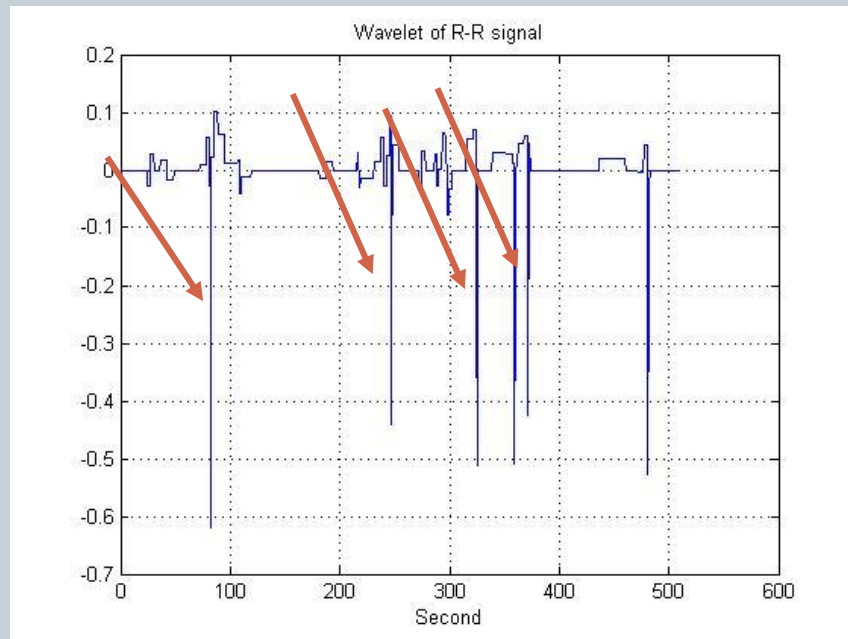


Hyperglycemic

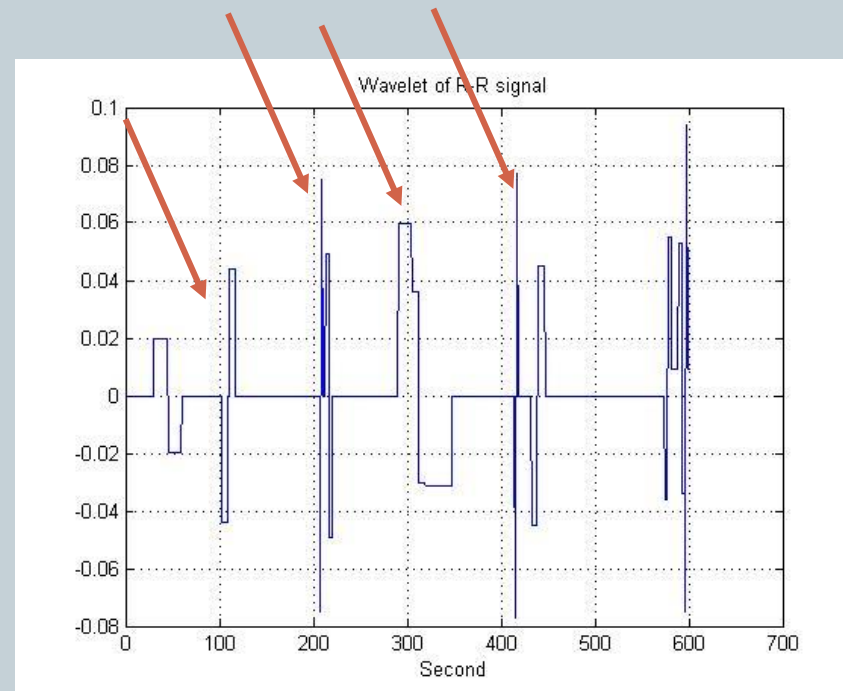


BGU5 - URBAN

Euglycemic

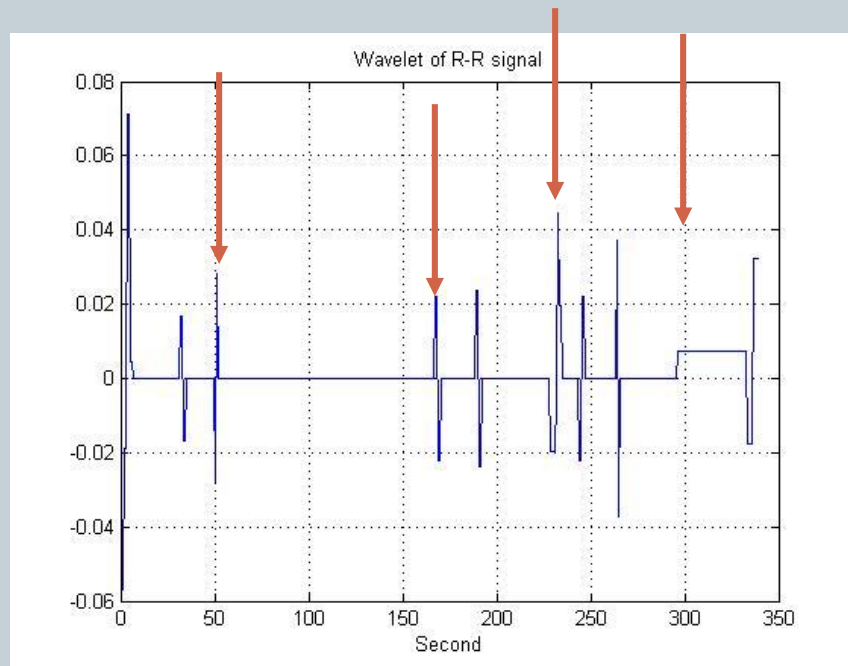


Hyperglycemic

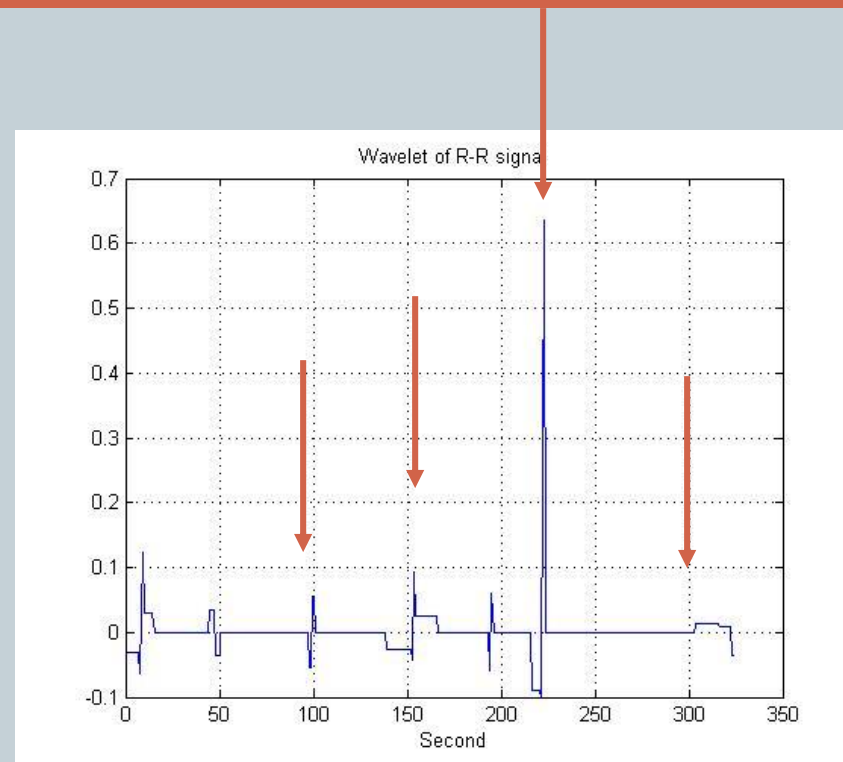


BGU5 – HIGHWAY

Euglycemic

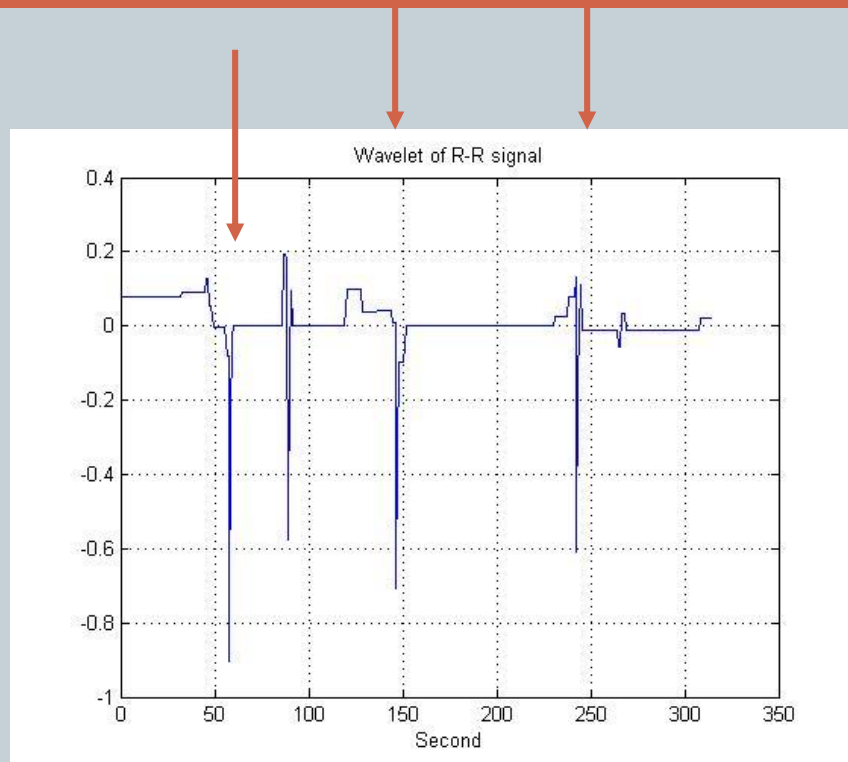


Hyperglycemic

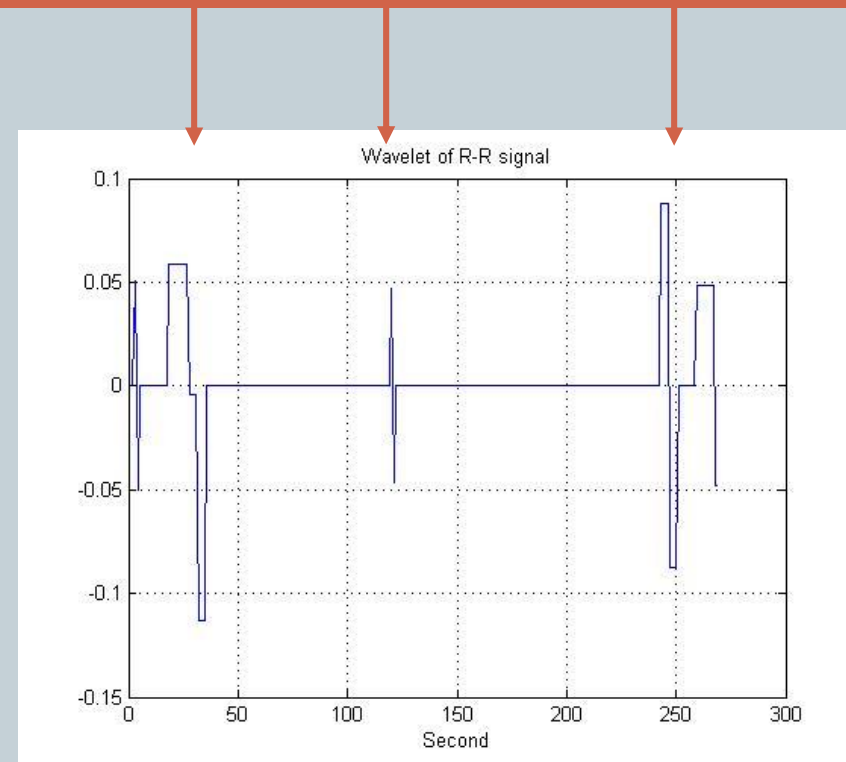


BGU6 – HIGHWAY

Euglycemic



Hyperglycemic



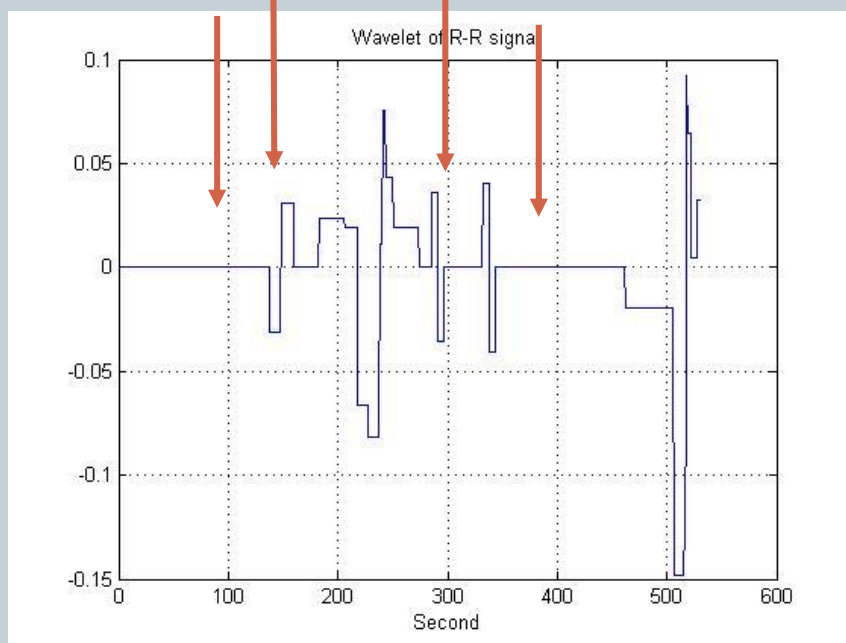
Hypersensitive



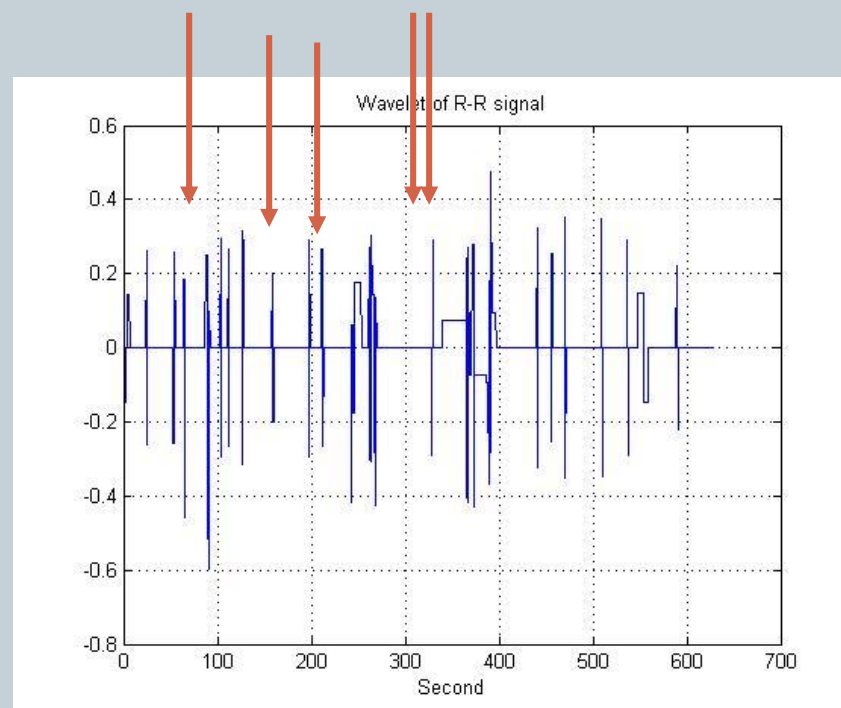
BGU₃ – URBAN



Euglycemic

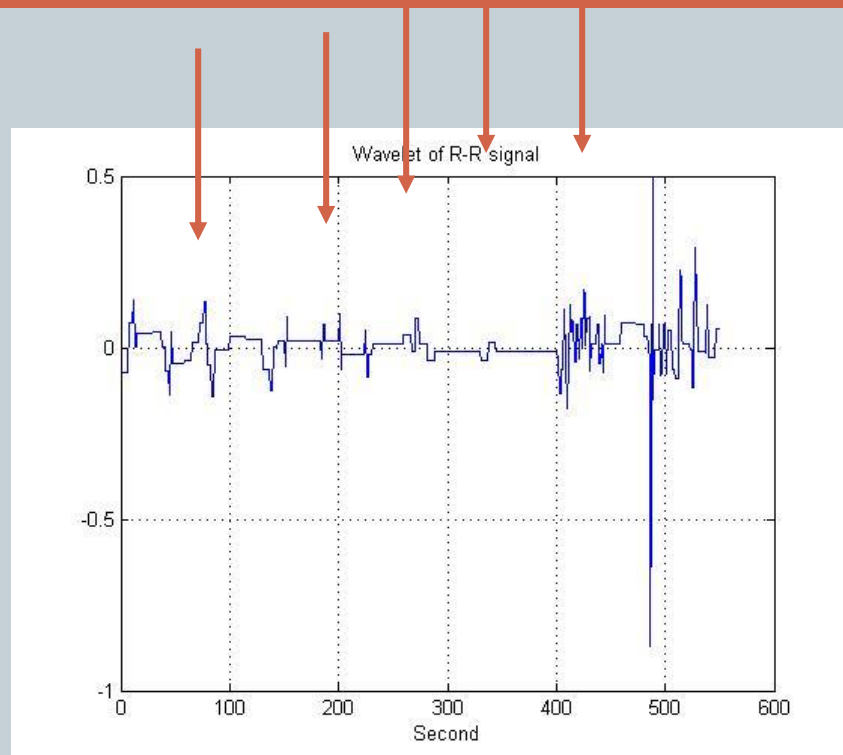


Hyperglycemic

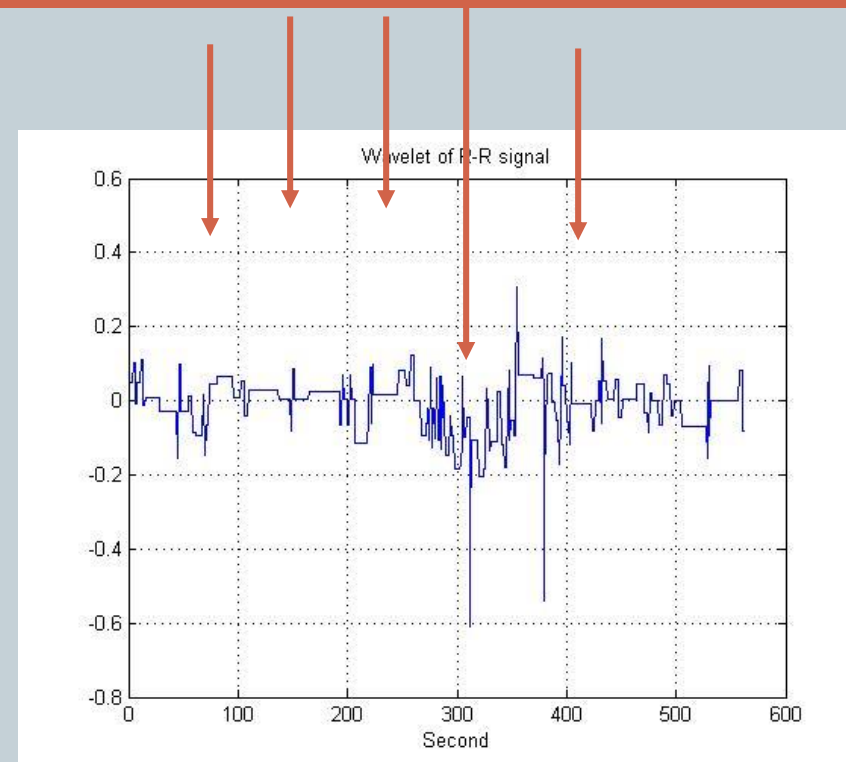


BGU10 - URBAN

Euglycemic

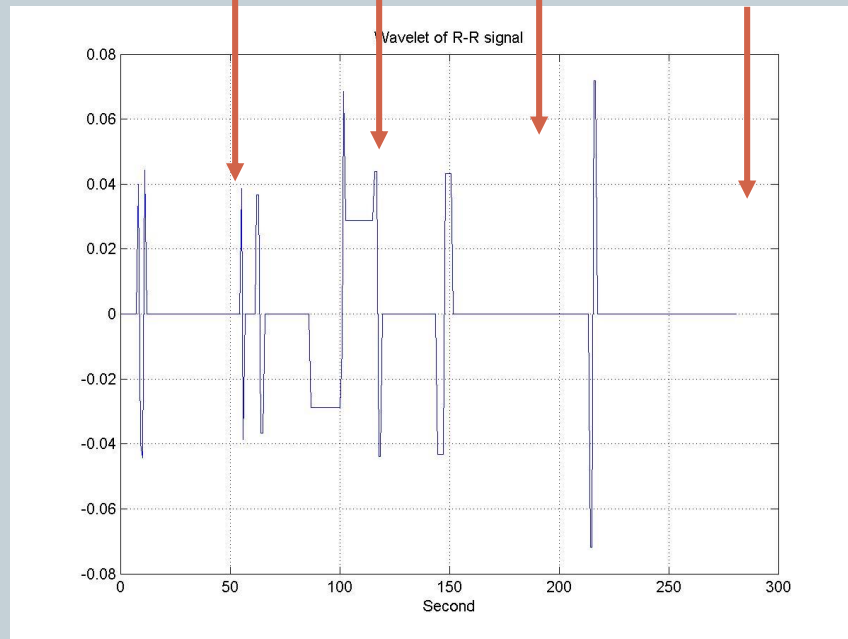


Hyperglycemic

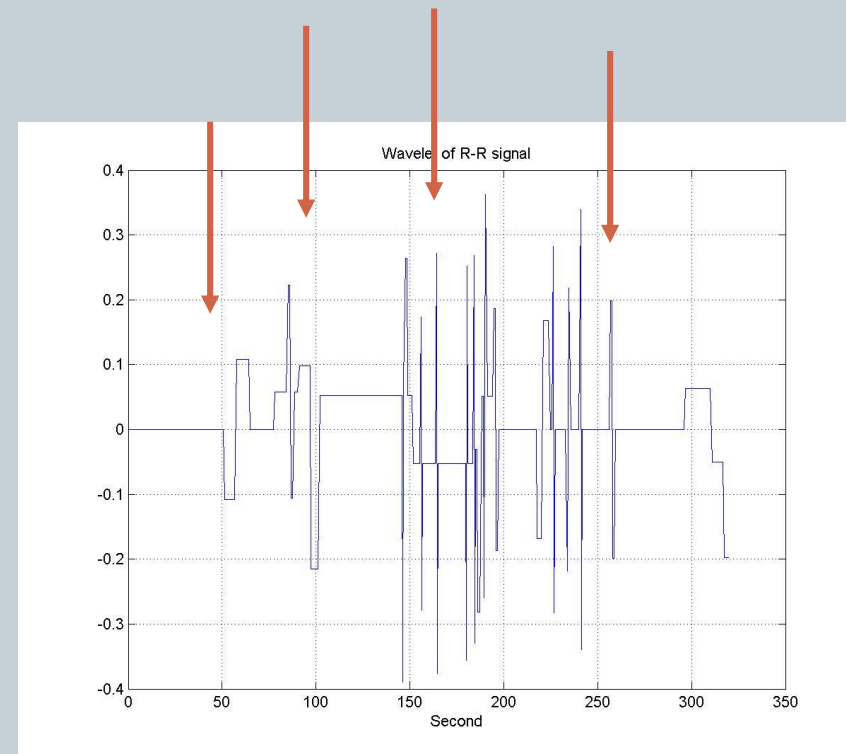


BGU10 – HIGHWAY

Euglycemic

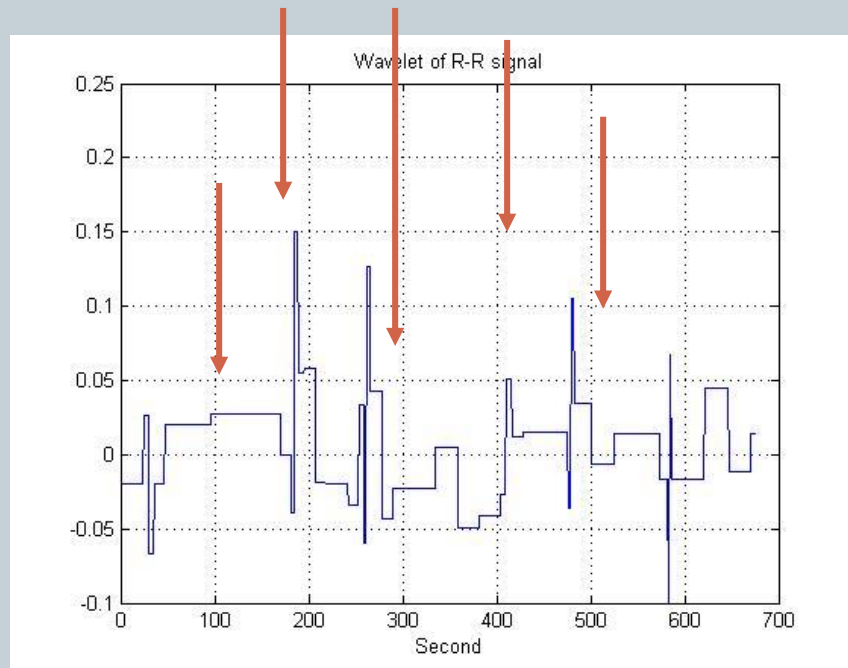


Hyperglycemic

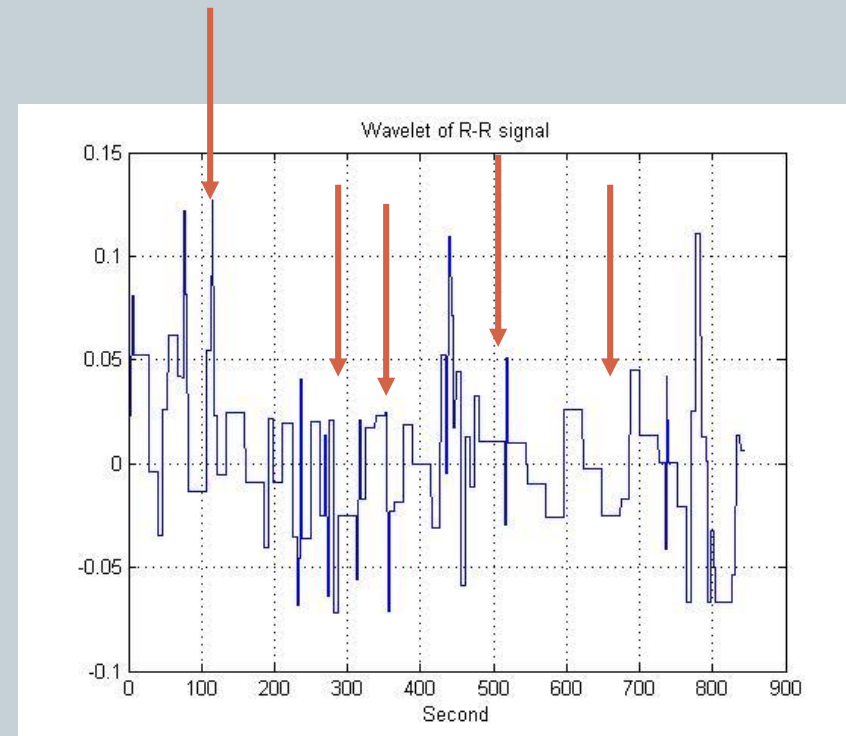


BGU14 - URBAN

Euglycemic

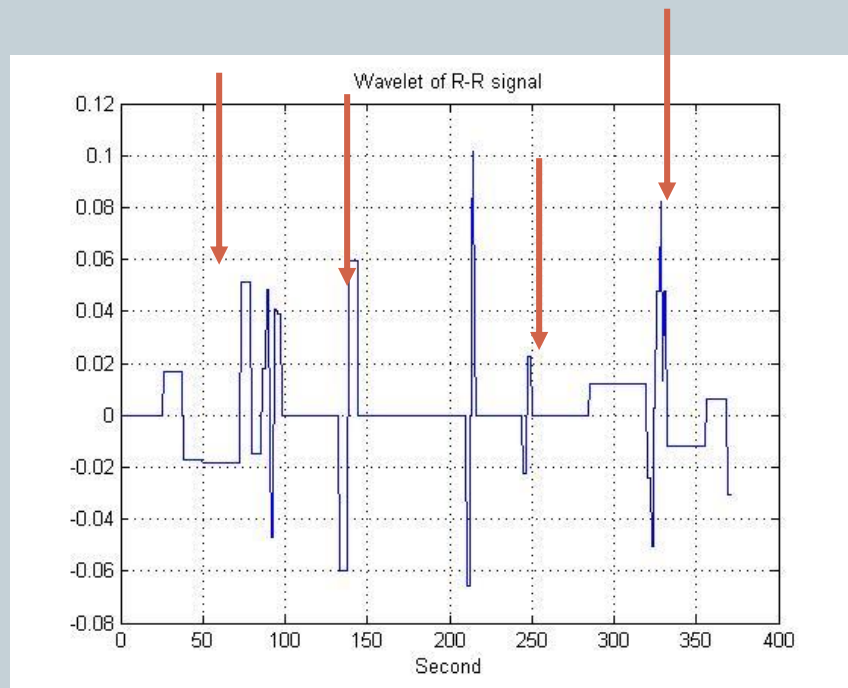


Hyperglycemic



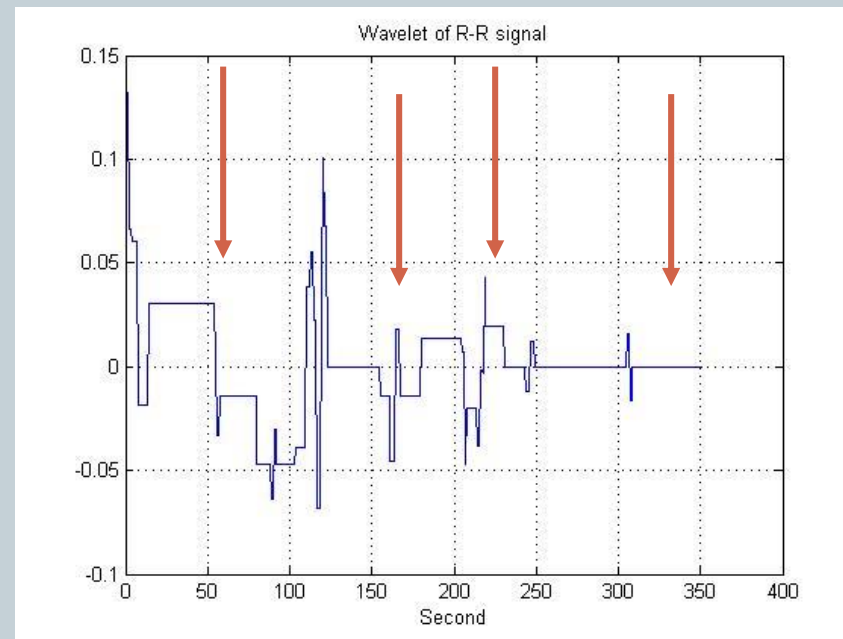
BGU14 – HIGHWAY

Euglycemic



Hyperglycemic

No
difference

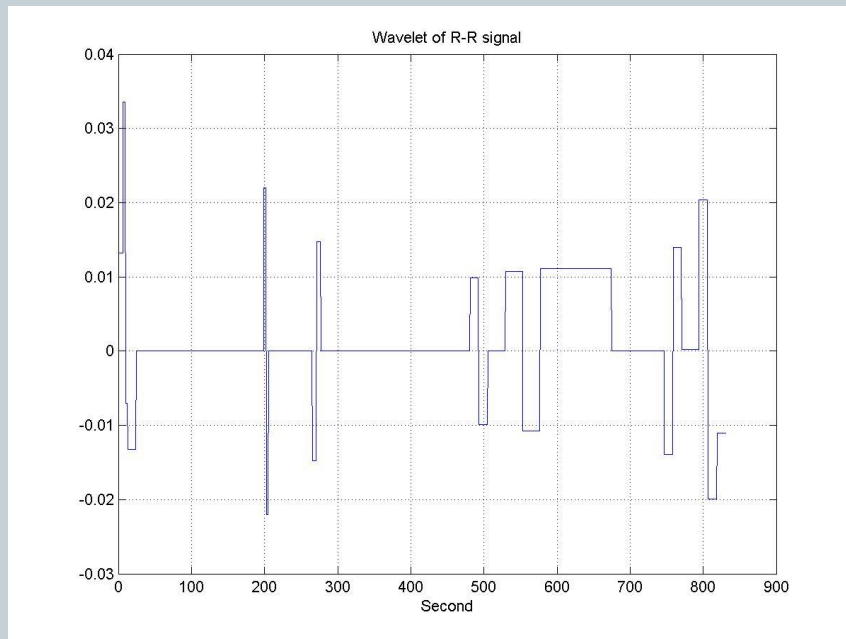


Non-responsive

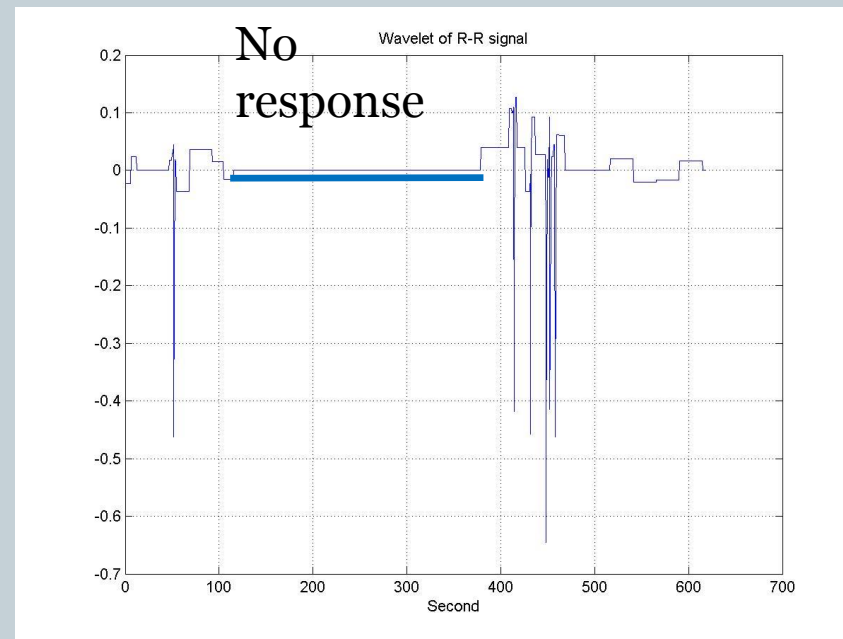


BGU11 - URBAN

Euglycemic

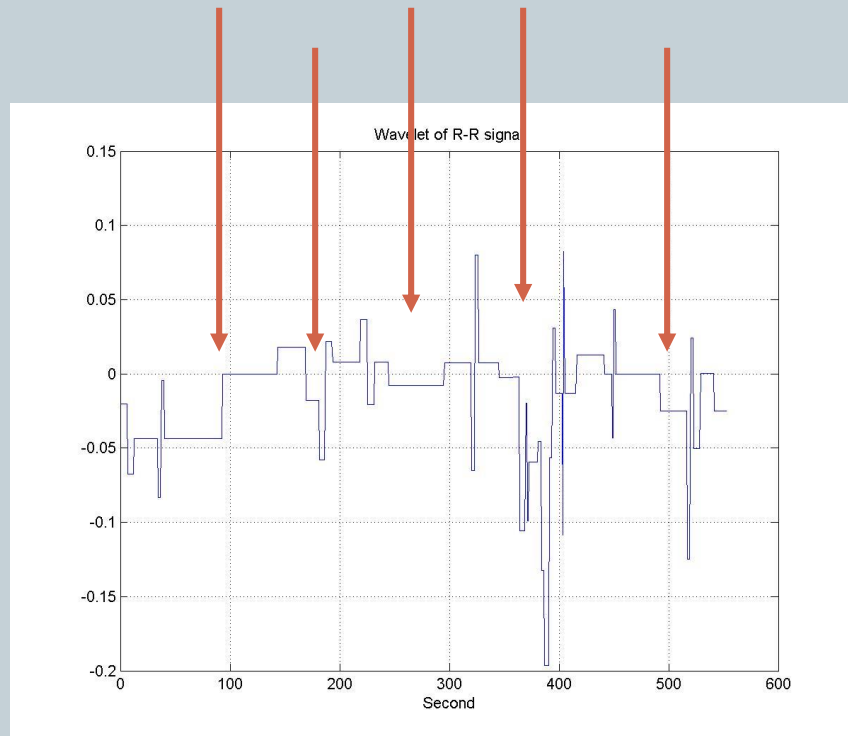


Hyperglycemic

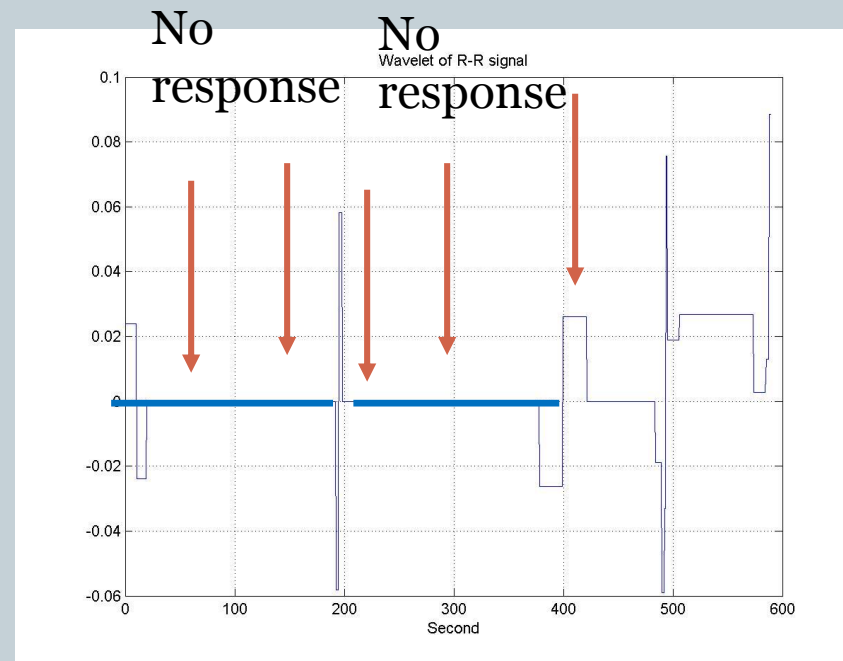


BGU12 - URBAN

Euglycemic

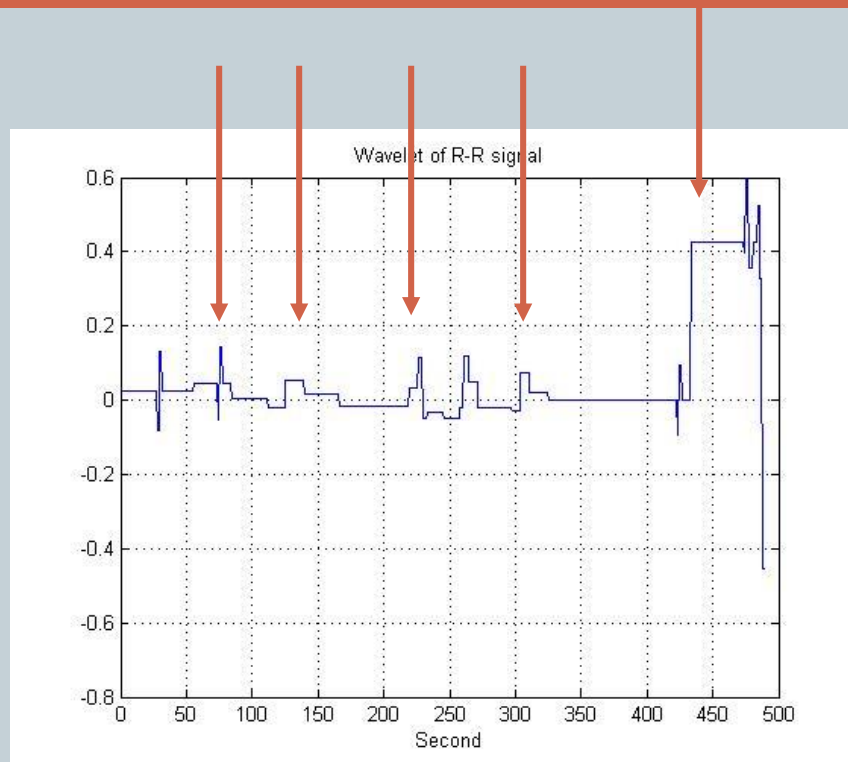


Hyperglycemic



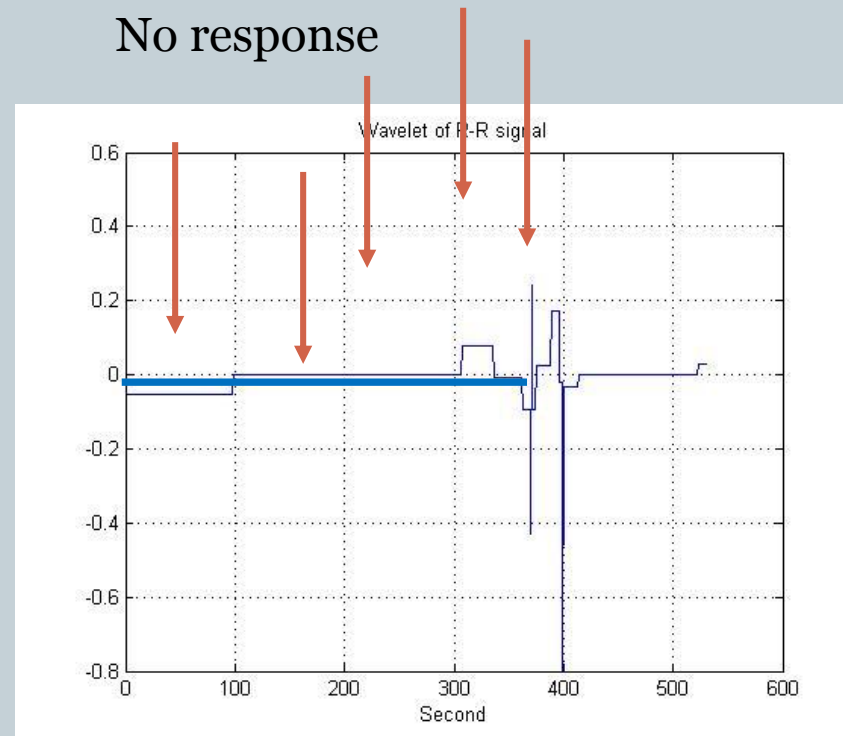
BGU13 - URBAN

Euglycemic



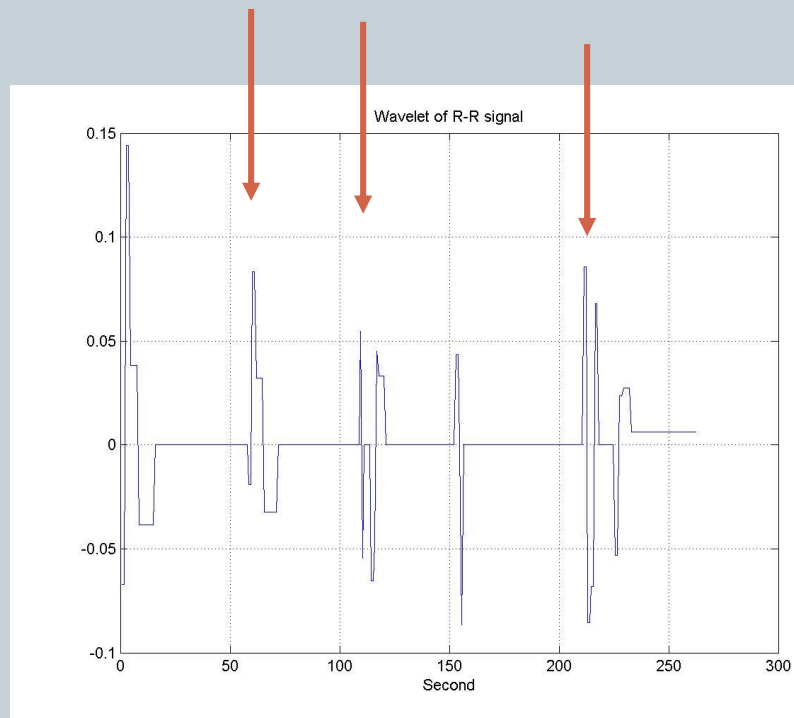
Hyperglycemic

No response

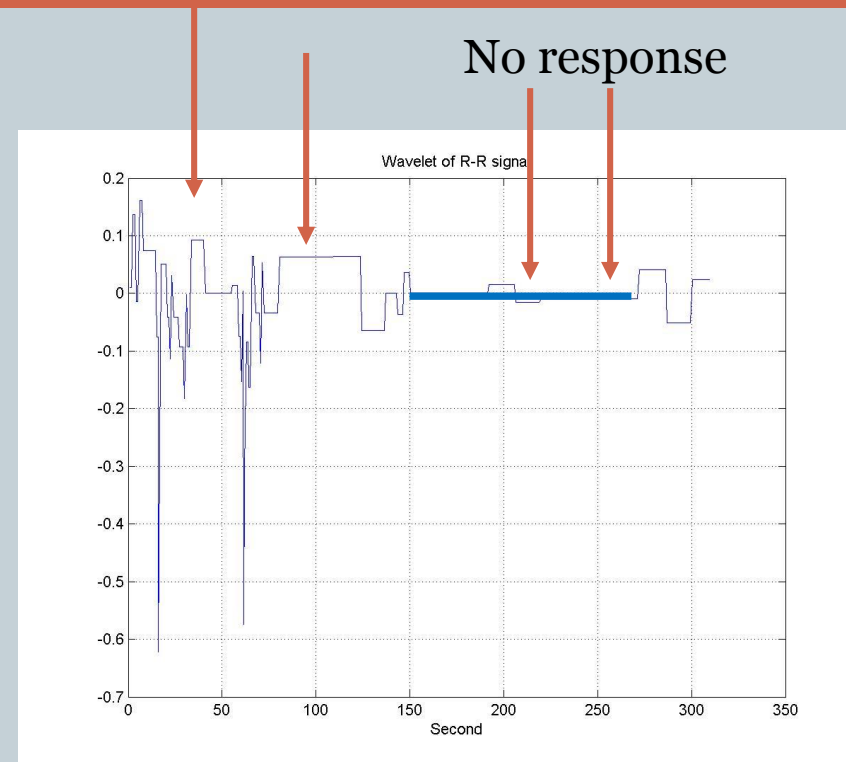


BGU13 – HIGHWAY

Euglycemic

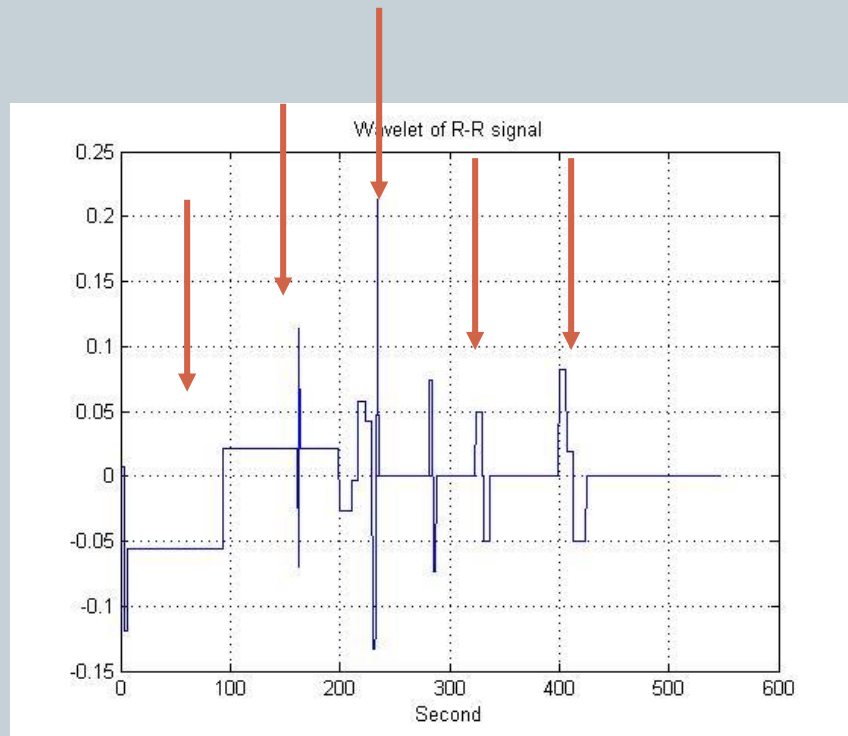


Hyperglycemic

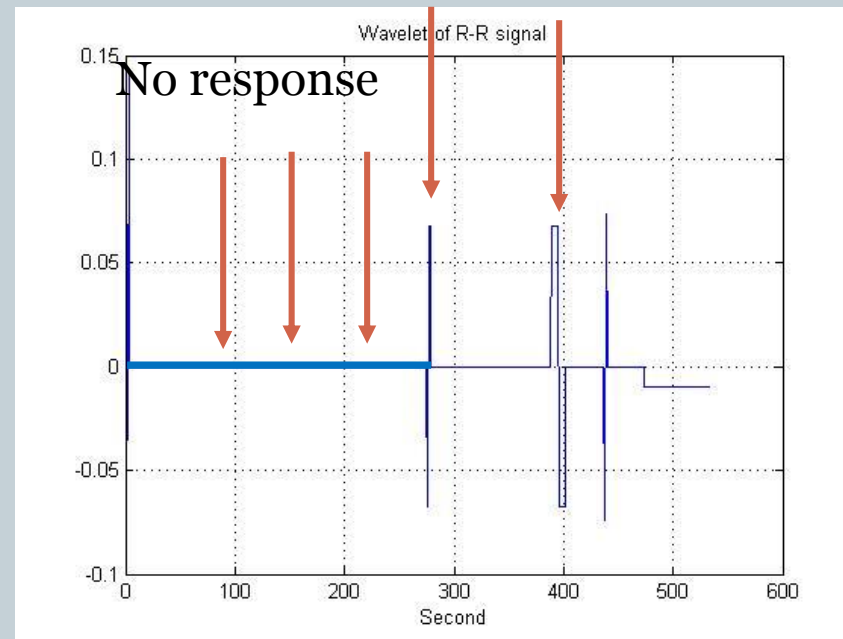


BGU16 - URBAN

Euglycemic

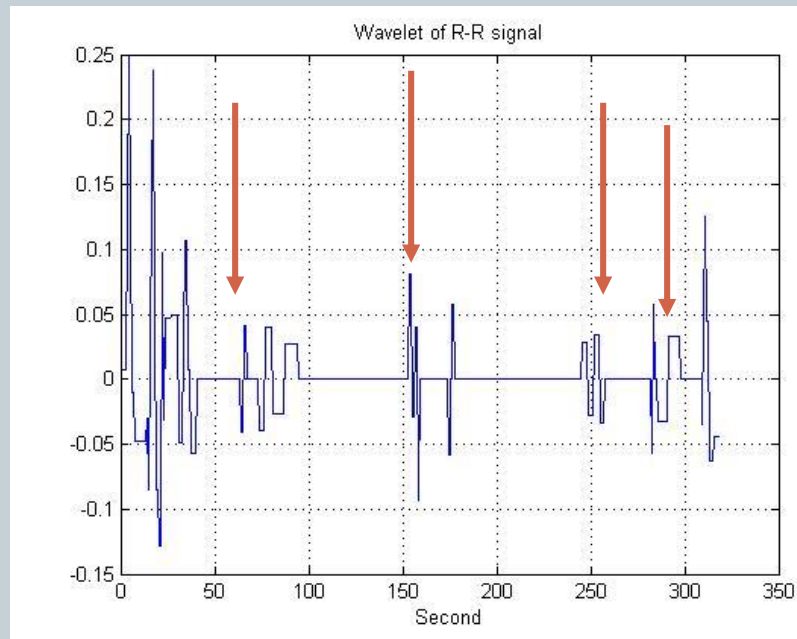


Hyperglycemic



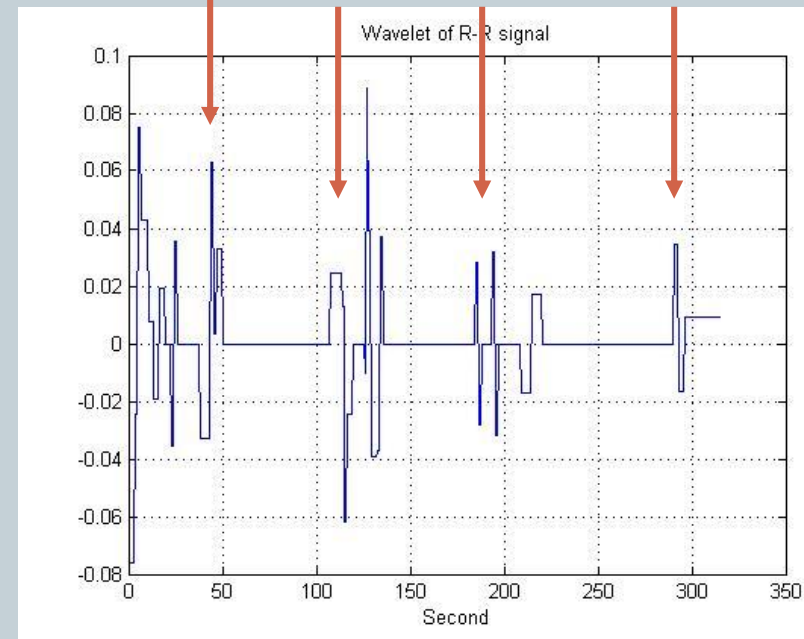
BGU16 – HIGHWAY

Euglycemic



Hyperglycemic

No
difference



Conclusions



- The **individual** CV response to the road may be influenced by the levels of glucose in one's blood.
- Some subjects had **no difference** in their CV response.
- Distinct types of change in HR response were observed:
 - Non-responsiveness
 - Hypersensitivity
- These changes were significant.
- These changes varied with setting (e.g. BGU14, BGU16).
- A significant correlation exists between these results and the **eyetracker** device.

Thank you!

