

ECG and Activity Monitoring: what can we learn?

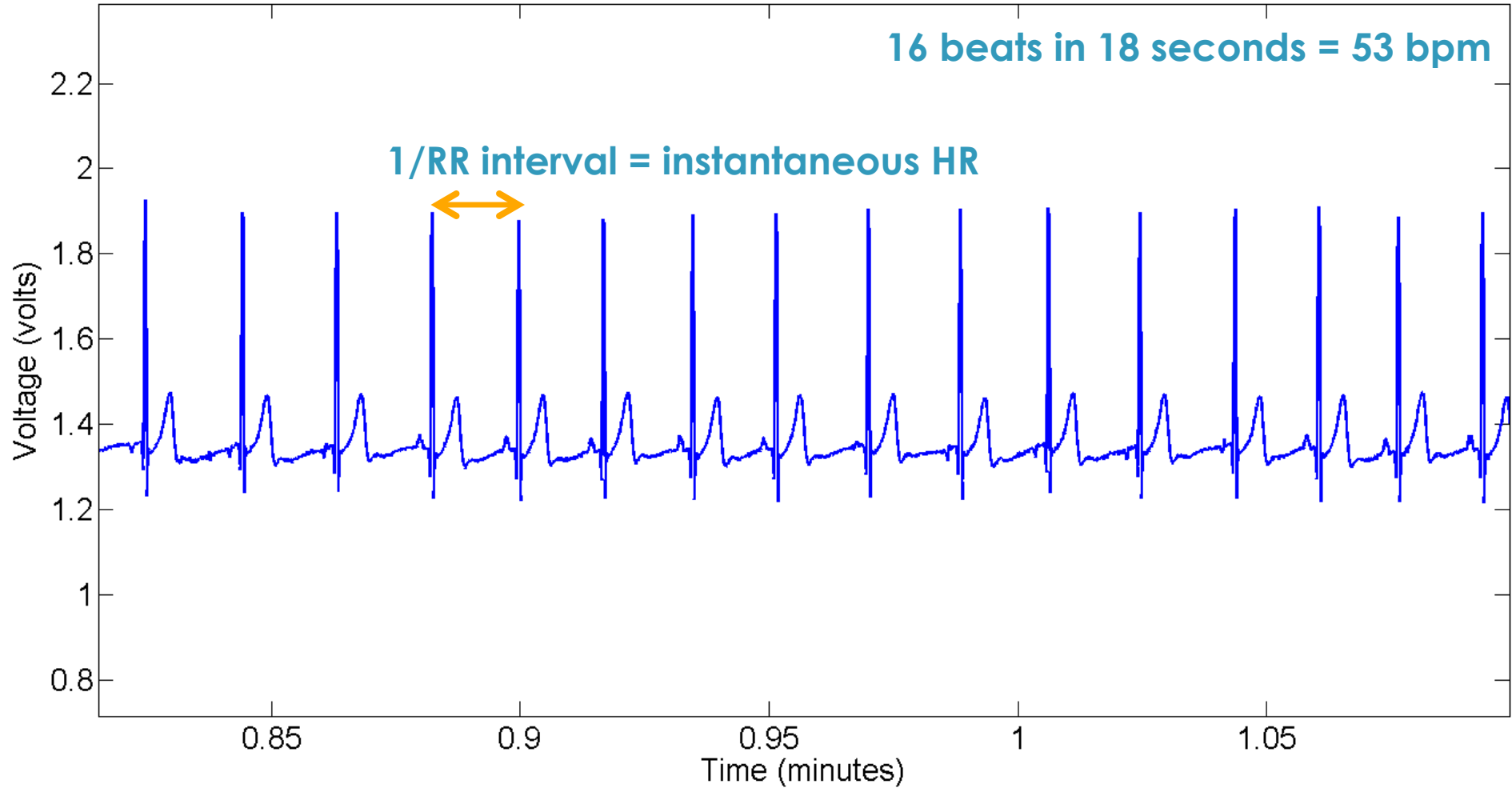
Maggie Delano
maggied@mit.edu
@maggied

Electrocardiogram:
electrical activity of your
heart

My ECG at rest

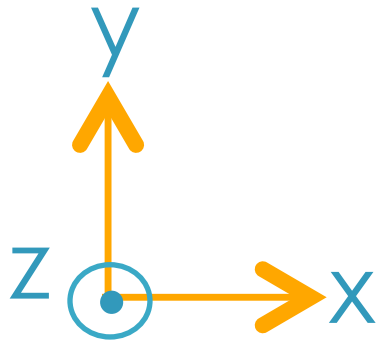
16 beats in 18 seconds = 53 bpm

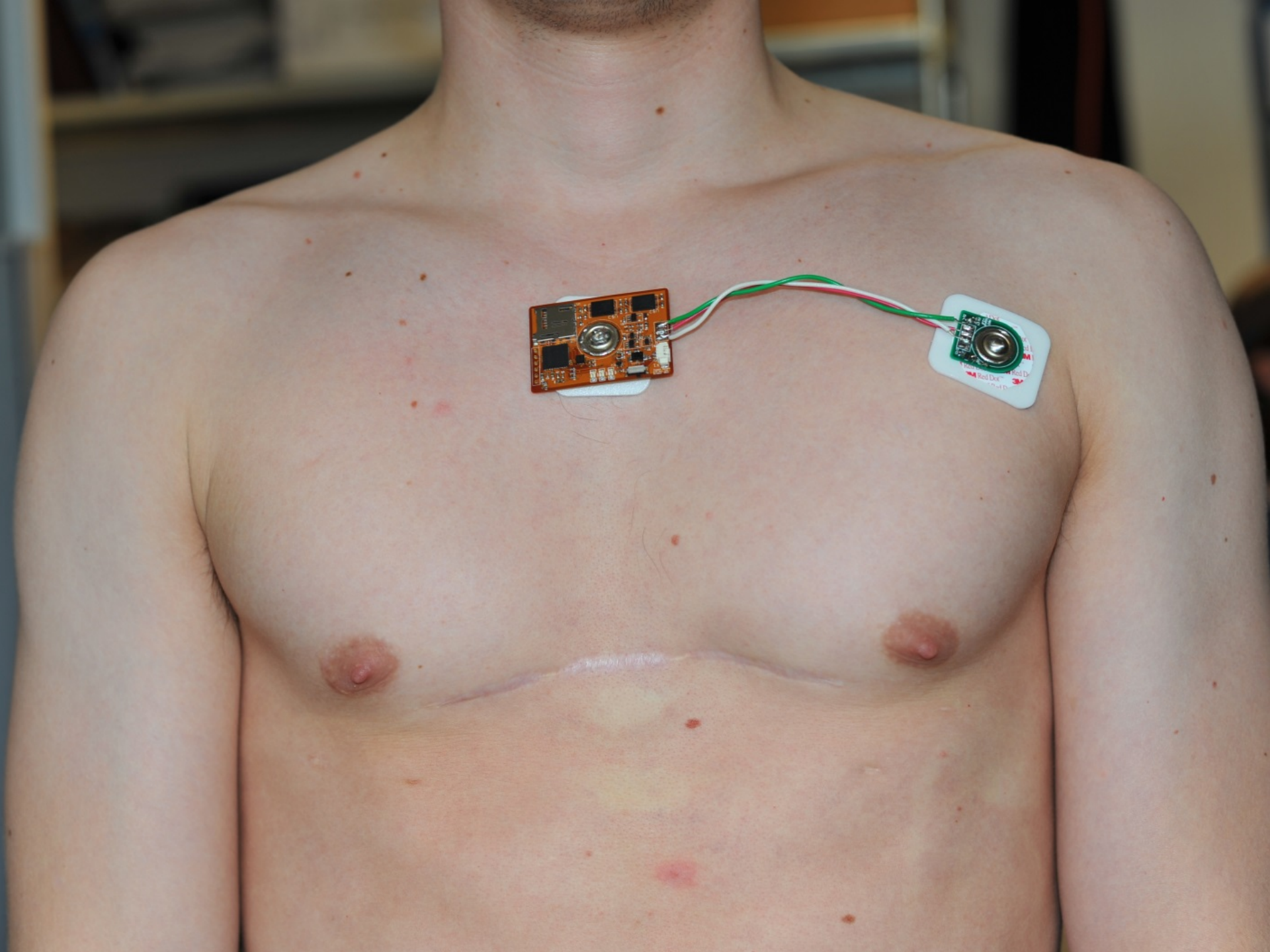
$1/RR$ interval = instantaneous HR



$$F = ma$$

$$\text{Gravity} = -9.8 \text{ m/s}^2 = -1g$$



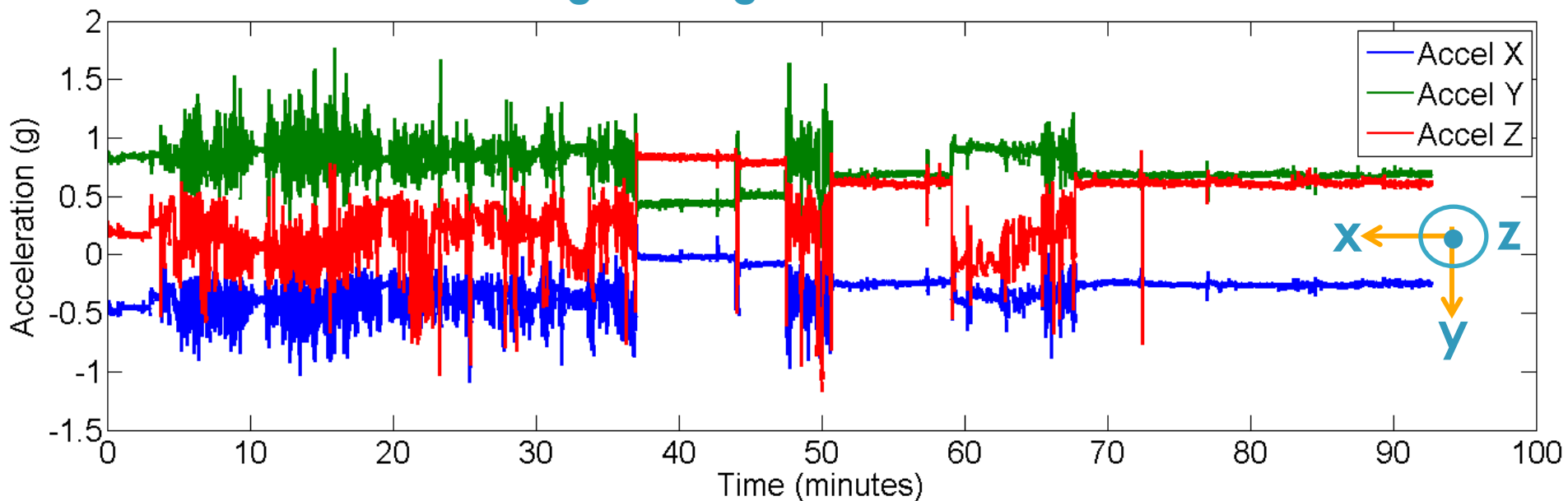
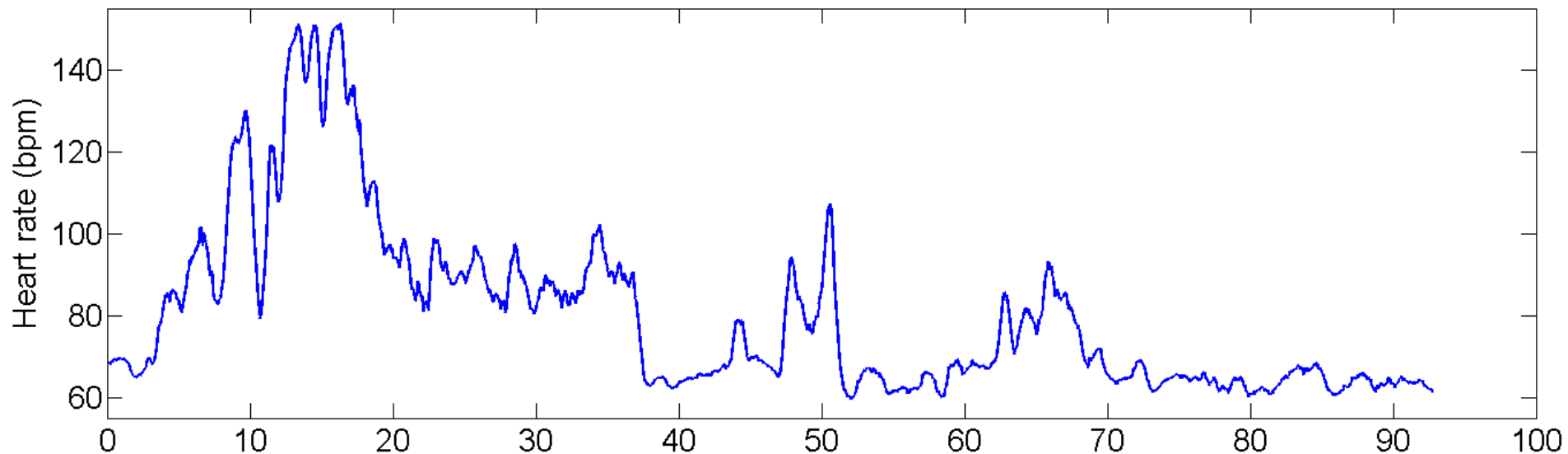


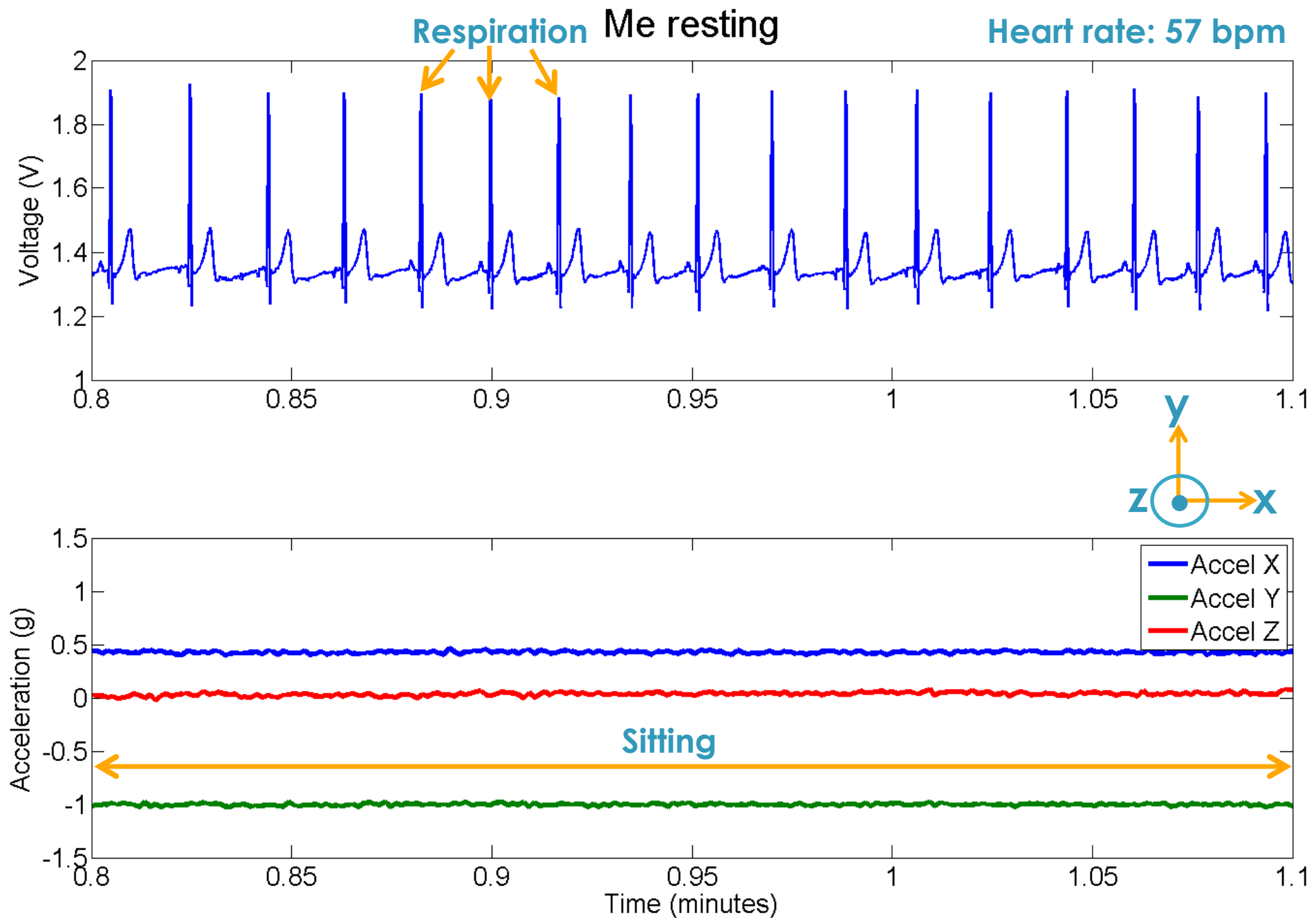
Data sets:

1. Daily activities

2. Sleep

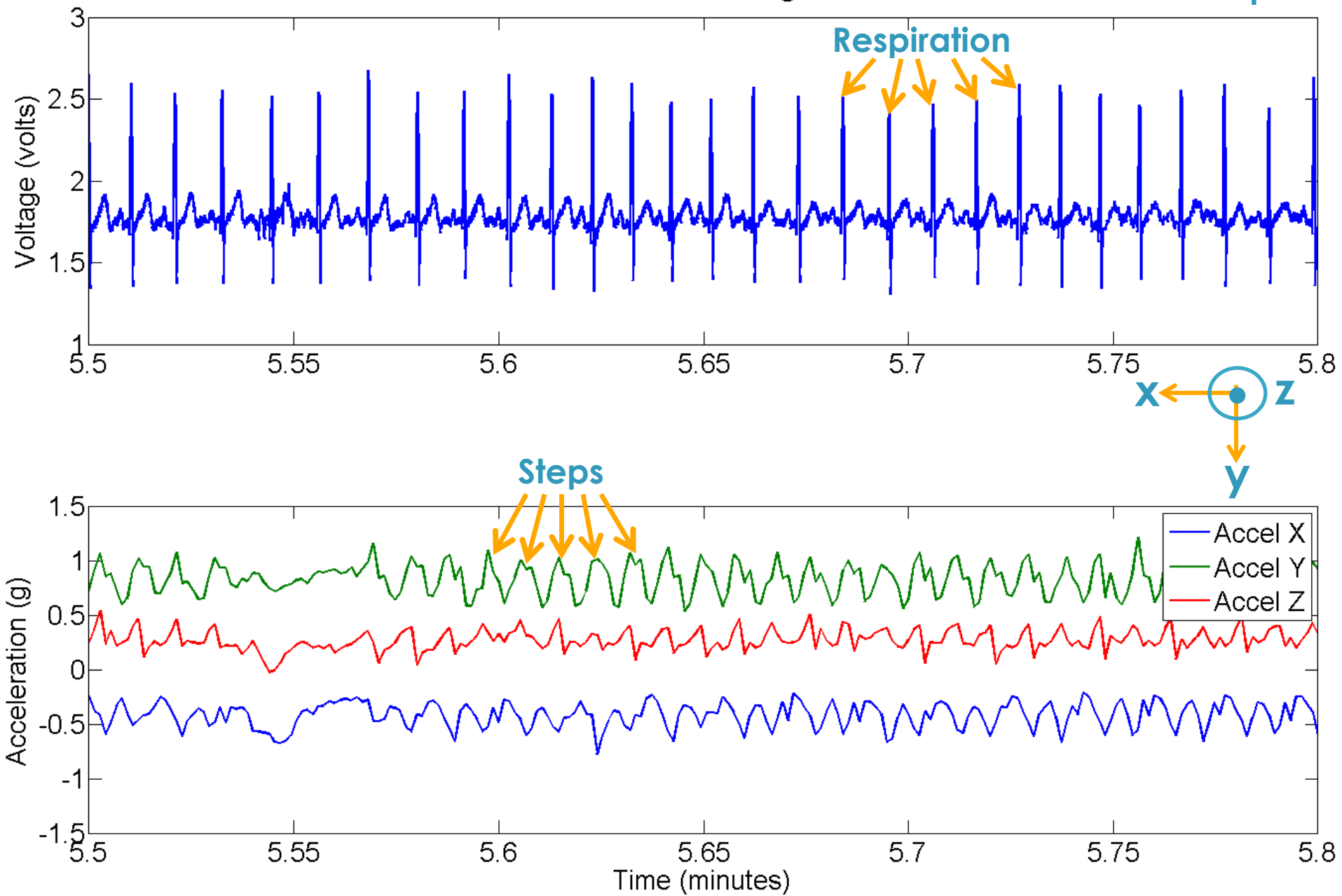
An evening in data





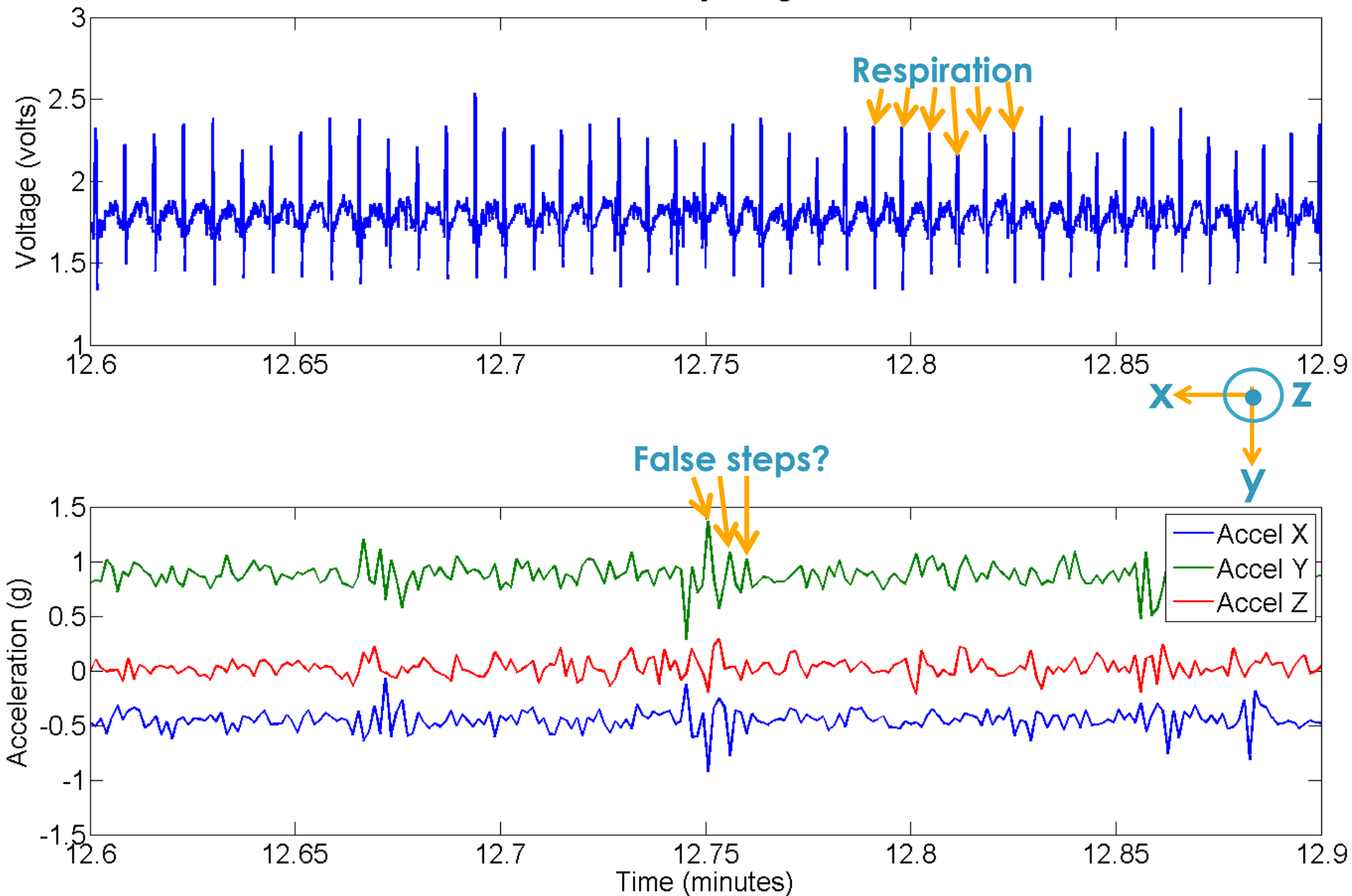
Me walking

Heart rate: 97 bpm



Me cycling

Heart rate: 147 bpm

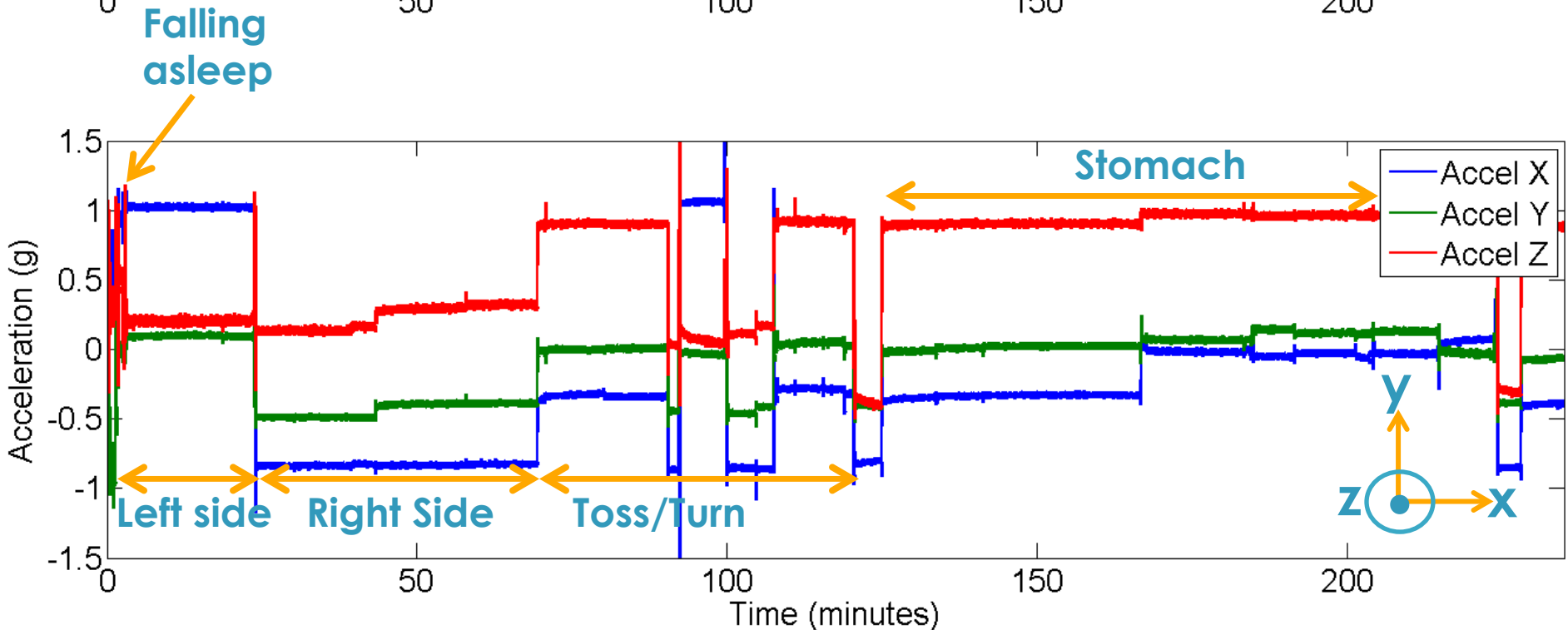
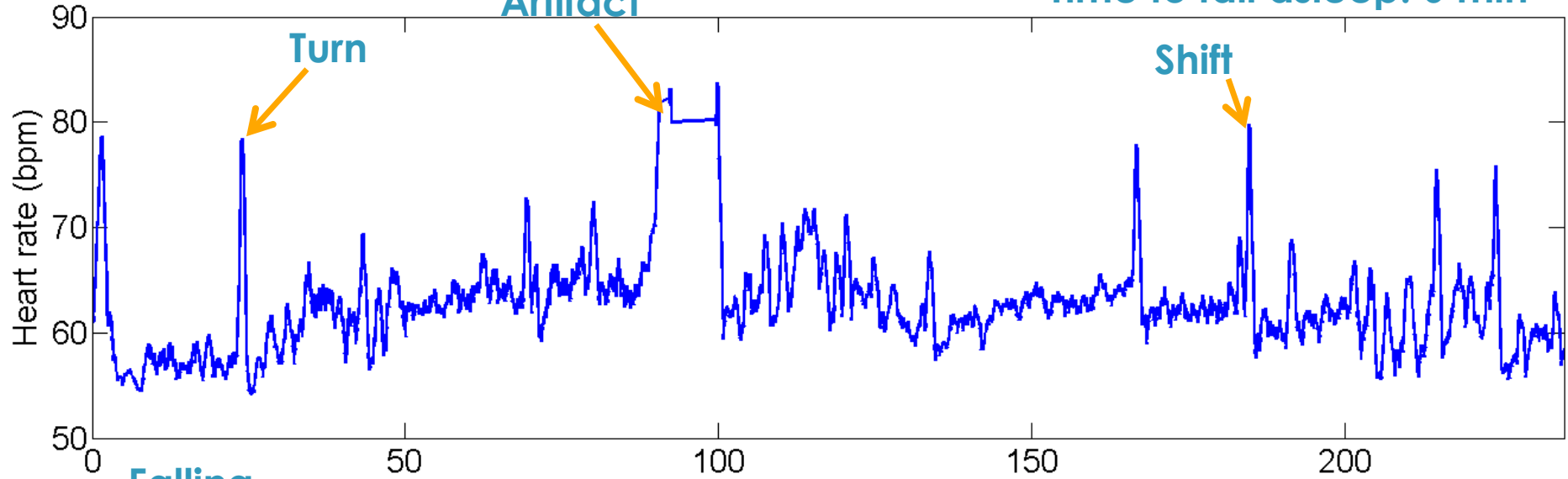


Lesson 1:
HR changes a lot.

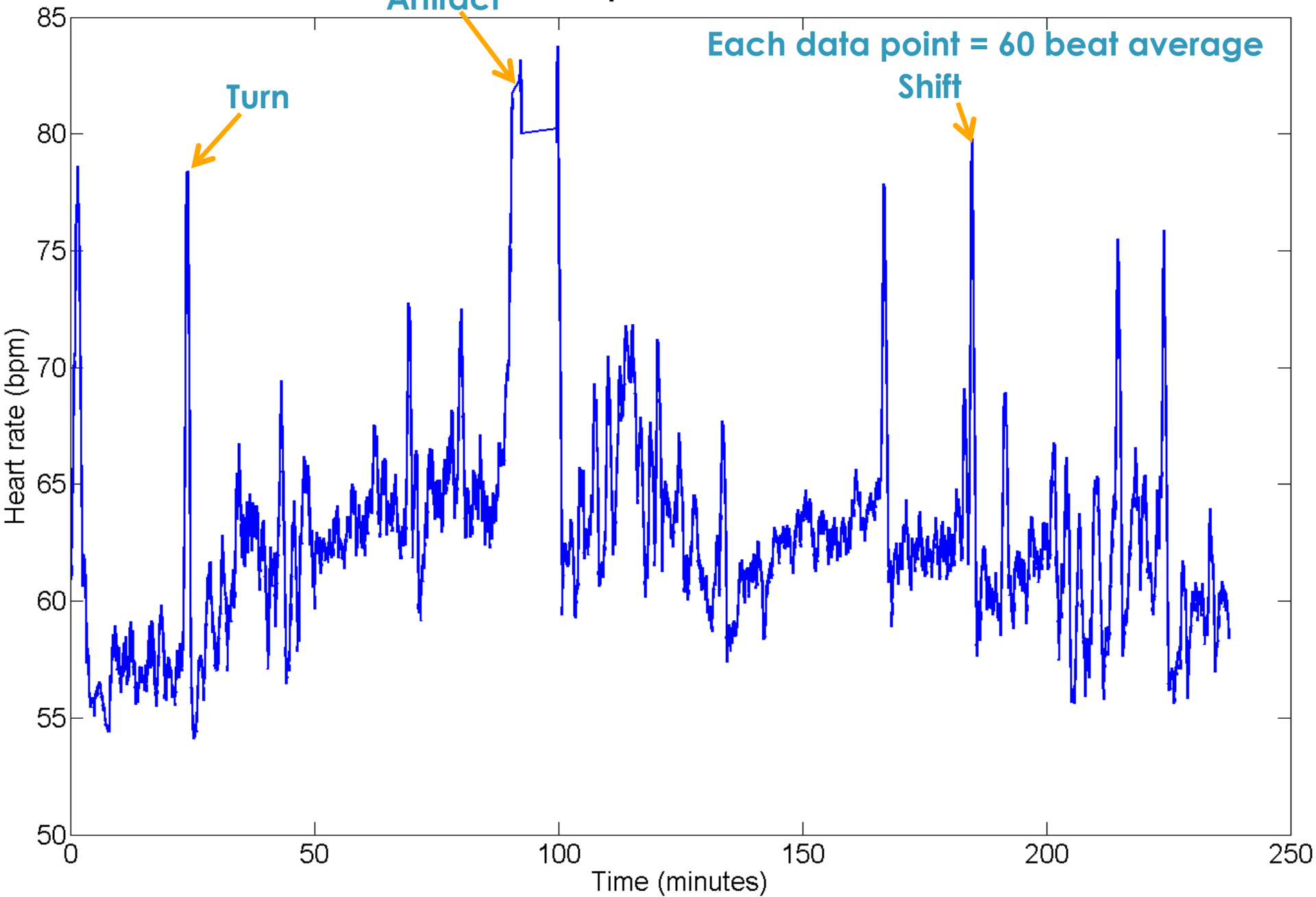
Lesson 2:
HR changes are
interesting, but need
more data over time.

Fitbit sleep efficiency: 95%
Time to fall asleep: 6 min

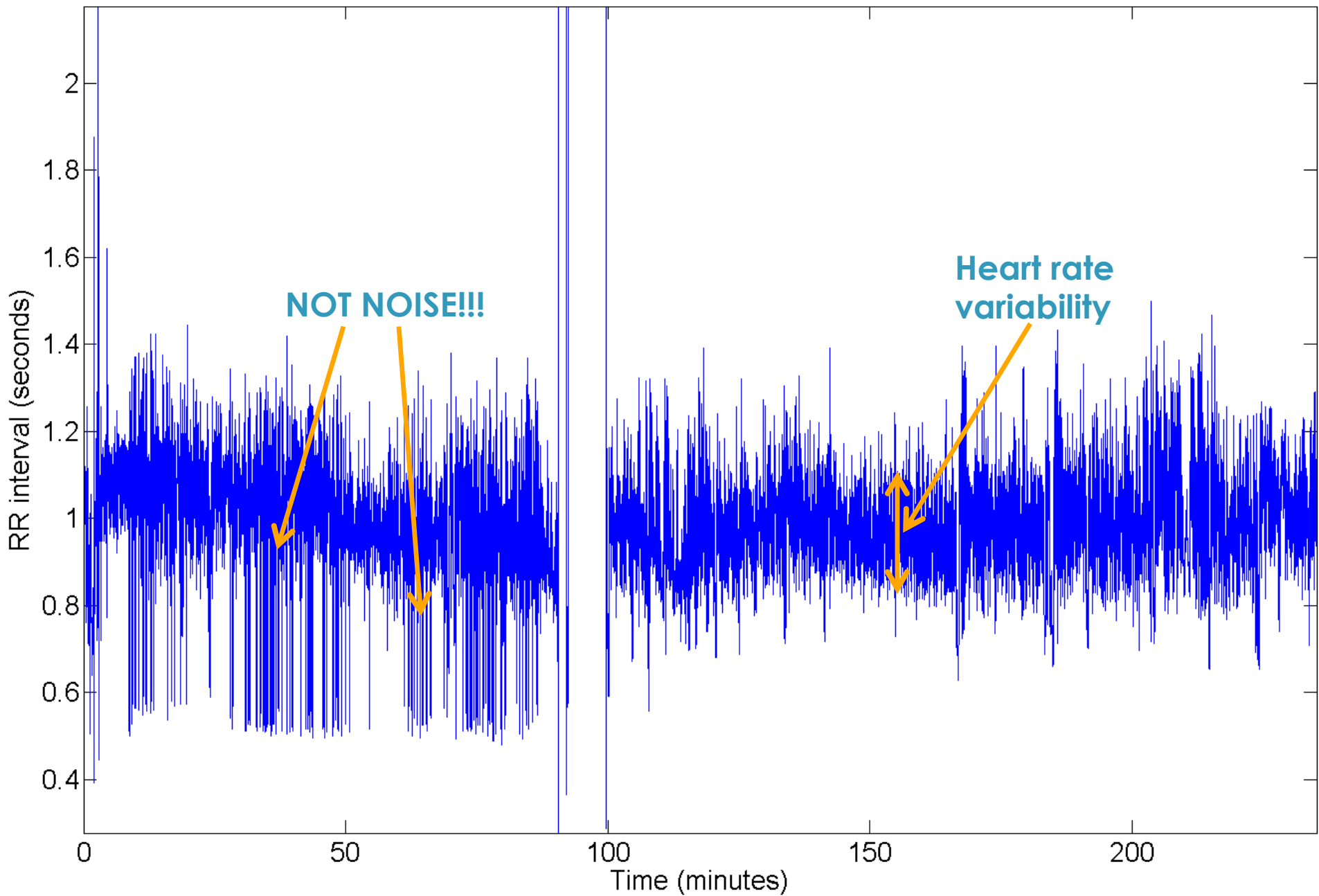
Sleep - night one



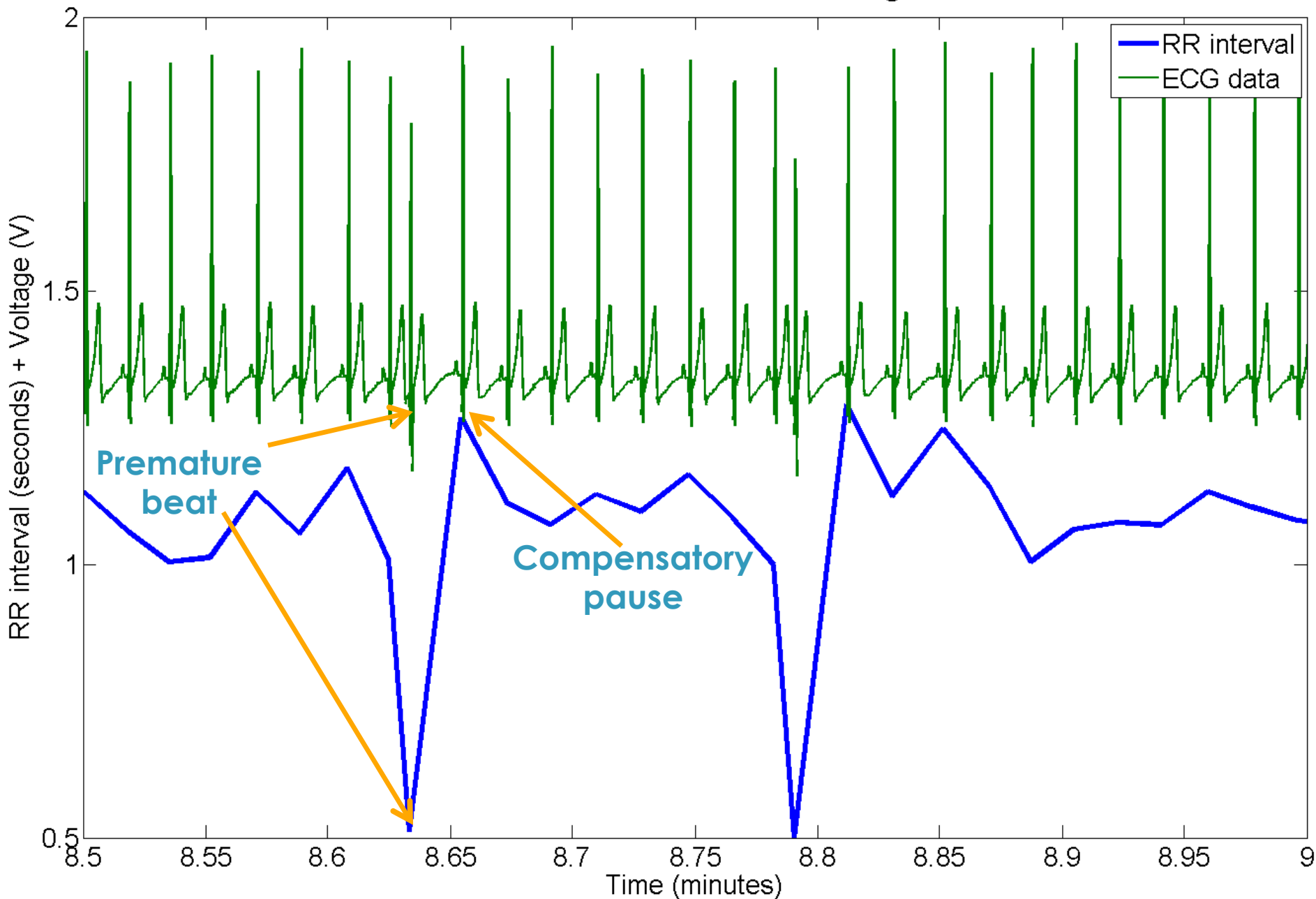
Sleep - heart rate



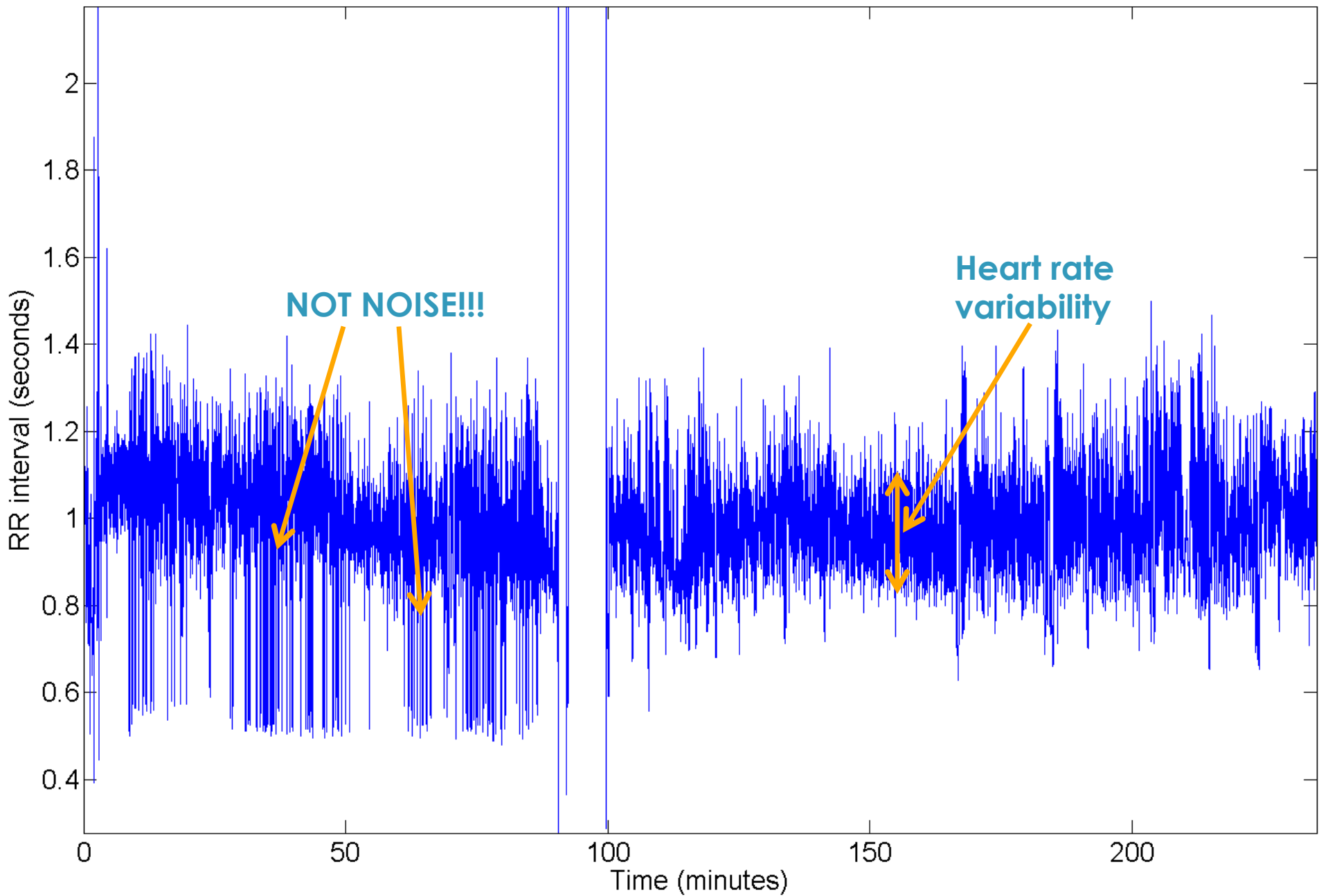
RR interval - night 1



Premature atrial contractions - night 1



RR interval - night 1



Lesson 3: ECG data
reveals Premature Atrial
Contractions, primarily
during sleep.

Takeaways

Other cool stuff:

- HRV
- Resp. rate
- CV dynamics
- Trends over time

ECG and Activity Monitoring: what can we learn?

Maggie Delano
maggied@mit.edu
@maggied