Quantified Self
self knowledge through numbers

Tracking and Improvin My Sleep

Daniel Gartenberg

PhD Student in Applied Psychology

and Entrepreneur

A New Scientific Finding

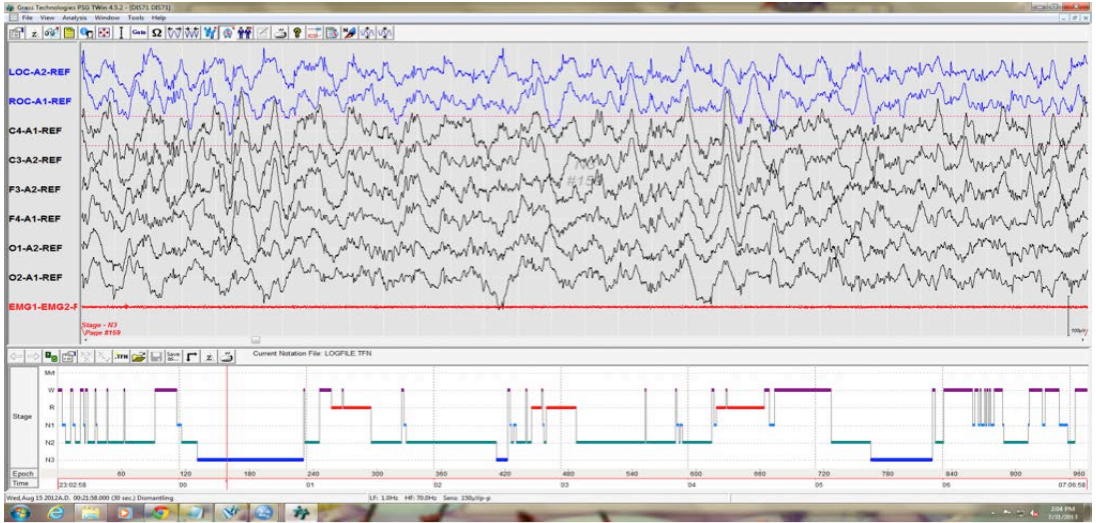
Dmitry Gerashchenko MD, PhD

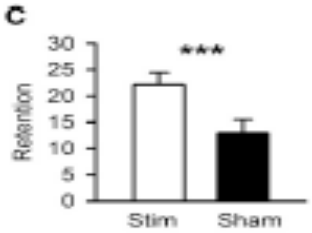
Dmitry is an Assistant Professor at the VA Boston Healthcare System and an Instructor at the Harvard Medical School.

He has over 45 peer reviewed publications in sleep related journals – with a focus on the neurobiology of sleep.

Several research studies demonstrated that auditory stimulation during Slow Wave Sleep results in enhancement of Slow Wave Activity and improvements of memory

(, Molle, 2013; Tononi, , relli, Sarasso, 2010).





Retention of word pairs

What did I do?

Does the effect of sound and stimulation during sleep generalize to the wild?

How Did I Do It?

View in iTunes

$0.99

Category: Health & Fitness
Released: Feb 28, 2014
Version: 1.0
Size: 12.7 MB
Language: English
Seller: Proactive Life LLC
© Proactive Life LLC
Rated 4+

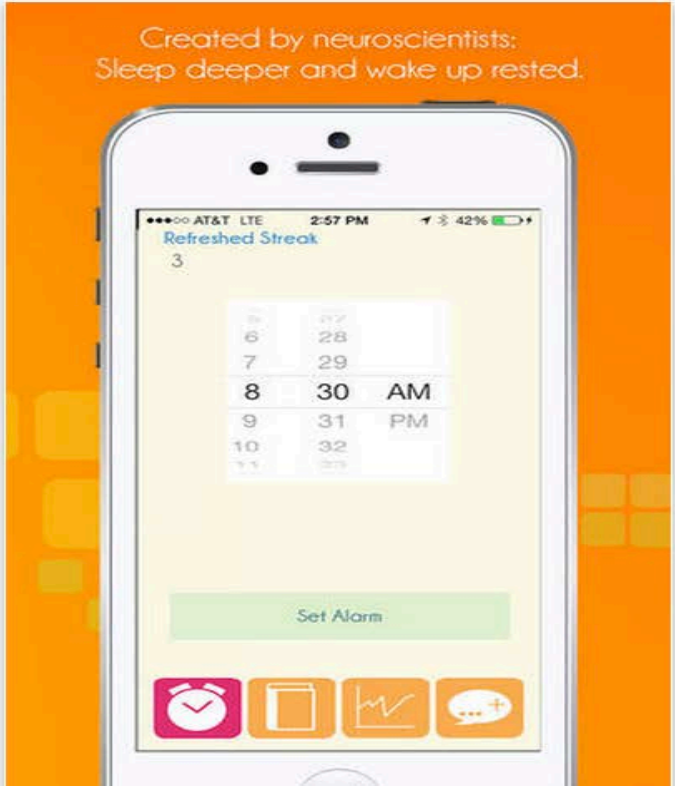
Compatibility: Requires iOS 5.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5.

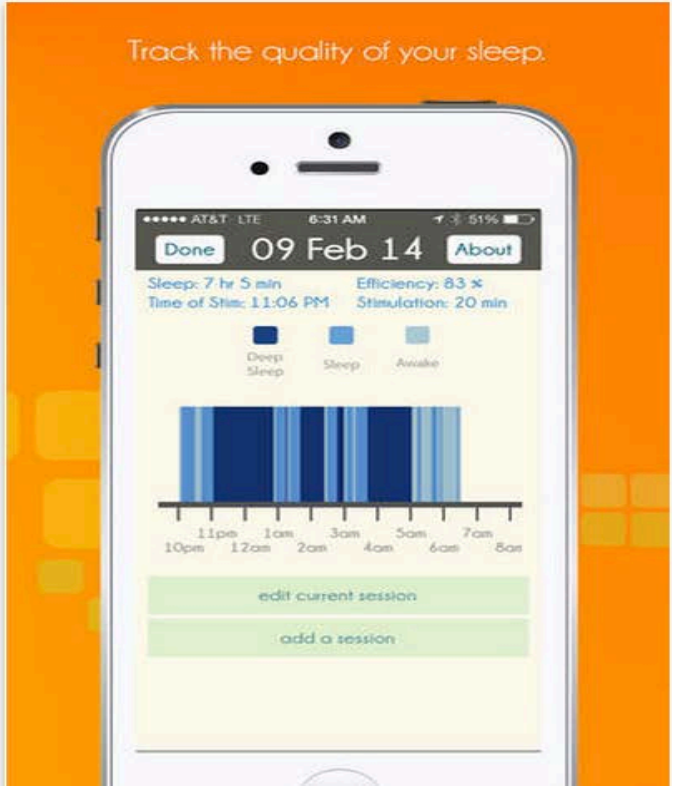
Customer Ratings

We have not received enough ratings to display an average for the current version of this application.

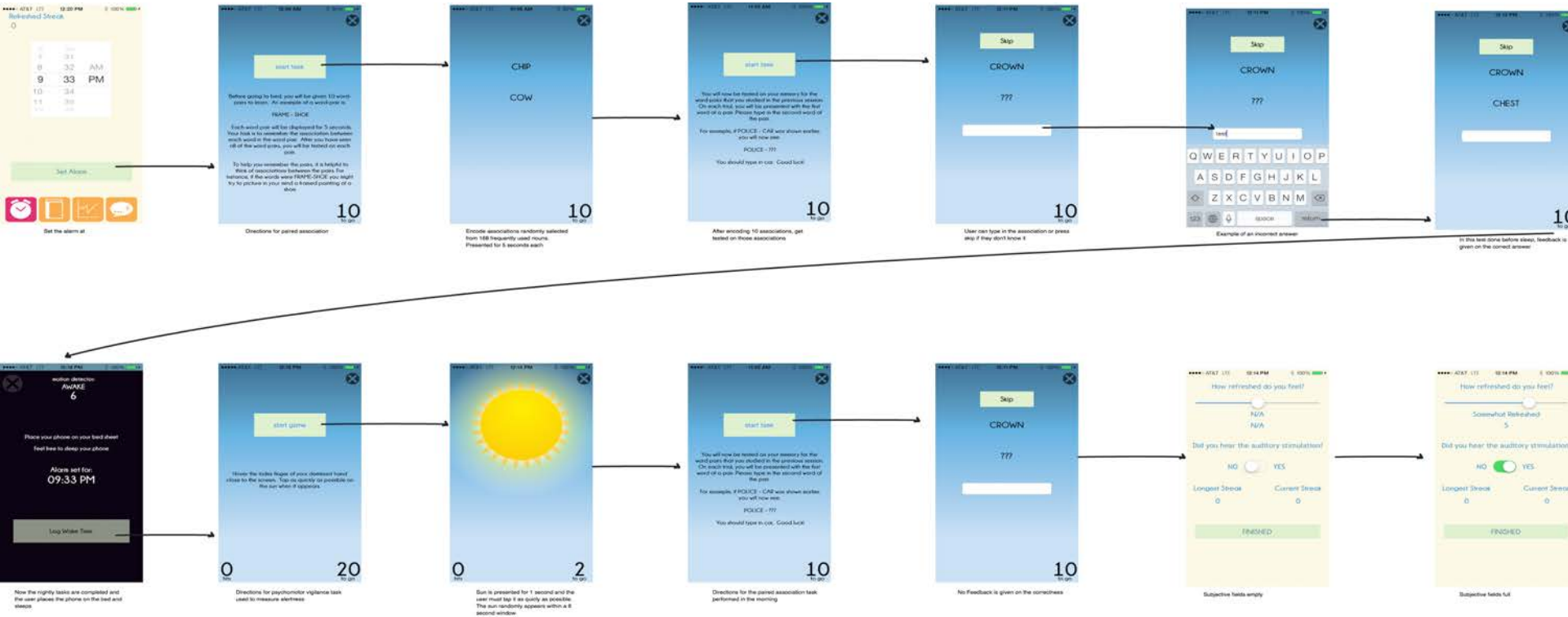
More iPhone Apps by Proactive Life LLC

iPhone Screenshots





Overview of Memory Test



Manipulation

- Within Groups Design with 3 conditions:

  - No stimulation

  - 20 minutes of stimulation

  - 40 minutes of stimulation

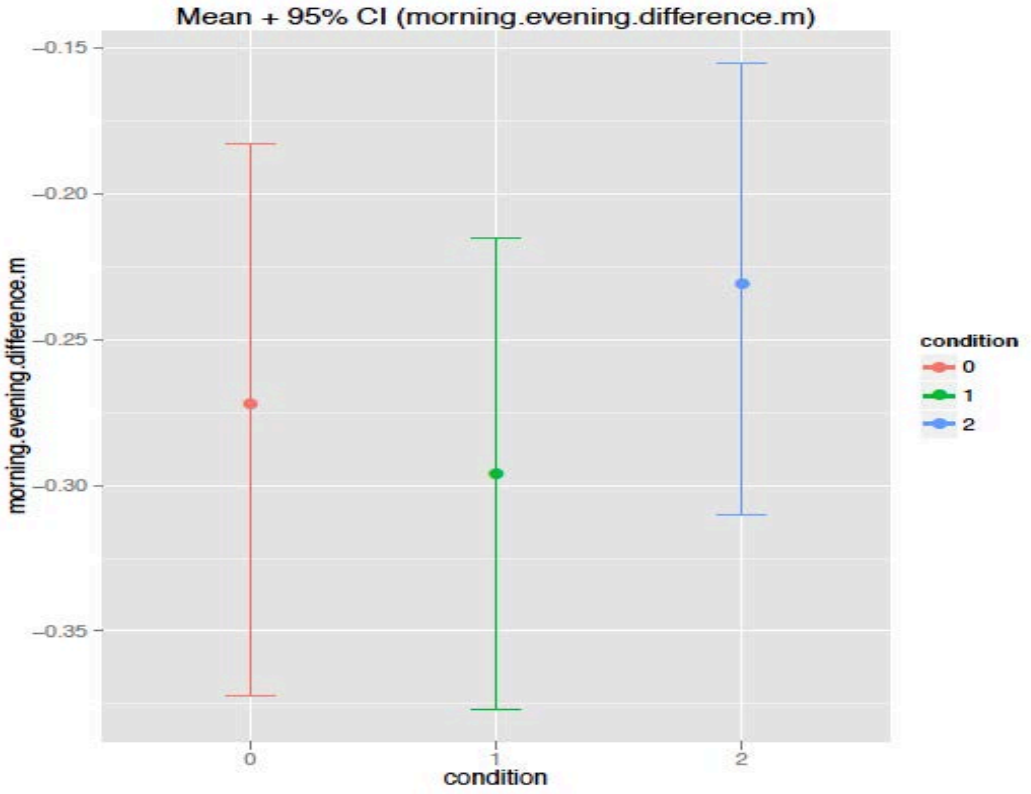
Other trackers

Hexoskin

Actiwatch

Galaxy Gear

Does stim improve memory?

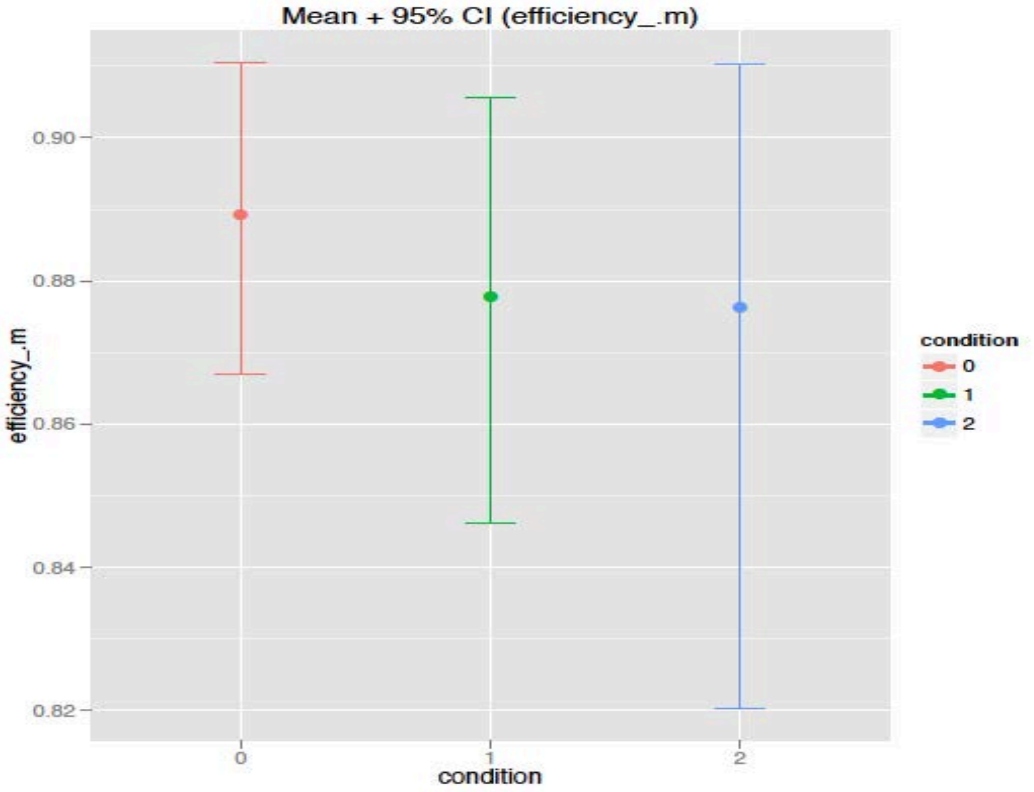


0(red) = no stim

1(green) = 20 mins stim

2 (blue)= 40 mins stim

Does stim improve efficiency?



0(red) = no stim

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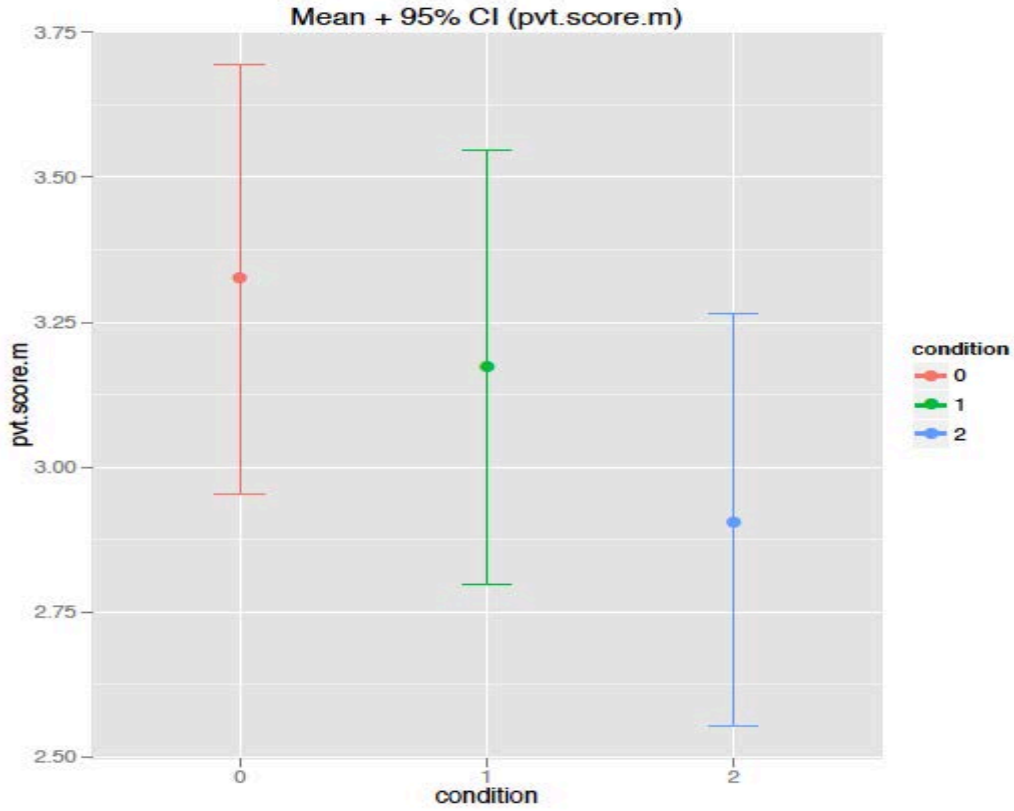
Does stim improve alertness?



0(red) = no stim

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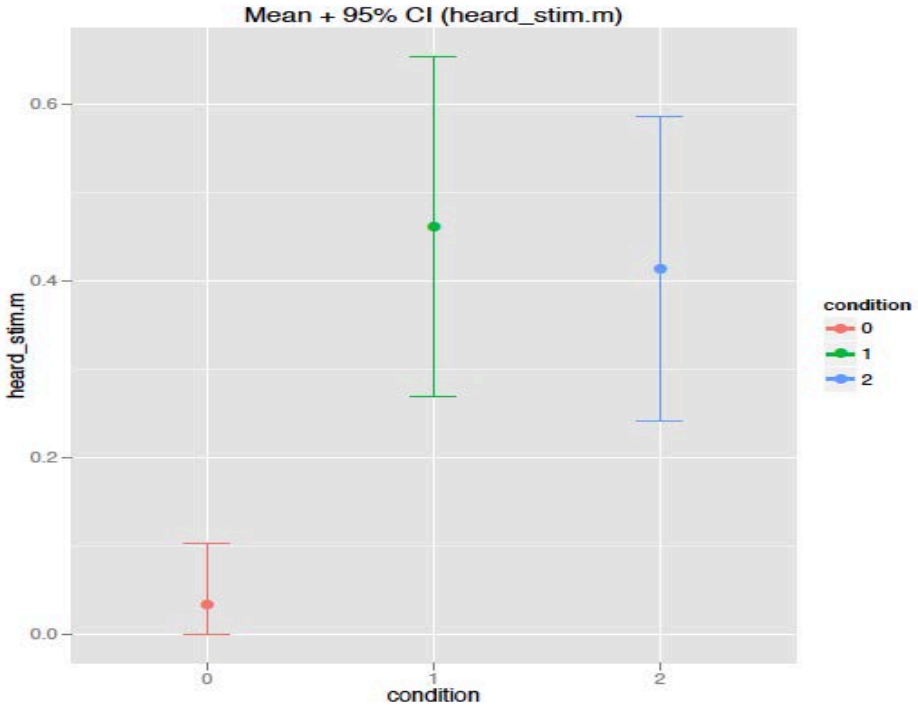
Did the stim noticed?



0(red) = no stim

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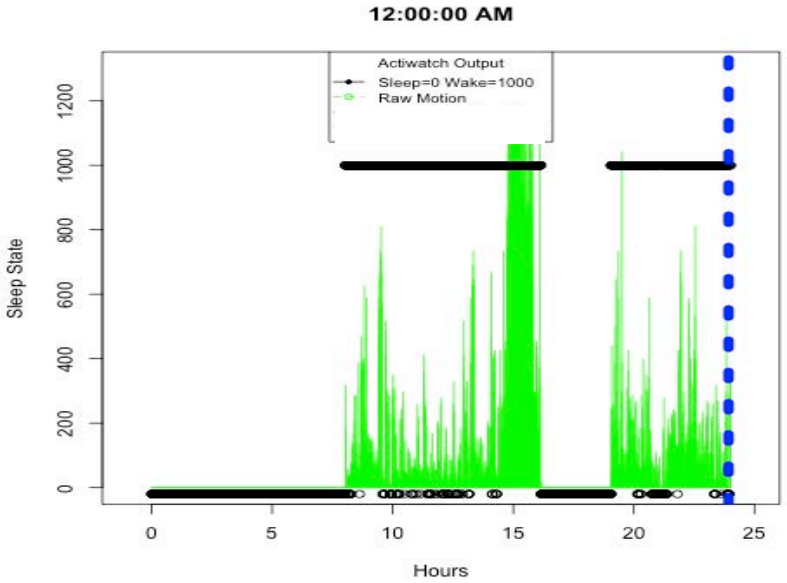
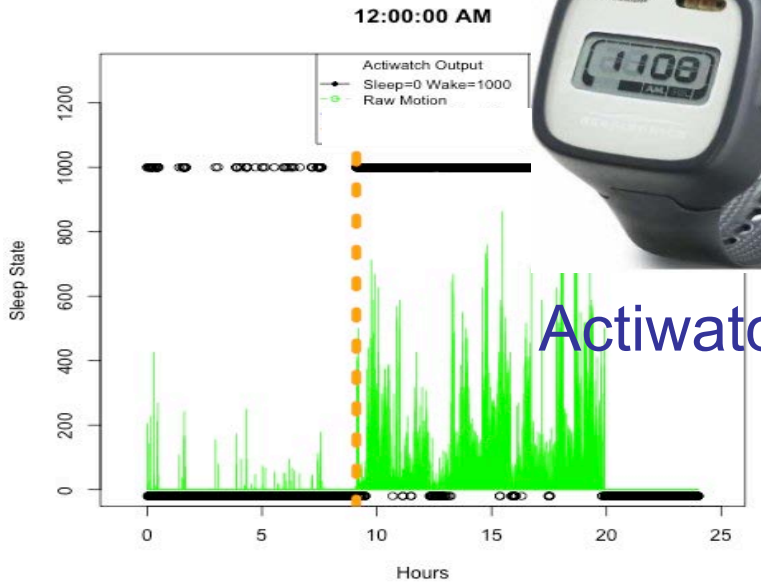
What did I Learn?

Auditory stimulation didn’t work

The stimulation was noticed (not good)

Actiwatch Produces Big Data

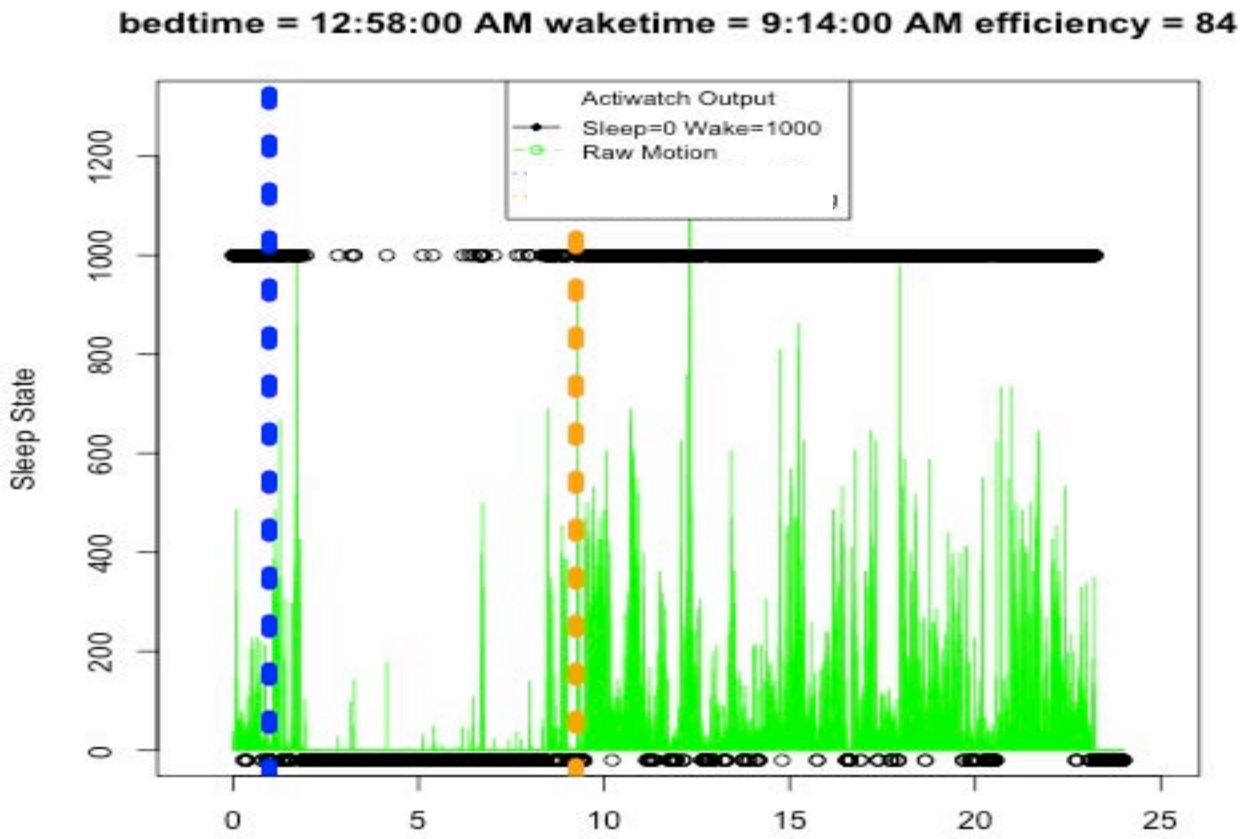




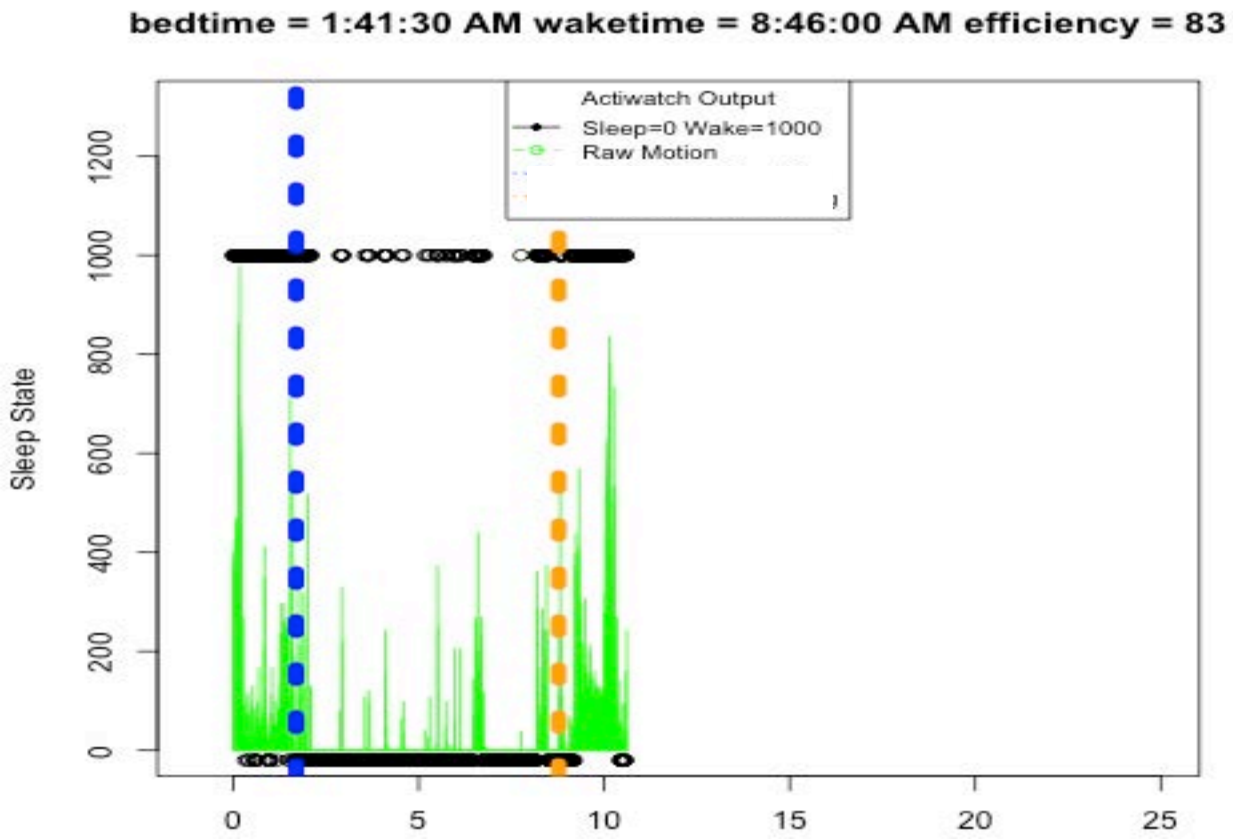
Actiwatch

Over 200 nights of data ☺

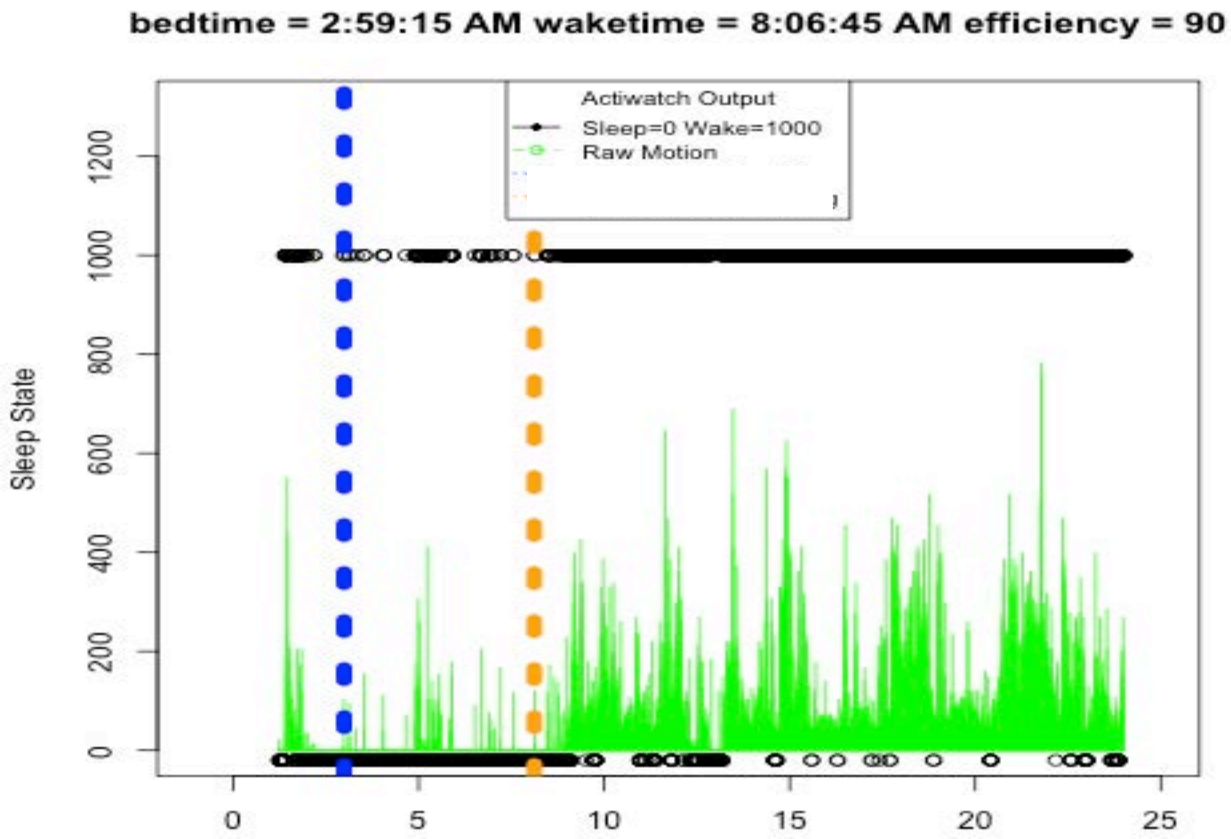
A Week Of Data: 8-13-14



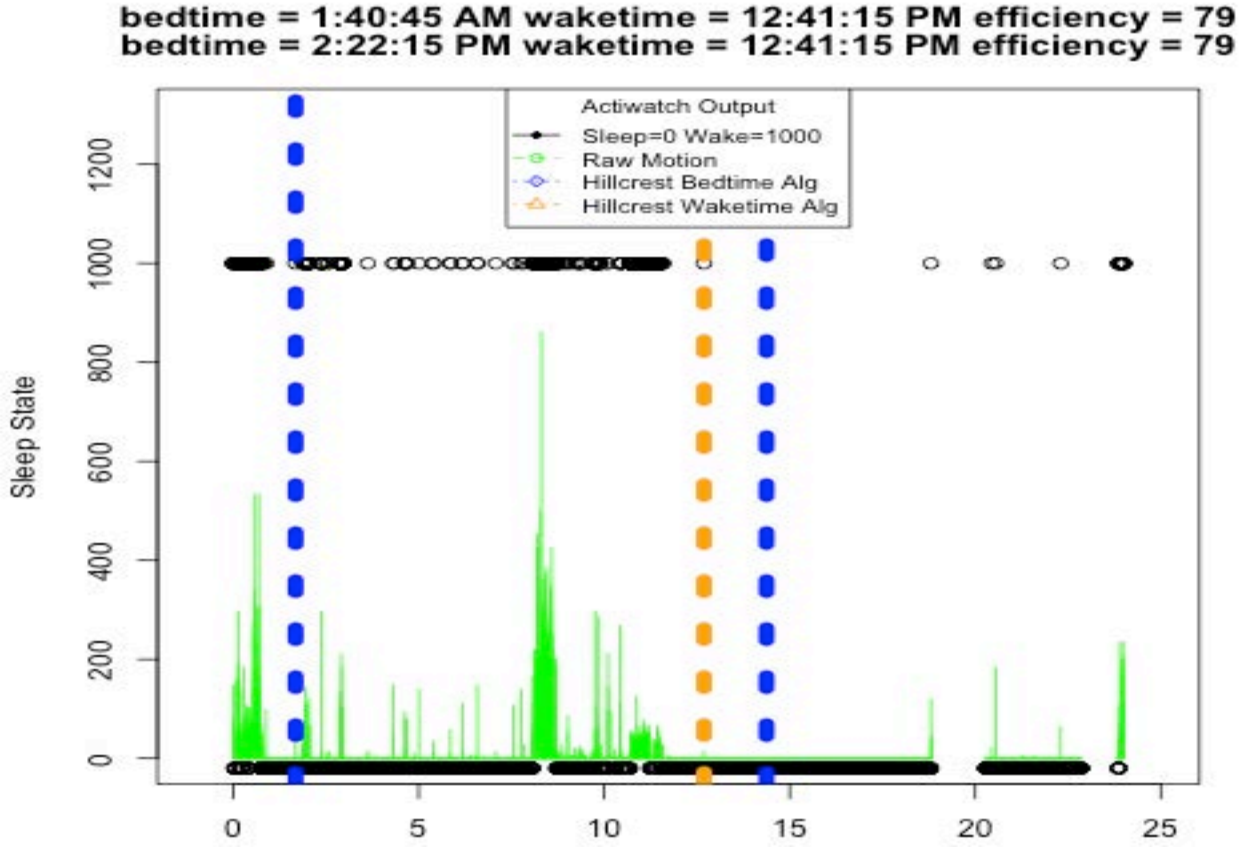
A Week Of Data: 8-14-14



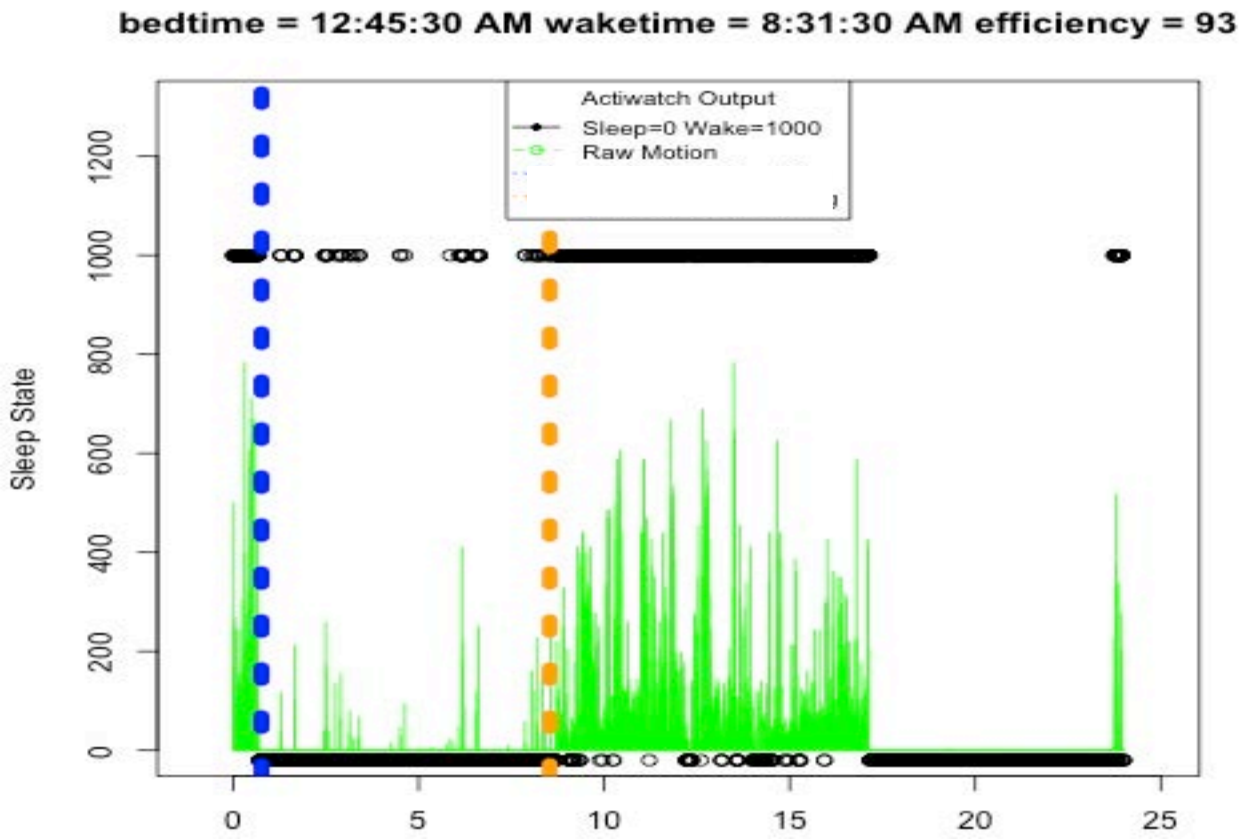
A Week Of Data: 8-15-14



A Week Of Data: 8-16-14



A Week Of Data: 8-17-14



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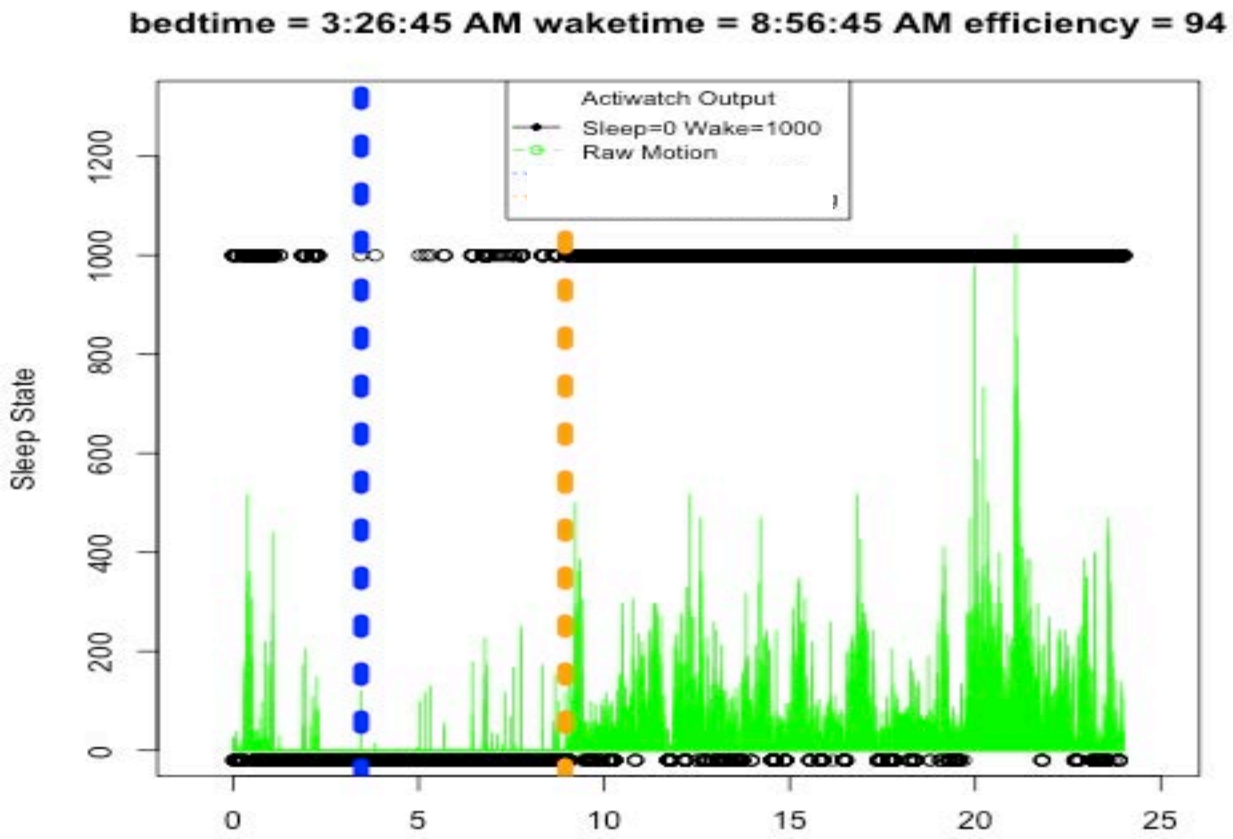

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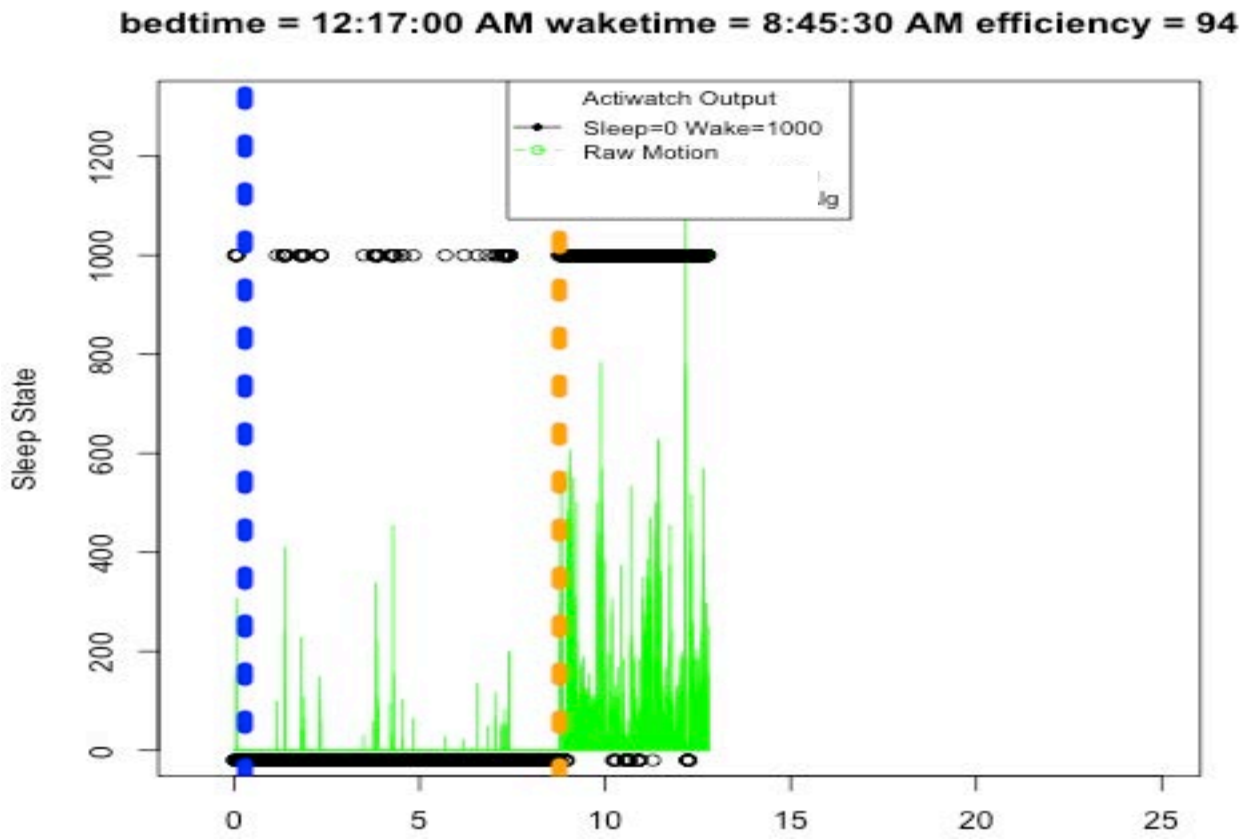
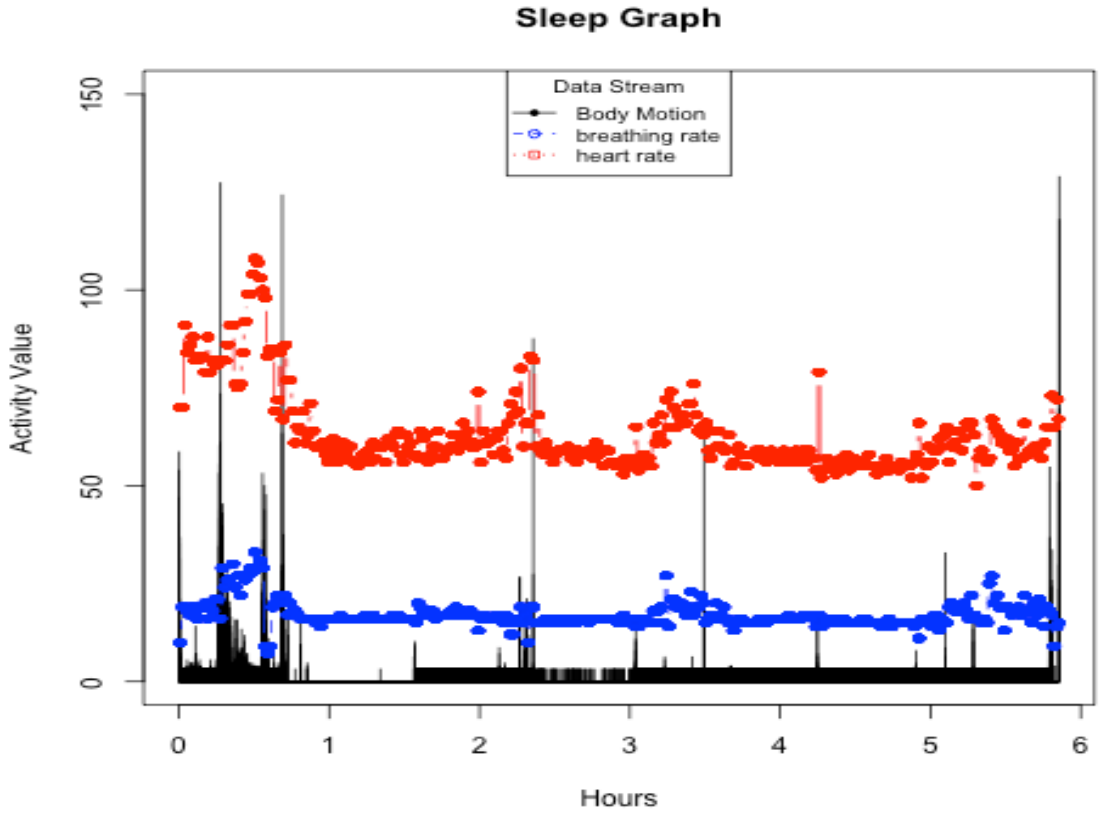


What did I Learn?

In terms of making inferences about sleep, continuous data can in some situations be more informative than more accurate data that has less continuity

How about the Hexoskin?



Measures:

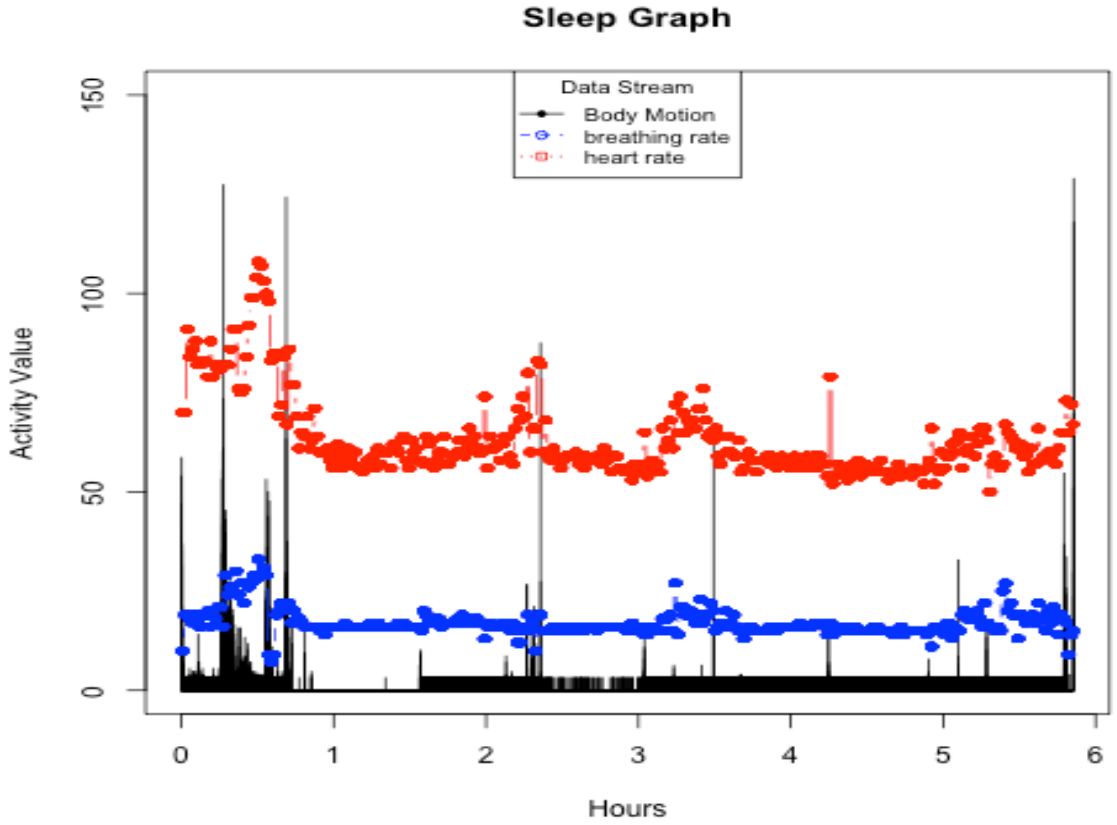
Motion,

Breathing,

Heart

Can Breathing and Heart data improve sleep detection?

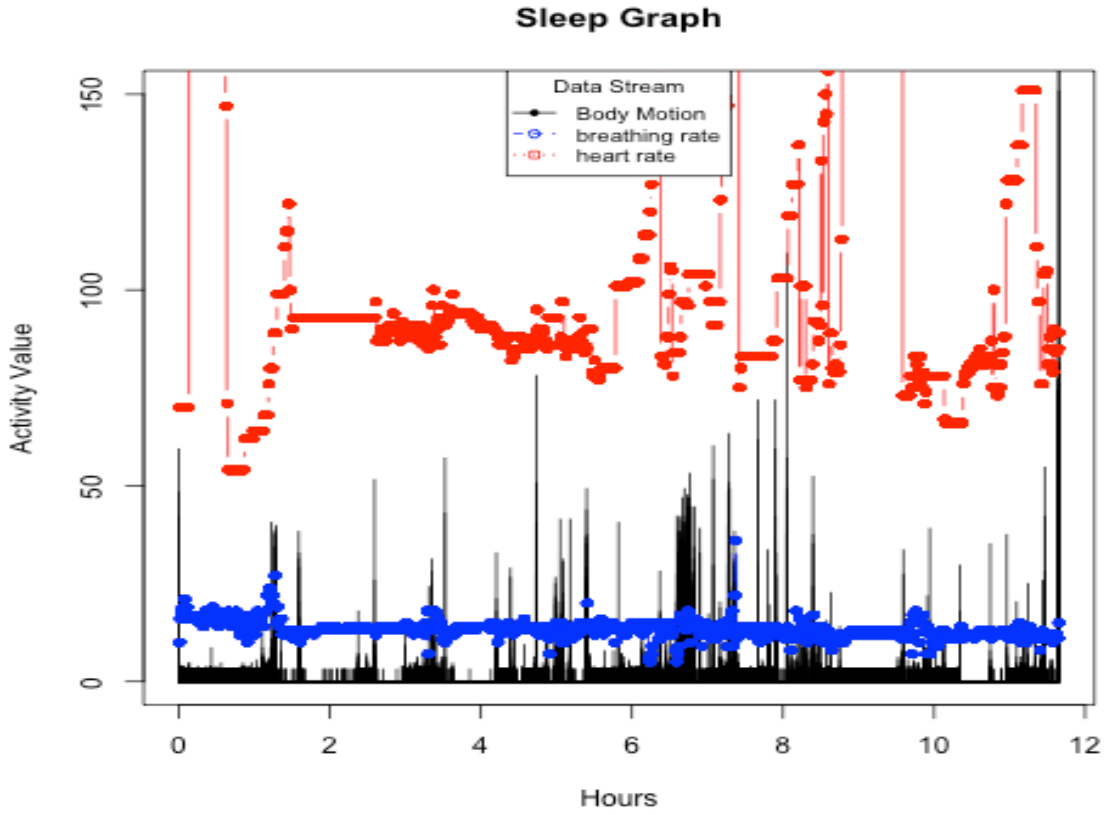
Probably..



Heart rate has been used by sleep researchers to detect deep sleep (Bartsch, et al., 2012; Hamann, et al., 2009; Shinar et al., 2001;)

Issue of comfort

Some Problems With Sensitivity



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Issue of comfort

What did I Learn?

A good system ought to have as much accurate reliable data as possible and be as contiguous as possible

What did I Learn?

Learned more about the difficulties of doing research in the wild than the veracity of the scientific question

What did I Learn?

For sleep, the current state of technologies still has a ways to go… maybe the Apple Watch can help