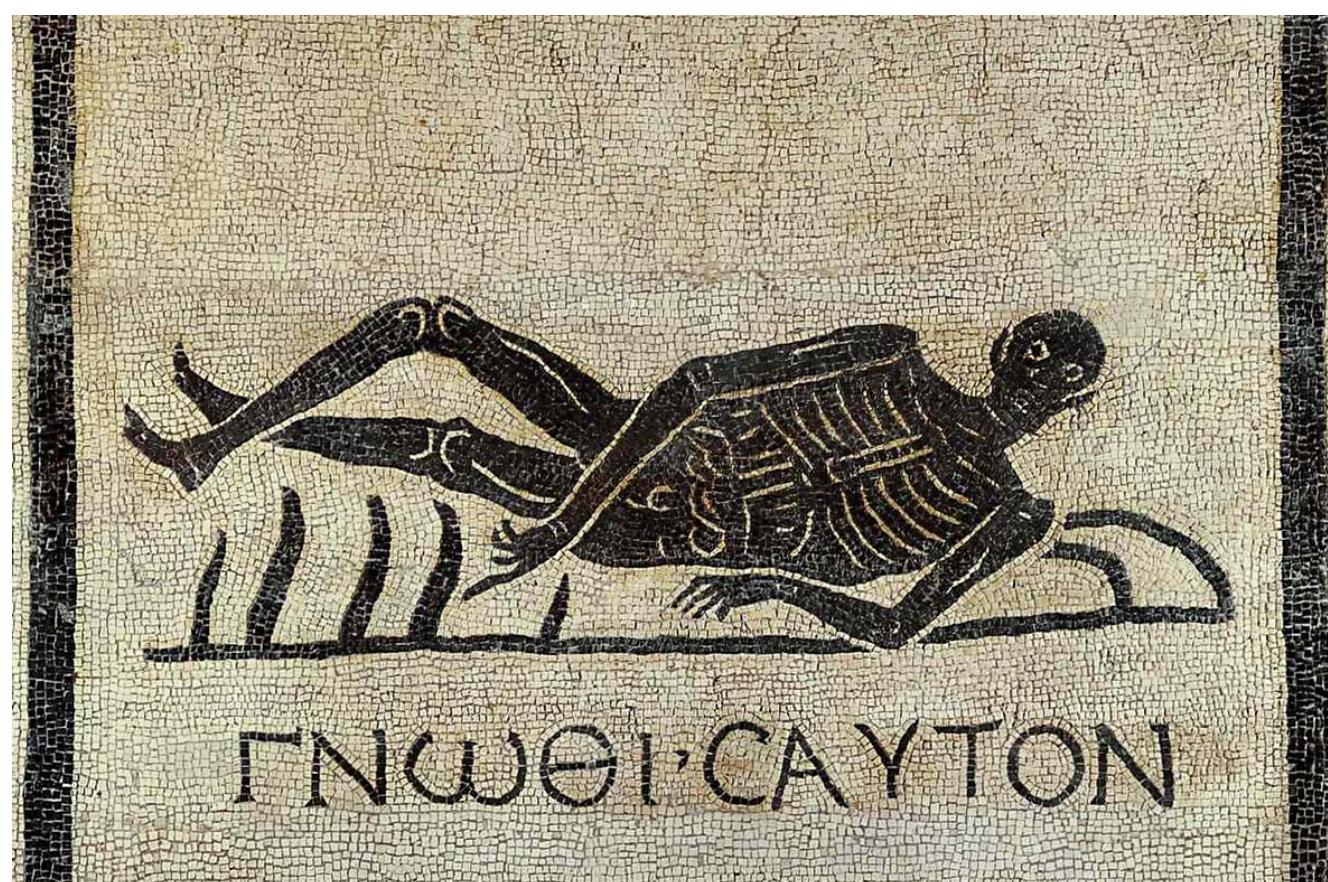
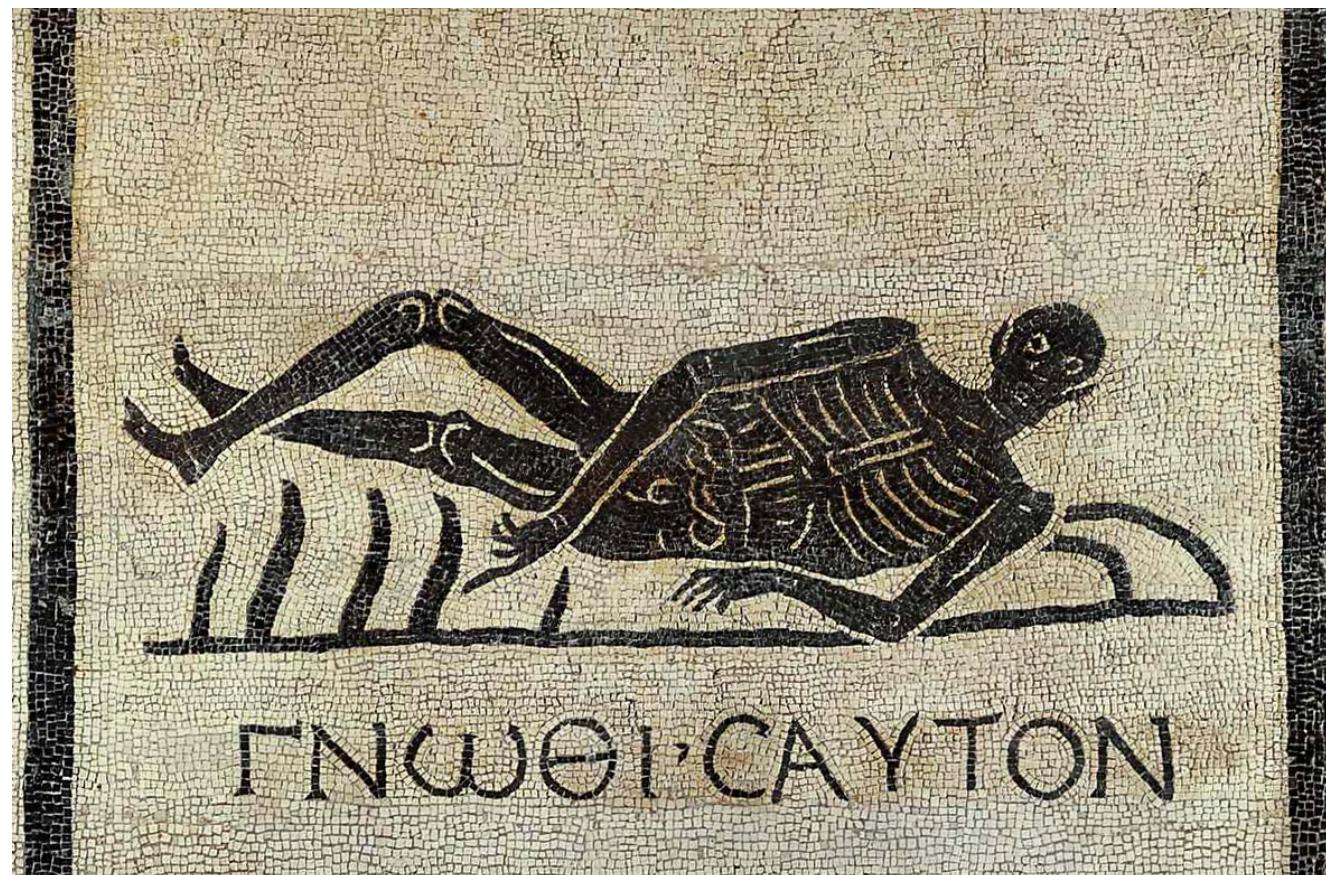


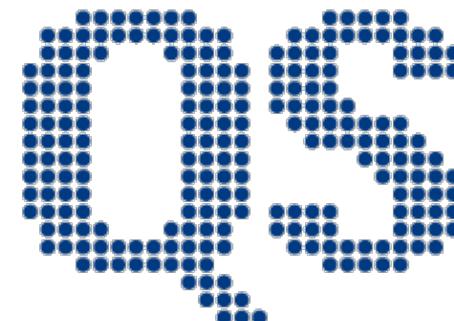
machine learning & the quantified self

Katherine Pully
Investigation Presentation I
July 22, 2016





“know thyself” -
socrates



Quantified Self

self knowledge through numbers





Quantified Self

self knowledge through numbers

Gary Wolf

Kevin Kelly



What can be tracked?



Jawbone – activity monitor



Fitbit – activity monitor



Momento – lifelogging



Equanimity – meditation tracker



Pebble – activity monitor



foodzy
Foodzy – food tracker



Sleepio - sleep



Apple Watch - health



Empatica – stress



Zeo - sleep



SleepBot - sleep



Miso – TV tracking



Instant



Mood Panda – mood tracker

Learning from Quantified Self Data

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Features

- Productivity
- Music
- Sleep
- Walking-distance, steps, calories
- Workouts
- Running-distance, calories
- Cycling-distance, calories
- Total-calories-burnt
- Total-distance-travelled
- Music play count
- Hours spent at computer
- Number of git commits
- Mood – dependent variable

Principal Component Analysis

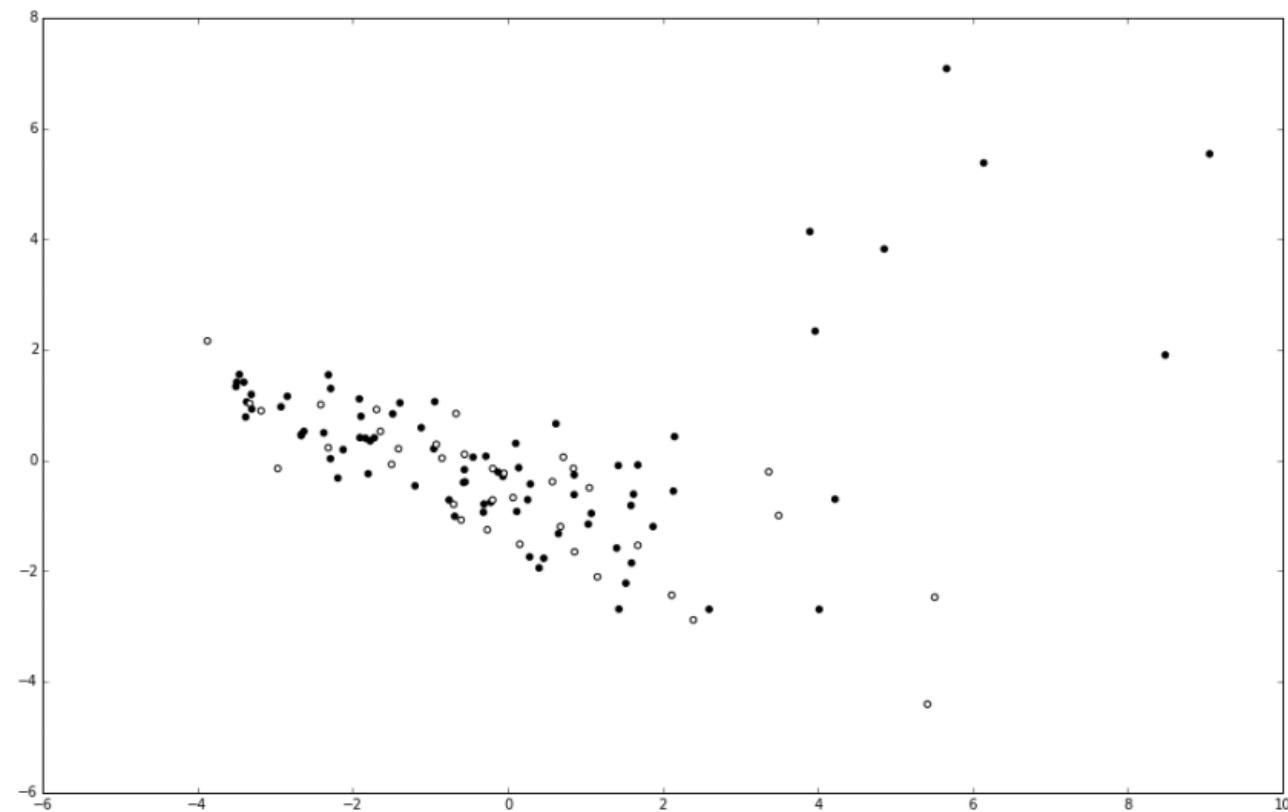


Figure 1 PCA

Principal Component Analysis

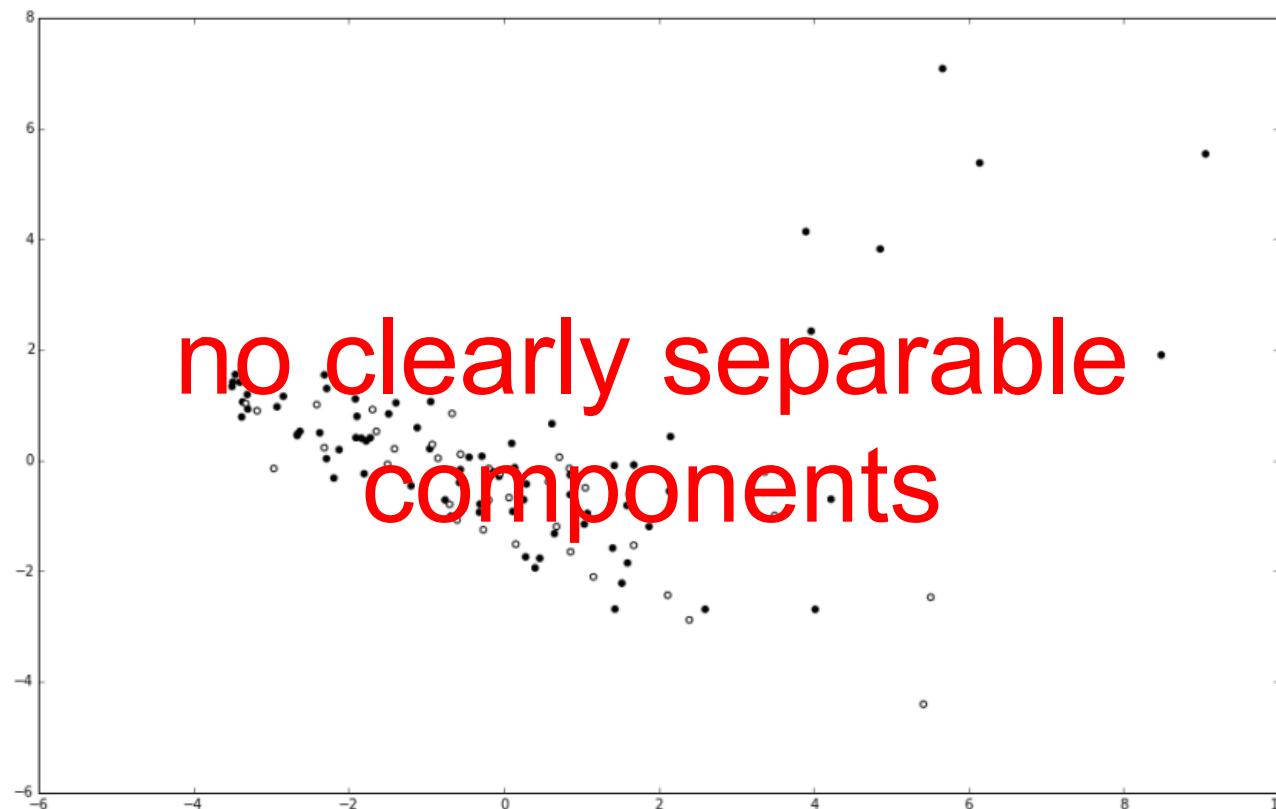


Figure 1 PCA

Error

Model	Training Error	Testing Error
Linear Regression	0.6692	1.429
SVR: Linear Kernel	9.393e-05	0.6292
SVR: Poly Kernel	0.00141	0.7418
SVR: RBF Kernel	1.011e-05	0.29811

Error

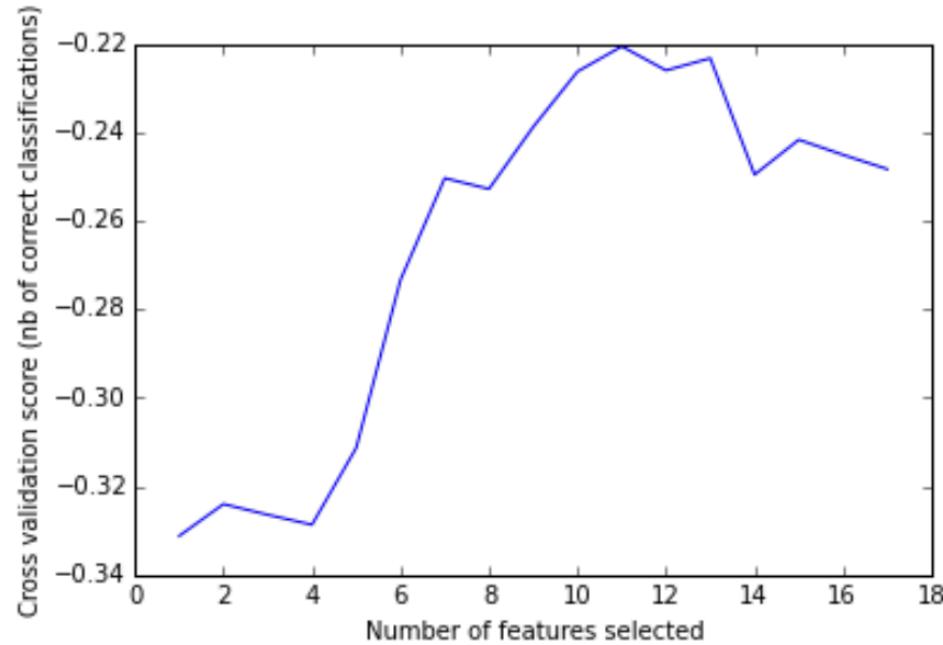
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Overfit?

Top 5 Features – Recursive Feature Elimination



1. Sleep
2. walking distance
3. total calories burnt
4. git commits
5. music playcount

Roadblocks

- No publicly available QS dataset
- Individuals' privacy concerns
- Data ownership
- 70% of US adults track at least one health method, but nearly half track in their head
- \$\$\$
- Types of people attracted to QS

Thank you!

Quantified Self Concerns, pros

- CONS/CONCERNs
- Privacy
 - Foucaldian surveillance society
- PROS
- accountability

Quantified Self Measurements

- Physical activities: miles, steps, calories, repetitions, sets, METs
- Diet and Nutrition: calories, carbs, fat, protein, ingredients, portions, tastiness, cost, location
- Psychological: mood, happiness, anxiety, depression
- Cognitive: IQ, alertness, focus, memory, reasoning
- Environmental: location, weather, noise, pollution, light, season
- Situational: time, day
- Social: influence, trust, status, charisma