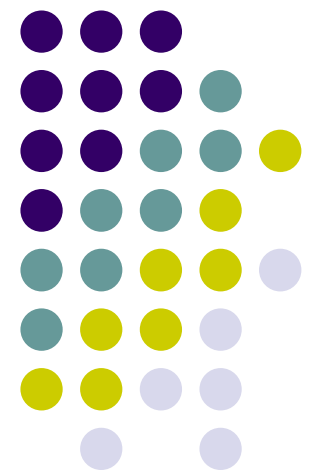# Computer Science MQP Interests 2016-2017
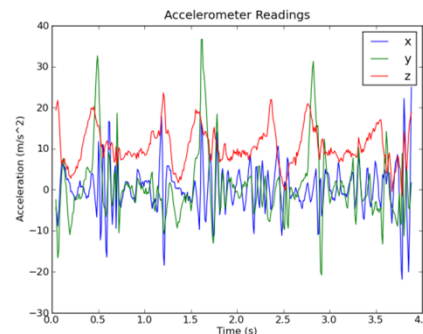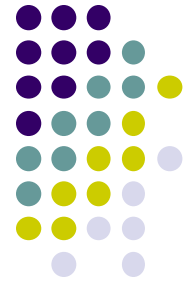
Emmanuel Agu

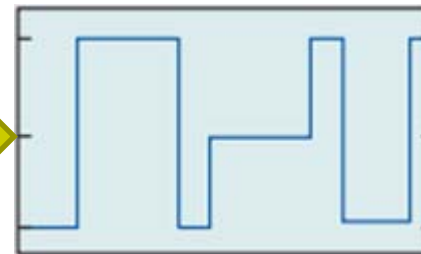# General Areas of Interest

- Mobile computing/apps
  - Health, wellness (eating, drinking, smoking)
  - Security
- Intelligent apps
  - Detect stuff about user
  - Phone sensor data + Machine learning

MQP Idea 1: Using SmartWatch to Infer Alcohol levels from Gait

Raw accelerometer readings

Feature extraction and classification

BAC/How much alcohol consumed?

- **MQP idea 1: Detect alcohol consumption using smartwatch**
  - Classify accelerometer, gyroscope data

- **MQP idea 2: Crowdsource drinking gait data**
  - Apple Healthkit, Amazon mechanical Turk

MQP3: Alco-Contextualizer

- Drinking contexts repeat but drinker may not know

- **MQP idea 3:** Phone discovers drinking contexts, track, display/visualize

  - Places types of places

  - People with: John, Sally

  - Times (after dinner? Late night? Weekends)
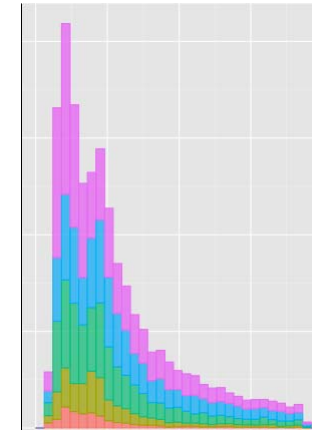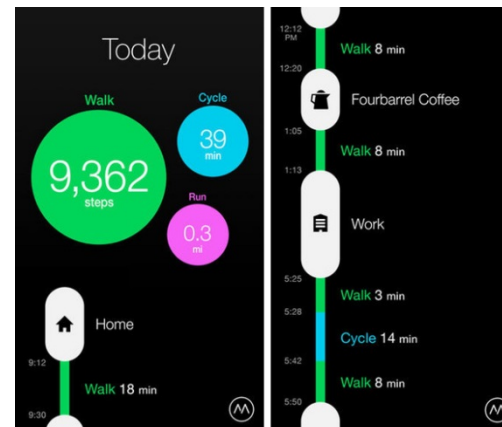
MQP 4: Detect Exergame Enjoyment
Co-advised with Prof Mark Claypool

- **MQP idea:** Detect smartphone-based Exergames enjoyed

- Recommend similar exergames when interest declines

- Game enjoyment inferred from player behaviors
  - Excitement when playing (smartphone accelerometer, gyroscope)
  - Game replay frequency (session statistics)
  - Increased step count (E.g. for pedometer games)
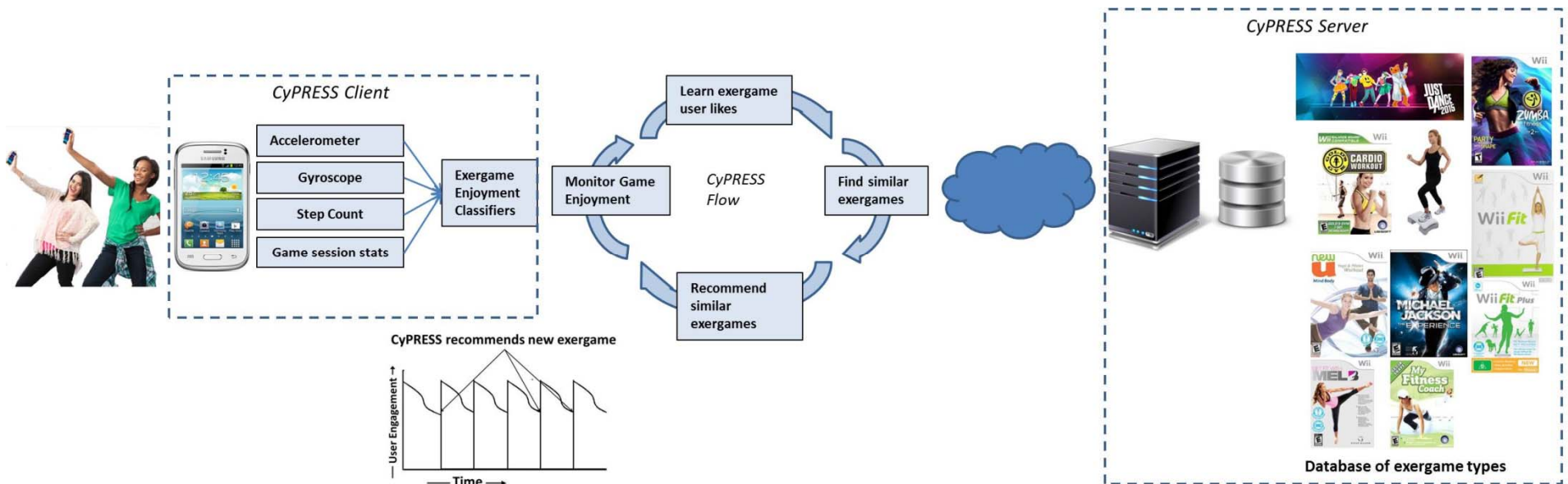
MQP 5: Mobile Behavior based Authentication

- Passwords are annoying to remember

- **MQP idea 5:** Authenticate users based on unique real-world behaviors
  - Locations-time visited
  - Activity-time patterns
  - Walking patterns
  - Habits