Accelerometer Harmonization

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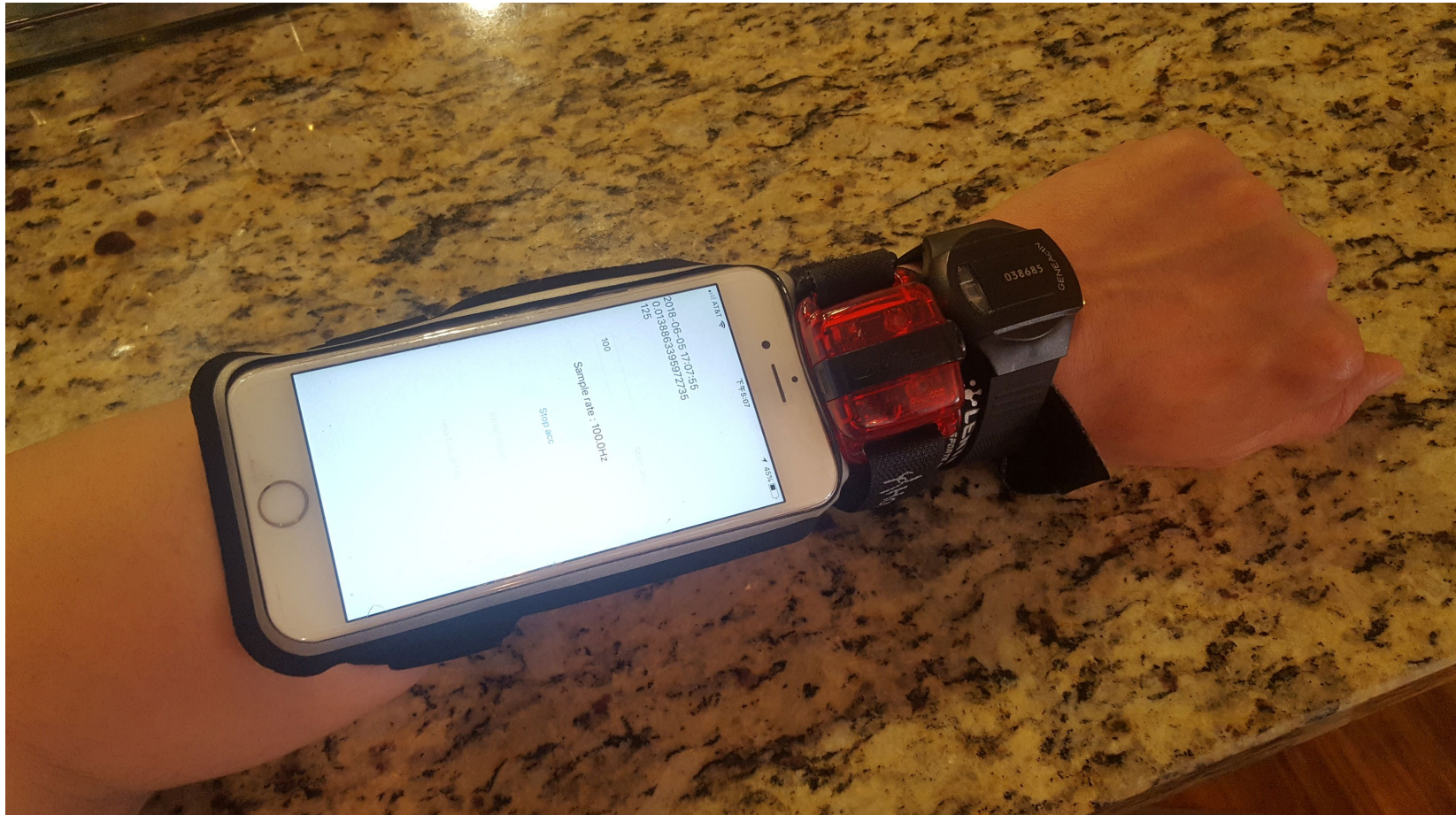
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Three dimensions

1. Comparability across devices
2. Comparability across different modes of wearing them
3. Equivalence of algorithms

Comparability across devices (iphone, geneactive, actigraph)

Correlations (all based on raw data, no proprietary algorithms)

- At 50 Hz:
  - Geneactiv v.s. Actigraph: 0.774
  - Geneactiv v.s. iPhone: 0.959
  - Actigraph v.s. iPhone: 0.807
- At 60 Hz:
  - Geneactiv v.s. Actigraph: 0.879
  - Geneactiv v.s. iPhone: 0.986
  - Actigraph v.s. iPhone: 0.864

Comparability across different modes of wearing them

- Wrist
- Waist
- Thigh
- Foot
- Etc.

Equivalence of Algorithms

- Ideally: use devices that generate the raw data and coordinate algorithms

- Commercial devices may use proprietary algorithms, so that comparison across devices requires some approximation

Relation between GENEActive and Fitbit steps is linear