**Motivation**

- Focus on Activities of Daily Living
- Conflicting classes are a problem
  - Food and medicine intake are similar activities when considering body movement
- Usage of wearable sensors
  - Not bound to one location
- Inertial and video sensors have limitations
  - Fusing them may eliminate these

**Dataset**

- We created a new dataset [3]
  - eating, drinking, taking meds, wiping mouth
- Recorded data:
  - Inertial (watch, glasses, tablet)
  - Video (glasses, tablet)

**Features**

**Inertial Sensors**
- Sliding window approach
- Features from time and frequency domain [1]

**Video Sensor**
- Windows of object features [2]
- Window size derived from avg. activity length

**Methods**

![Diagram showing video and inertial sensors with feature detection and classifier]

**Preliminary Results**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Precision</th>
<th>Recall</th>
<th>F₁-measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>S₁</td>
<td>+ 7.4%</td>
<td>+ 6.7%</td>
<td>+ 7.1%</td>
</tr>
<tr>
<td>S₂</td>
<td>+ 11.2%</td>
<td>+ 9.4%</td>
<td>+ 10.2%</td>
</tr>
</tbody>
</table>

- Overall improvement for subject S₁ and S₂
  - By considering video data in addition to inertial data
  - STDEV of results not stable as of now

**Next Steps**

- Evaluation of additional image features
- Integrating multiple Inertial sensors
- Chest-mounted tablet vs. data glasses

**References**

[3] https://sensor.informatik.uni-mannheim.de/