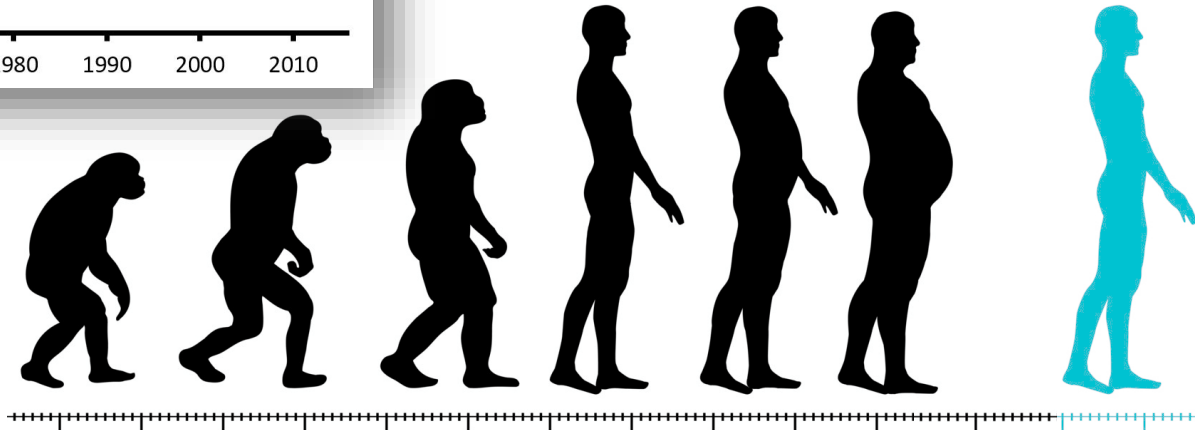
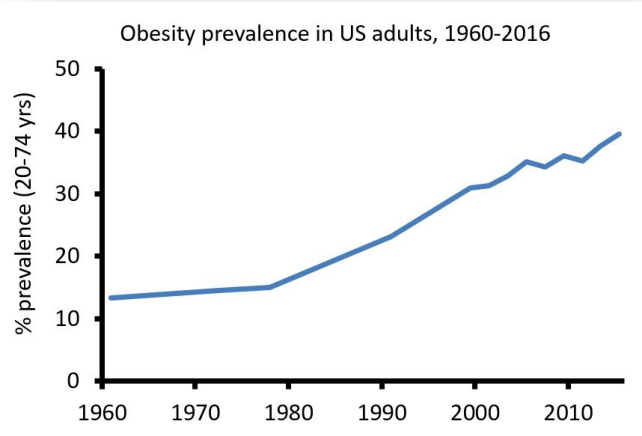




Wearables for Monitoring and Driving Lifestyle Changes

Bjarne Pfitzner
Connected Health
HPI Digital Health Center

Motivation



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Wearables for Monitoring and Driving Lifestyle Changes

What will you do?

- Patients with chronic disease (e.g. metabolic syndrome)
- Lifestyle matters
- Monitor changes after intervention / new diet

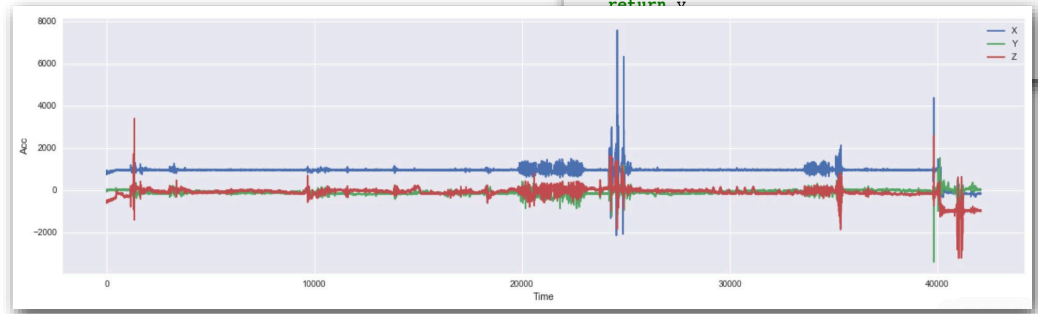
- **Build a pipeline to stream and store daily life data**
- **Develop an app for data sharing**
- **Apply data science for analysis**



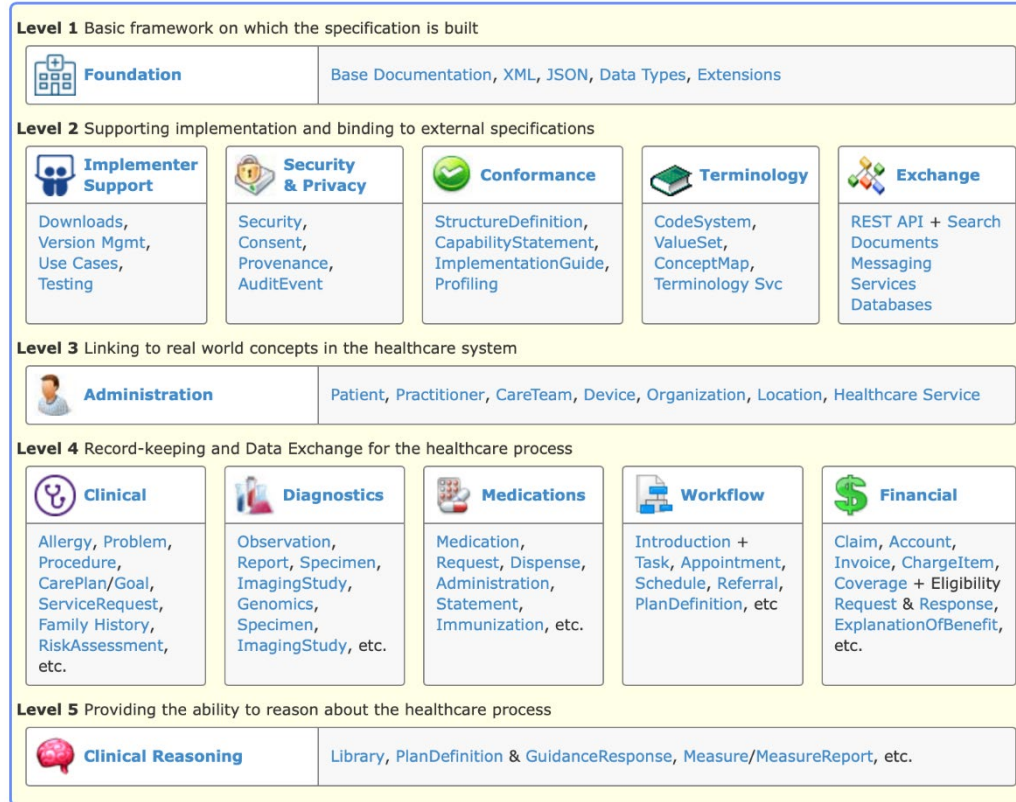
```
from scipy.signal import butter, lfilter, find_peaks

def butter_bandpass(lowcut, highcut, fs, order=5):
    nyq = 0.5 * fs
    low = lowcut / nyq
    high = highcut / nyq
    b, a = butter(order, [low, high], btype='band')
    return b, a

def butter_bandpass_filter(data, lowcut, highcut, fs, order=5):
    b, a = butter_bandpass(lowcut, highcut, fs, order=5)
    y = lfilter(b, a, data)
    return y
```



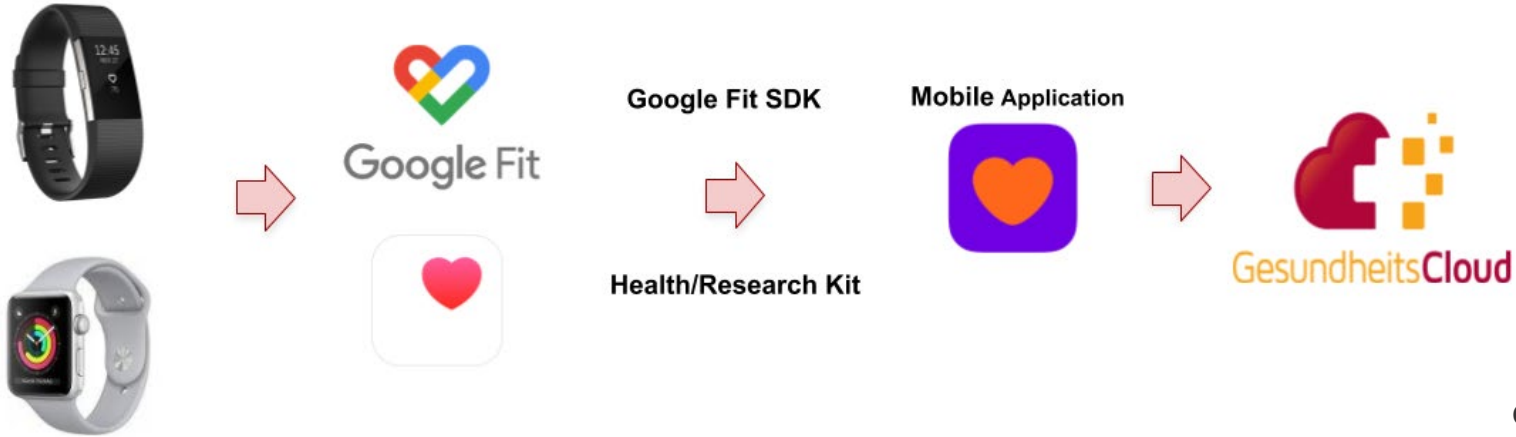
FHIR - Fast Healthcare Interoperability Resources



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Wearables for Monitoring and Driving Lifestyle Changes

Data Sharing Workflow



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Wearables for Monitoring and Driving Lifestyle Changes

Who are we looking for?



- Interested in
 - connecting computer science and health
 - improving patient's care
 - working with a multidisciplinary team
- Good programming skills
 - Ideally in mobile development

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How do you benefit?

- Learn to apply computer science to a practical application
- Deepen understanding of mobile development from end-to-end
- Collaborate with medical and industrial partners
- Contribute to digital healthcare



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Who to contact?

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