

# Context Awareness

Affective Computing

Larissa Müller

# Gliederung

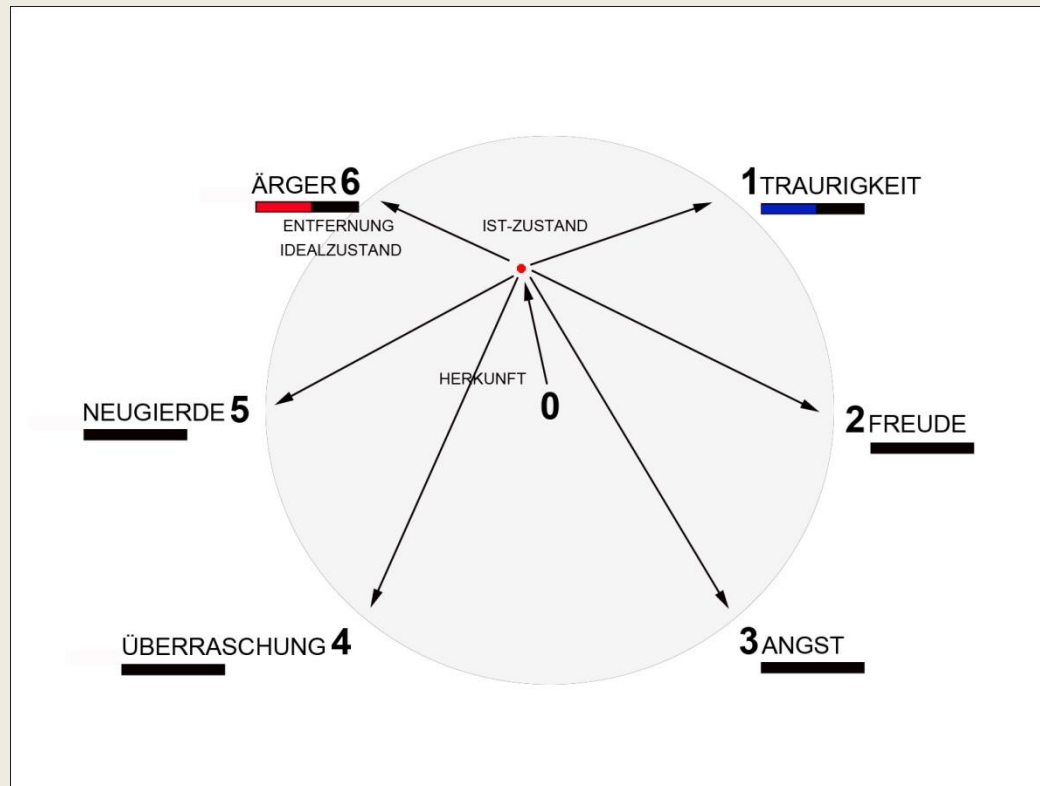
- Thema
- Vergleichbare Arbeiten
- Abgrenzung
- Quellen

# Thema

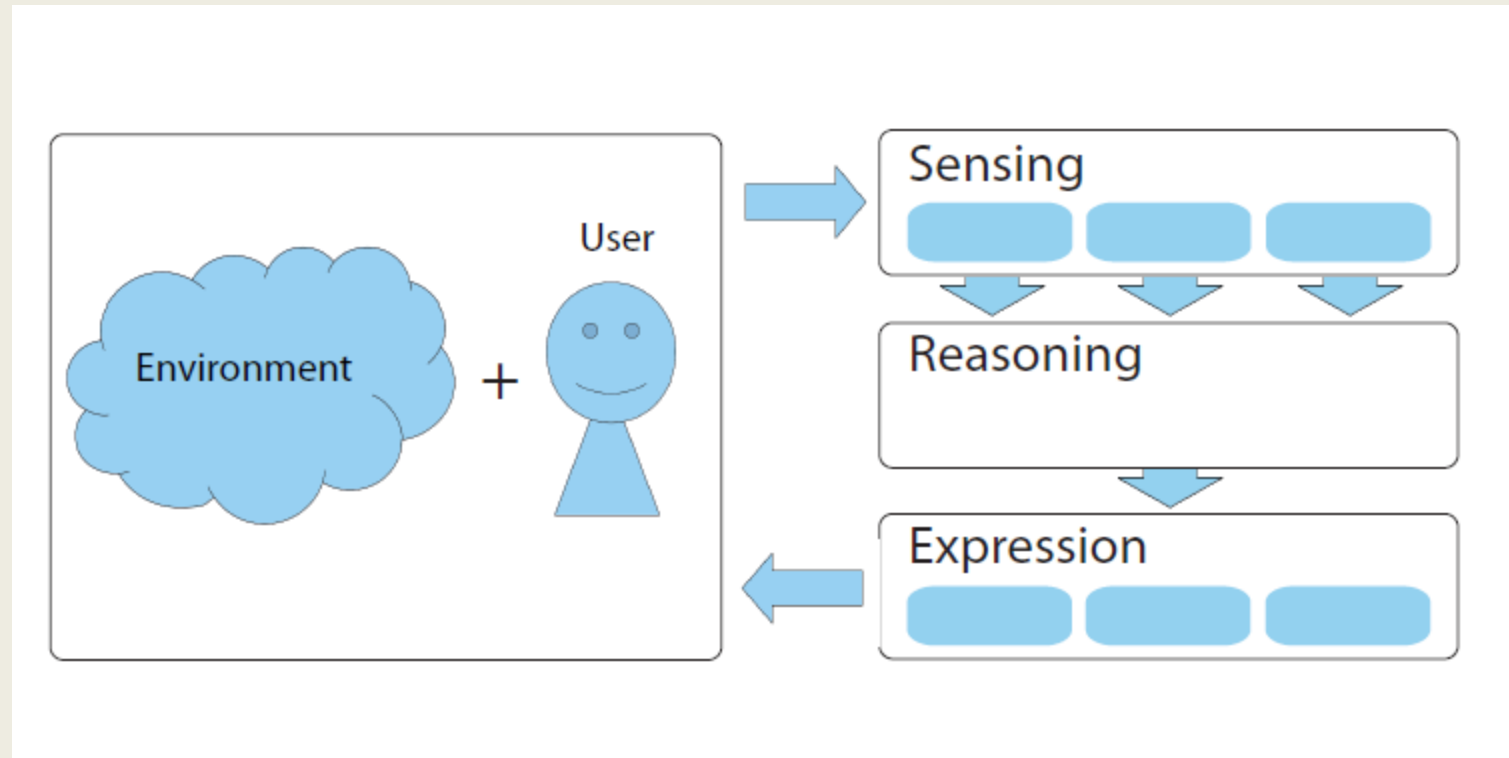
Nutzung von Emotionen in  
interaktiven  
Kunstinstallationen



# Zustände



# Architektur



# Gliederung

- Thema
- Vergleichbare Arbeiten
  - Europa
  - USA
  - Asien
  - Hamburg
- Abgrenzung
- Quellen

# Europa

- Fraunhofer Institut



[19,22,23 ]

- Christian Becker-Asano



[16]



[12]

# Fraunhofer Tool





# ABRA

- **Veröffentlichung:** „Affect- and Behaviour- Related Assistance for Families in the Home Environment“ [5]



[21,20]

# Komponenten



[5]



[11]

```
IF activity <= low AND valence >= neutral  
  THEN state = ok  
IF activity <= low AND valence < neutral  
  THEN state = nok
```

[5]

# Oberfläche

**Fraunhofer**  
IGD  
WELLNESS-TECHNOLOGIEN: GEFÜHLS- UND AKTIVITÄT SZUSTAND IM ALLTAG

**Ich bin zu Hause.**

Mir geht es schlecht.  
Ich fühle mich gut.  
Mir geht es super.

2 Nachrichten für dich

Oma geht's gut

**Meine Tagesaktivitäten**

6:30 Uhr  
Ich bin gerade aufgestanden.

7:00 Uhr  
Ich zum Bäcker.

10:24 Uhr  
Auf zum Wolllauf!

12:00 Uhr  
Ich esse zu Mittag.

13:00 Uhr  
Ich halte Mittagschlaf.

15:00 Uhr  
Ich bin gerade aufgestanden.

**Tagesaktivität Diagramm**



**Gesamte Photos**





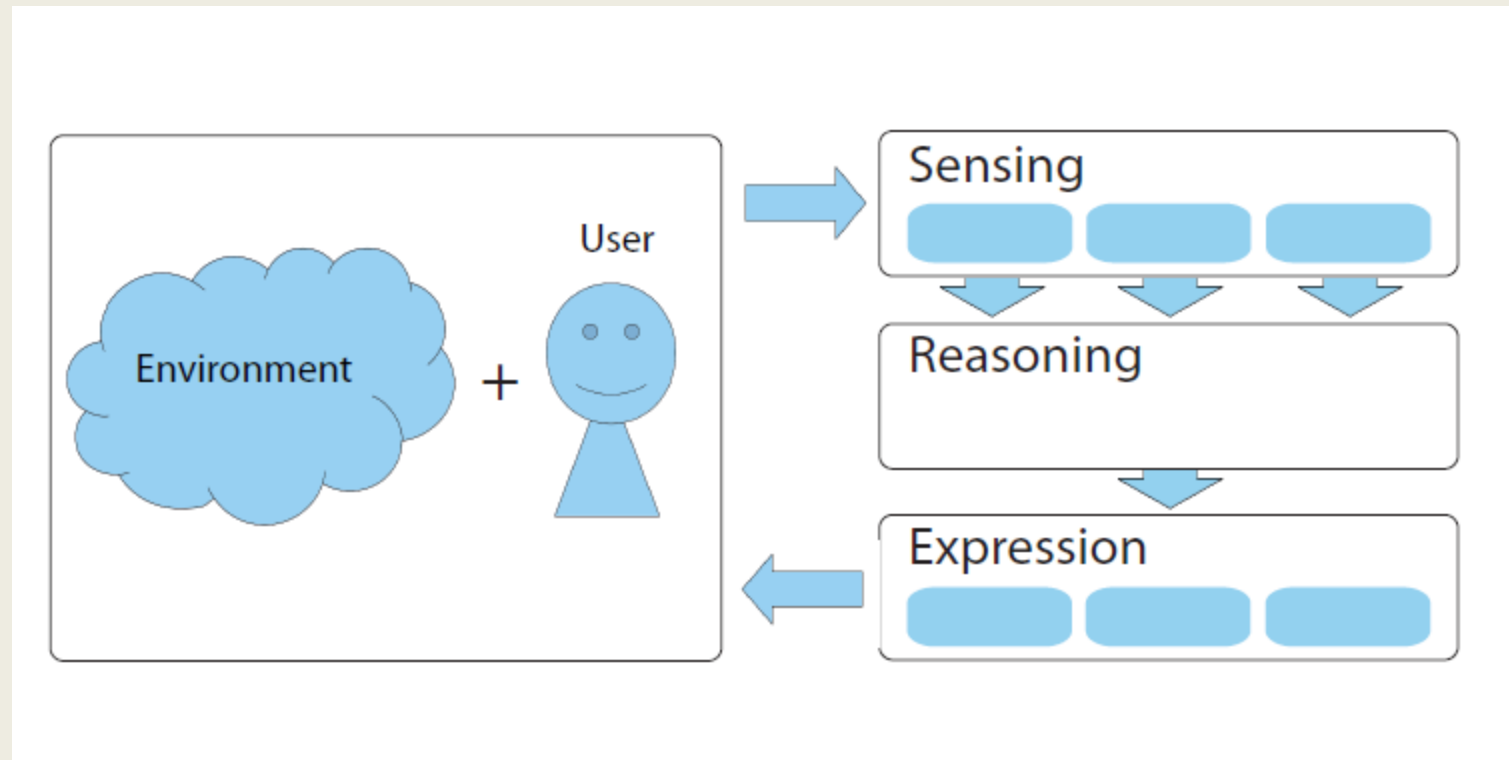


Ich bin aktiv.



[5]

# Aufbau



# USA

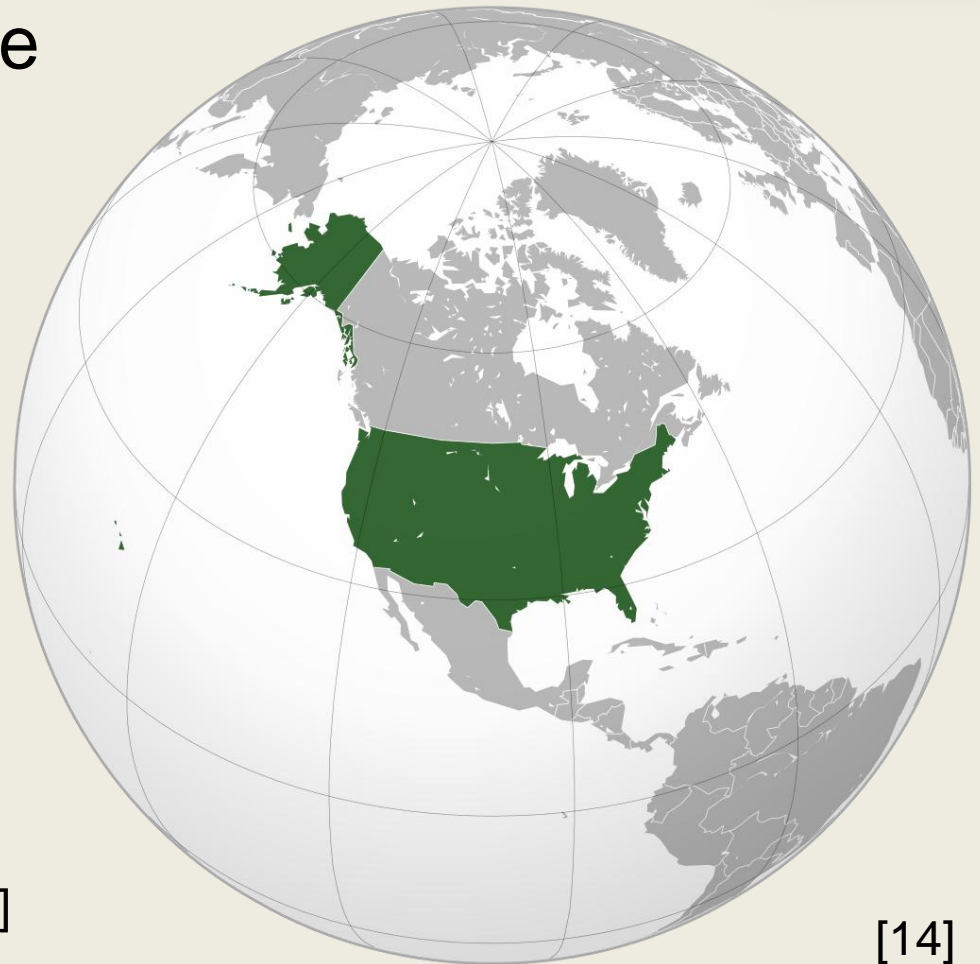
Massachusetts Institute of Technology (MIT)



[24]



[25]



[14]

# MIT(1)

**Veröffentlichung:** „When Human Coders (and Machines) Disagree on the Meaning of Facial Affect in Spontaneous Videos” [3]



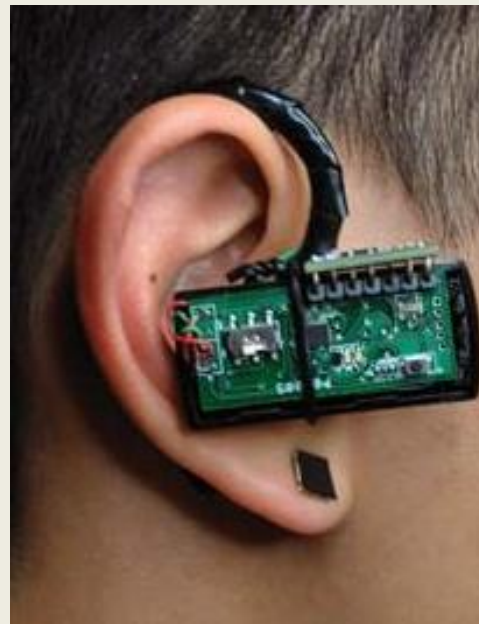
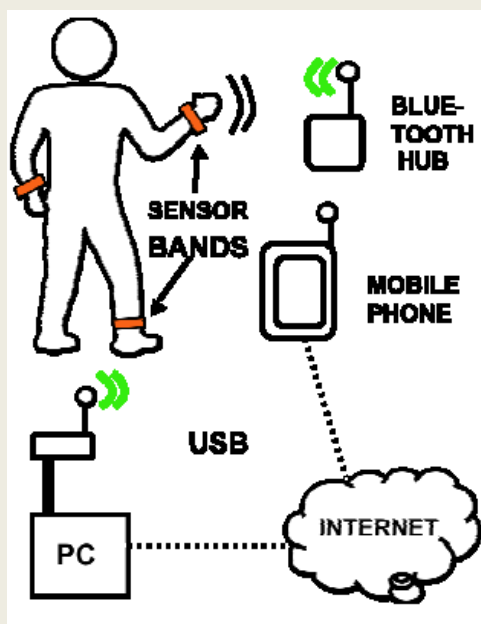
[3]

# MIT(2)

**Veröffentlichung:** „Wearable Sensors: Opportunities and Challenges for Low-Cost Health“ [1]

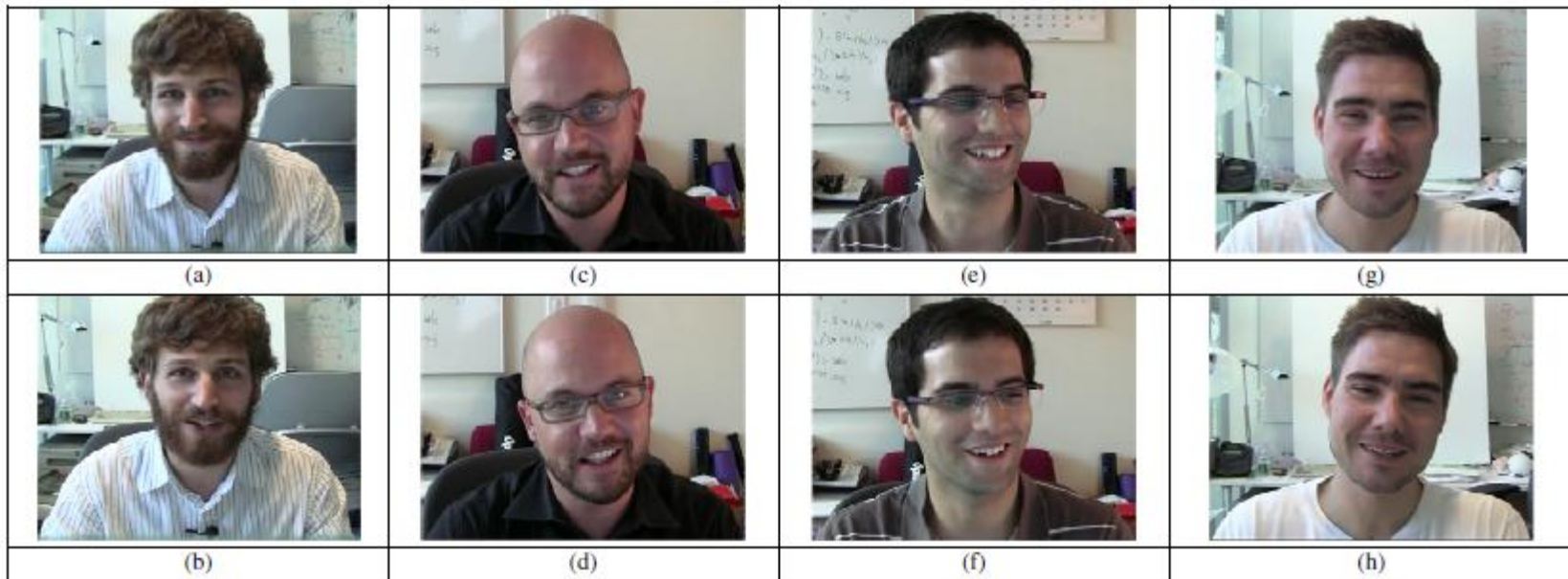
**Veröffentlichung:**

„Motion-Tolerant Magnetic Earring Sensor and Wireless Earpiece for Wearable Photoplethysmography“ [7]



# MIT(3.1)

- **Veröffentlichung:** “Acted vs. natural frustration and delight: Many people smile in natural frustration” [10]

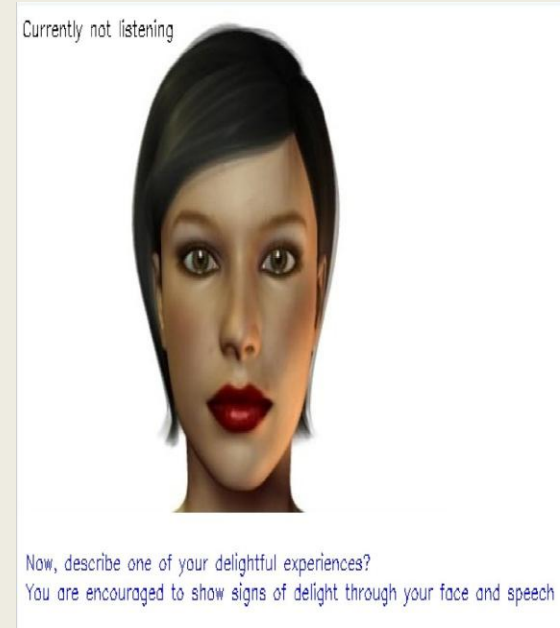


[10]



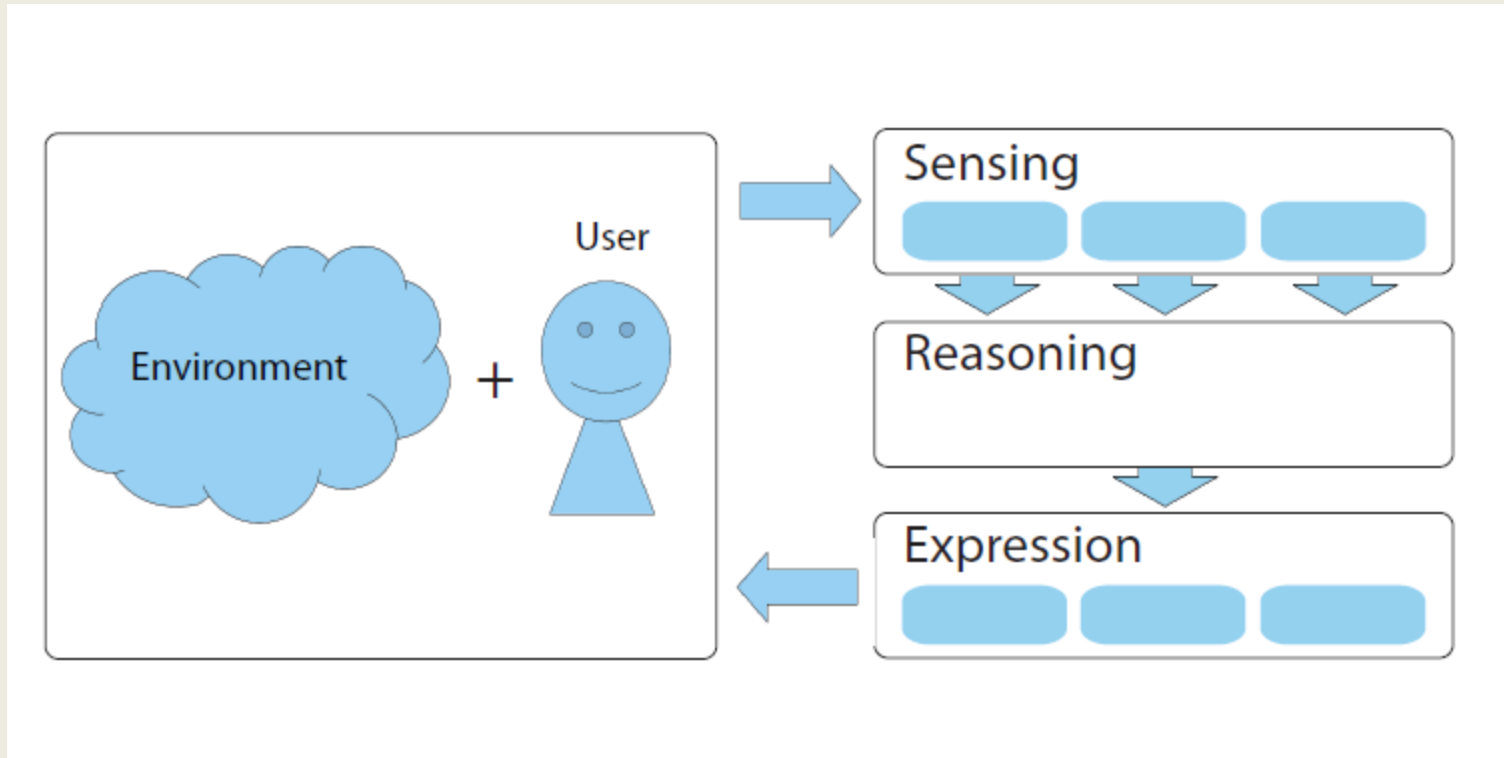
# MIT(3.2)

- Studien
  - Gesichtsanalyse
  - Sprachanalyse
- Ergebnis:
  - Acted: 90% lächelten nicht
  - Natürlich: 90% lächelten
- Fazit:
  - Natürlichkeit ist schwer durch die Nutzung von maschinellen Lernalgorithmen erkennbar



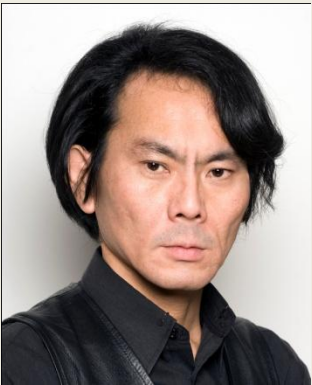
[10]

# Aufbau



# Asien

- Intelligent Robotics  
Laboratory



[17,15]



[13]

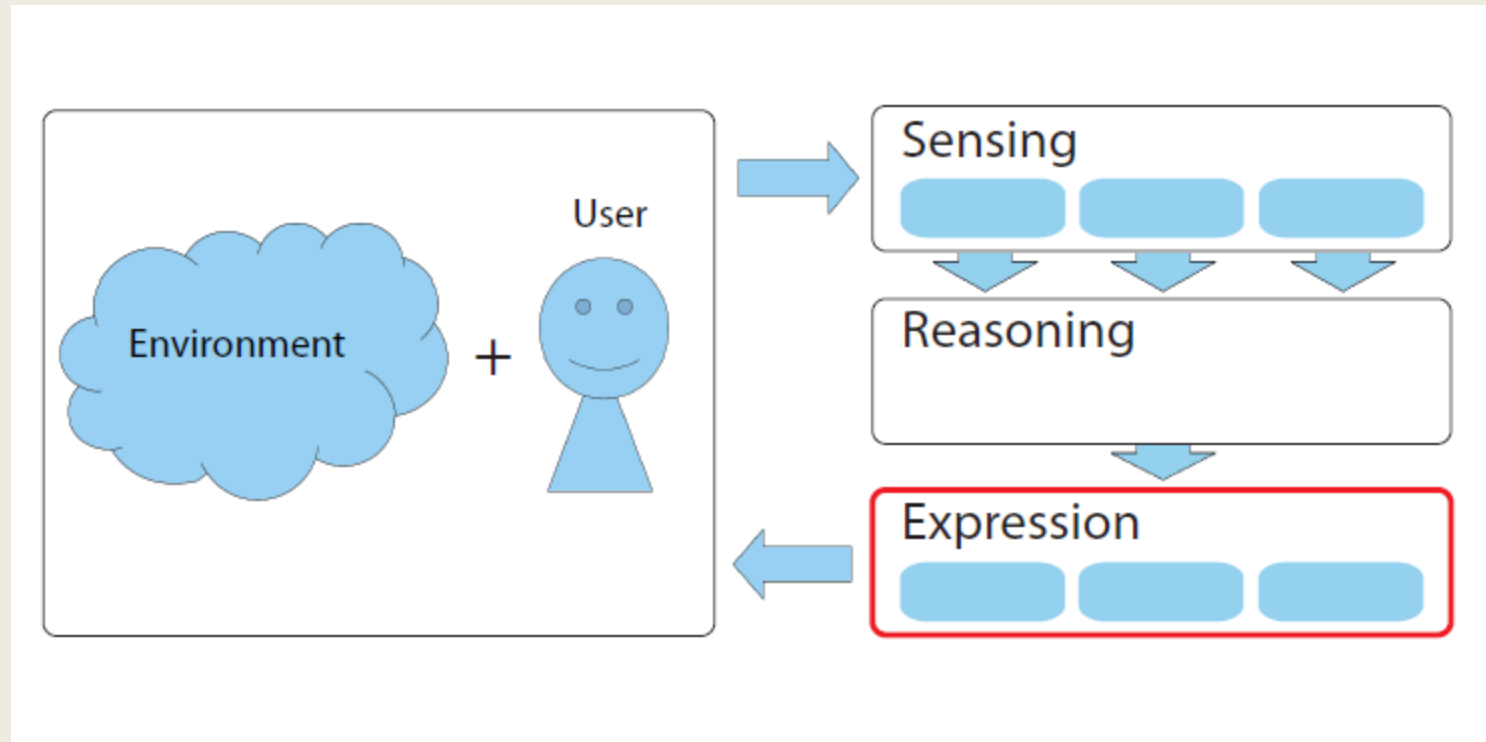
# Intelligent Robotics Laboratory

**Veröffentlichung:** „An Android in the Field” [6]

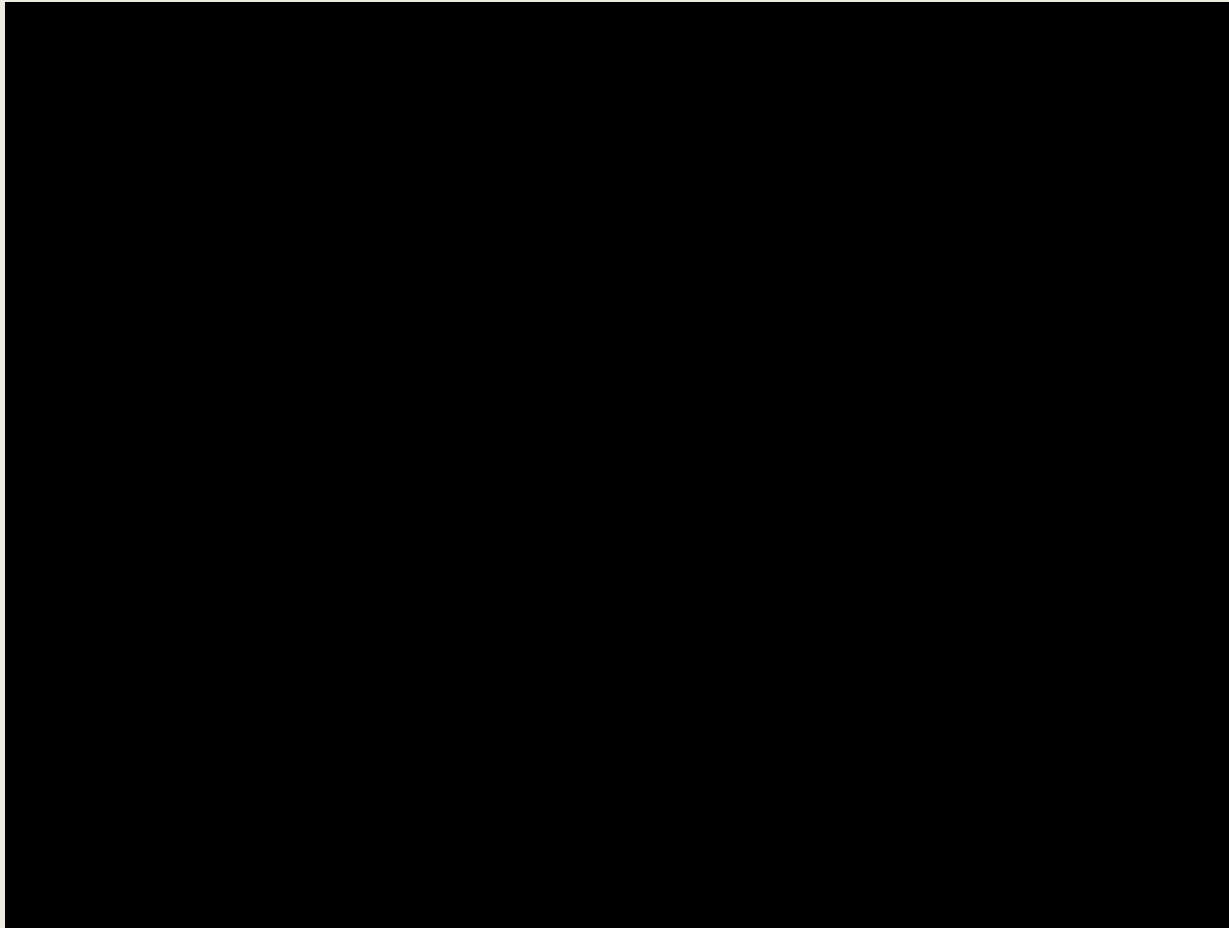


[16,18]

# Aufbau



# Catharina Siemers



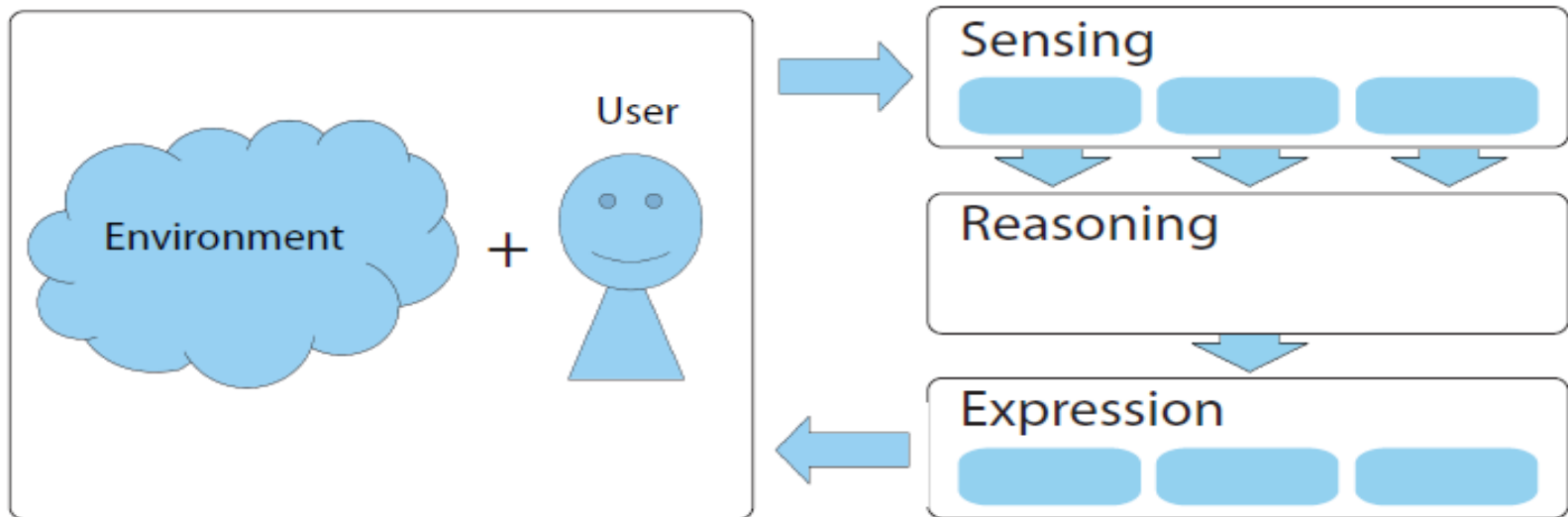
[26]

# Gliederung

- Thema
- Vergleichbare Arbeiten
- Abgrenzung
- Quellen

# Abgrenzung(1)

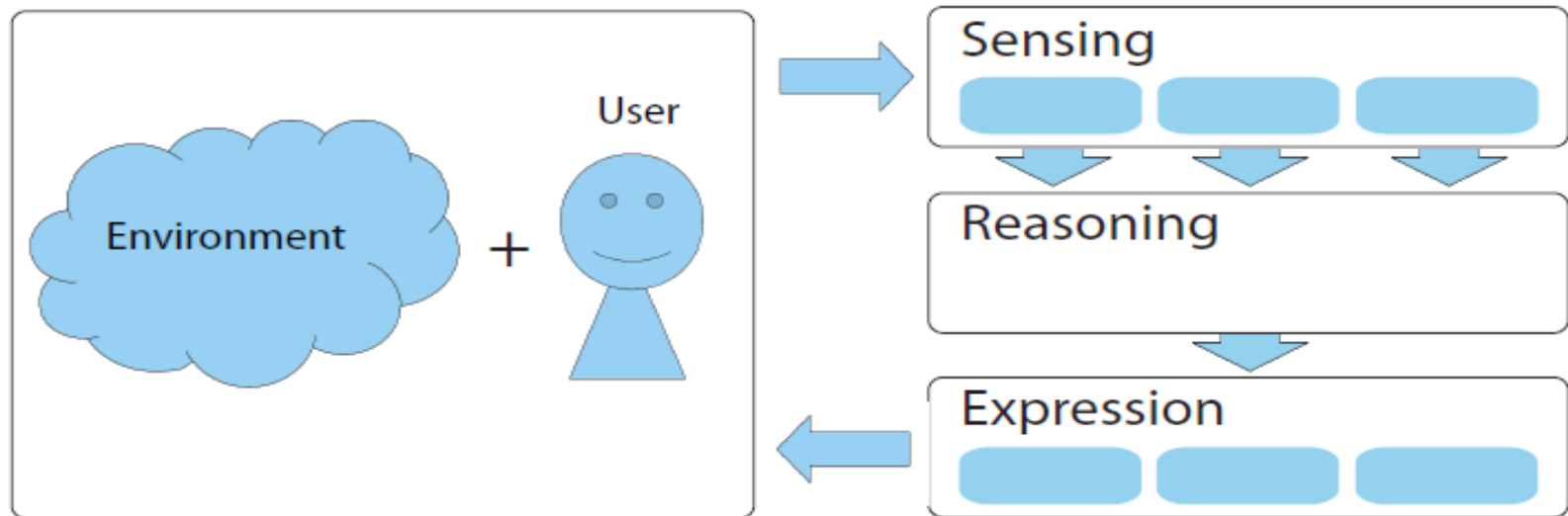
- Fraunhofer:
  - Ambient Assisted Living [5]
  - Kommunikation an die Verwandten[5]
  - Shore Bibliothek [8,9]





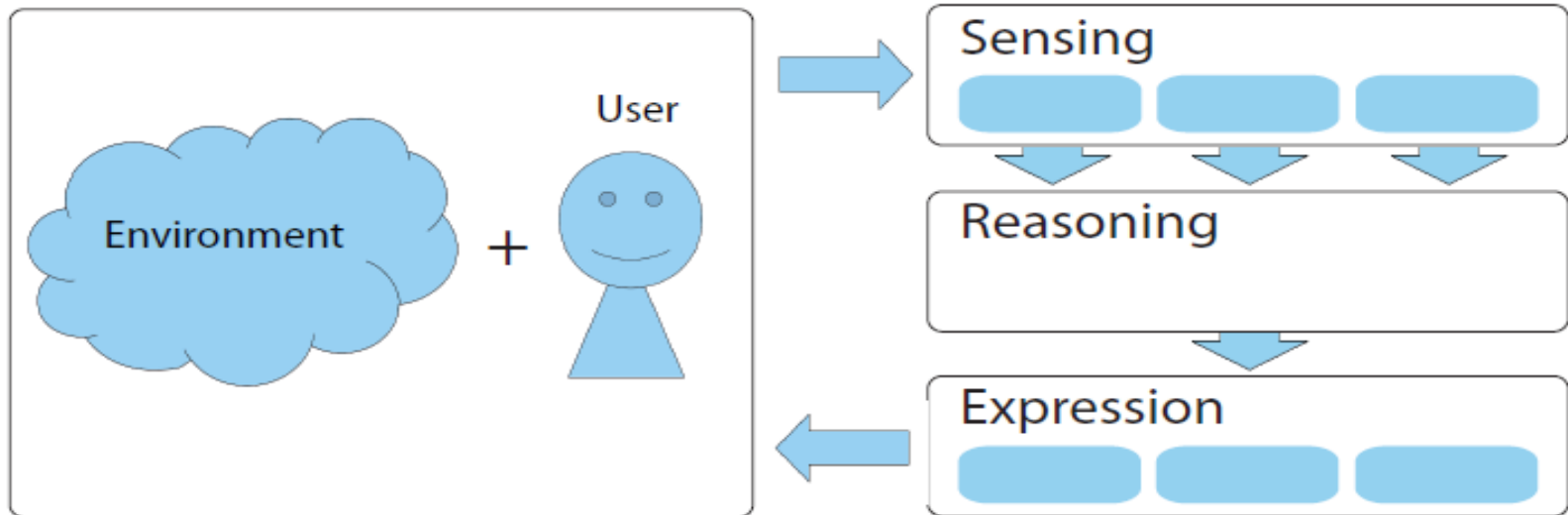
# Abgrenzung(2)

- MIT:
  - Verbesserung der Darstellung [3]
  - Verbesserung der Sensoren [1,7]
  - Analyse der Interpretation [10]



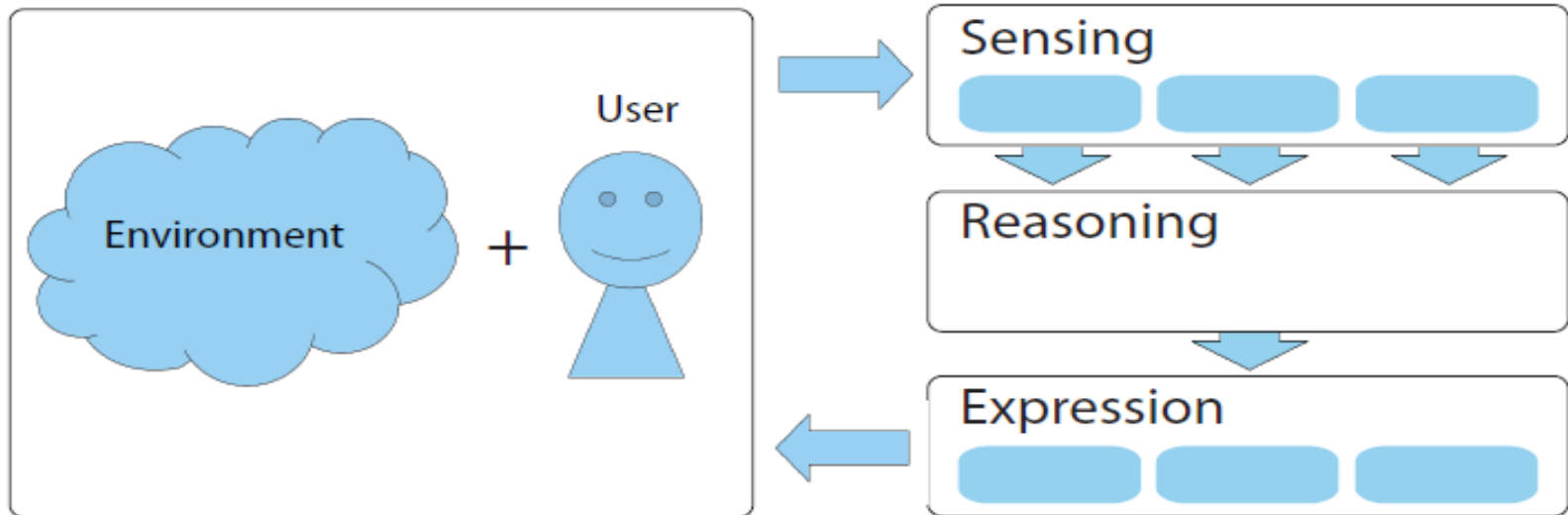
# Abgrenzung(3)

- Hiroshi:
  - Menschliche Roboter [6]



# Abgrenzung(4)

- Hamburg:
  - Komplexere Interaktion/Kommunikation [26]



# Literatur

- [1] R.R. Fletcher, Ming-Zher Poh, and H. Eydgahi. Wearable sensors: Opportunities and challenges for low-cost health care. In Engineering in Medicine and Biology Society (EMBC), 2010 Annual International Conference of the IEEE, pages 1763 –1766, 31 2010-sept. 4 2010.
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- [8] <http://www.iis.fraunhofer.de/en/bf/bv/ks/gpe/index.jsp>
- [9] Christian Kueblbeck and Andreas Ernst: "Face detection and tracking in video sequences using the modified census transformation", Journal on Image and Vision Computing, vol. 24, issue 6, pp. 564-572, 2006, ISSN 0262-8856"
- [10] Mohammed (Ehsan) Hoque and Rosalind W. Picard. Acted vs. natural frustration and delight: Many people smile in natural frustration. In Automatic Face Gesture Recognition and Workshops (FG 2011), 2011 IEEE International Conference on, pages 354 –359, march 2011.

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- [20] <http://www.thesocialmediamarketing.co.uk/wp-content/uploads/2011/03/facebook1.jpg>
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