

# Multimodal Database of Negative Emotion Recovery in Dyadic Interactions: Construction and Analysis

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# Affective dialogue systems

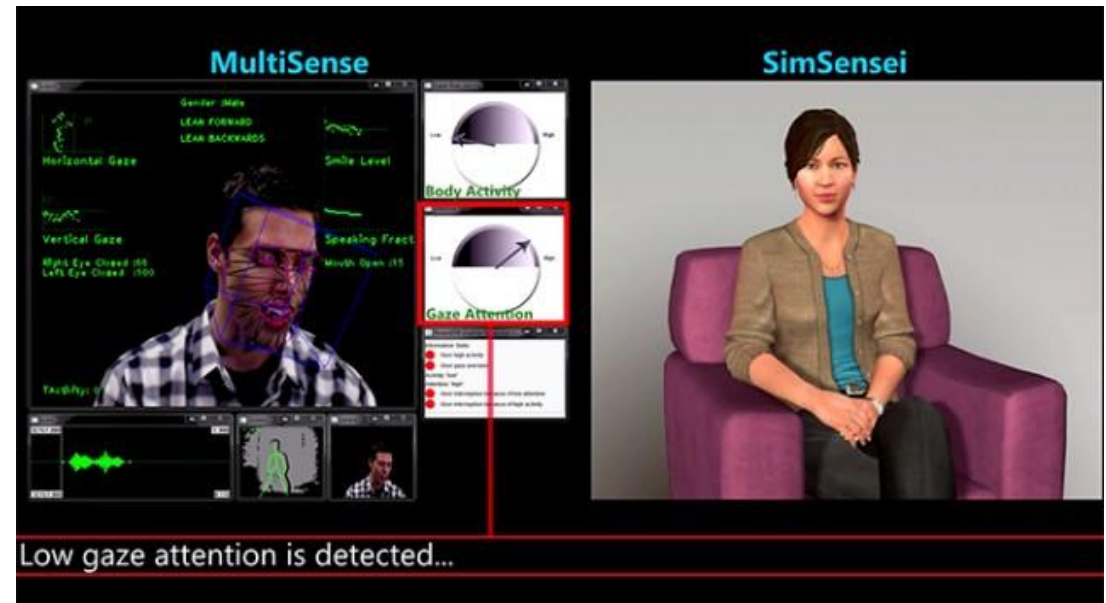
High potential of dialogue systems to address the emotional needs of users

- Increase of dialogue system works and applications in various tasks involving affect
  - Companion for the elderly  
[Miehle et al., 2017]
  - Distress clues assessment  
[DeVault et al., 2014]
  - Affect-sensitive tutoring  
[Forbes-Riley and Litman, 2012]

# Works on emotional problems

- Depression and suicide risk assessment (Cummins et al., 2015)
- Virtual human interviewer for distress clues assessment (DeVault et al., 2014)

Focus on clinical situation, not suitable for common users



Lack of works on negative emotion in everyday situations

# Challenge and proposed solution

Lack of resources that

- highlights emotion problems in everyday situation
- involves an expert in the conversation

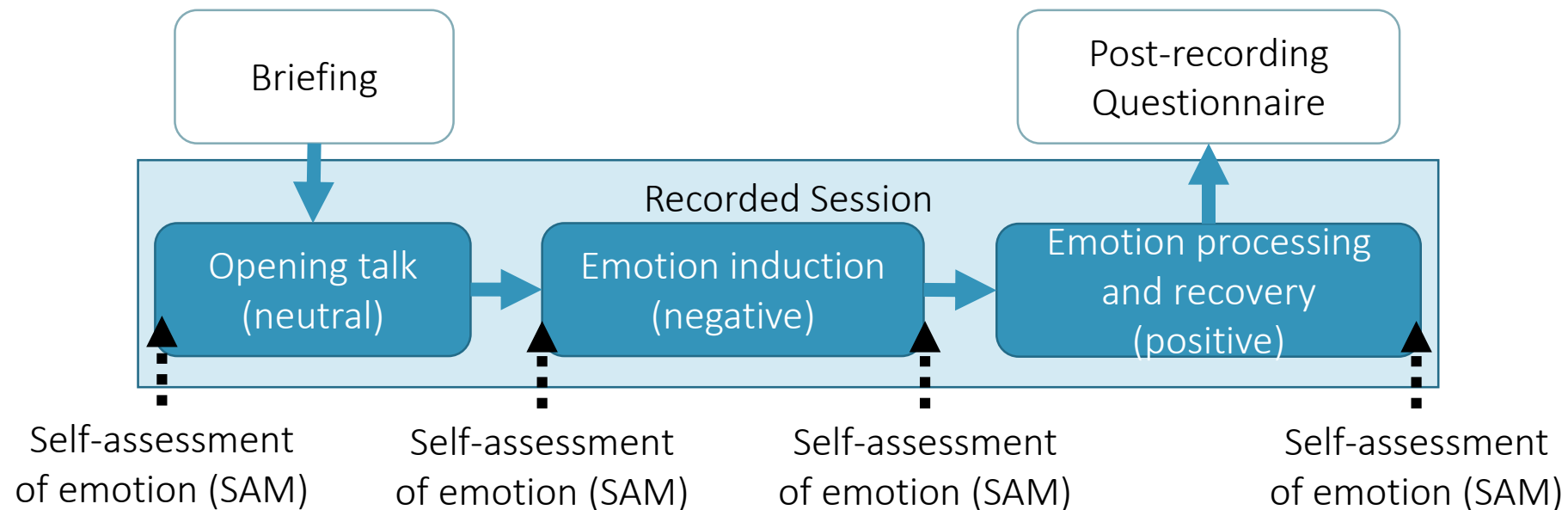
*In this paper*

a multimodal database of dyadic interactions between a professional counselor as an expert and 30 participants

# Database design

# Processing negative emotion through social communication

- Goal: Learning expert dialogue strategy in an affective conversation to recover negative emotion
  - Based on social sharing of emotion [Luminet+, 2000]
- Interaction between an **expert** and a **participant** after a negative emotion inducer
  - Expert guides the conversation to allow participant's emotion recovery



# Emotion Inducer

- Video clips as emotion inducer [Gross+, 1995] [Schaefer+, 2010]
  - Effective and reliable
  - Easy to replicate
  - Less personally involved
- Non-fictional short clips
  - E.g., news report, interview, documentary
  - Avoid unpredictable reactions to fictional clips
- Two target negative emotions: **anger** and **sadness**
  - Each emotion target has 10 inducers

# Dyadic Interlocutors

## Expert

- An external party who helps facilitate the emotional response and processes of the participant
- 1 counselor
  - An accredited member of British Association for Counseling and Psychotherapy
  - > 8 years of experience

## Participant

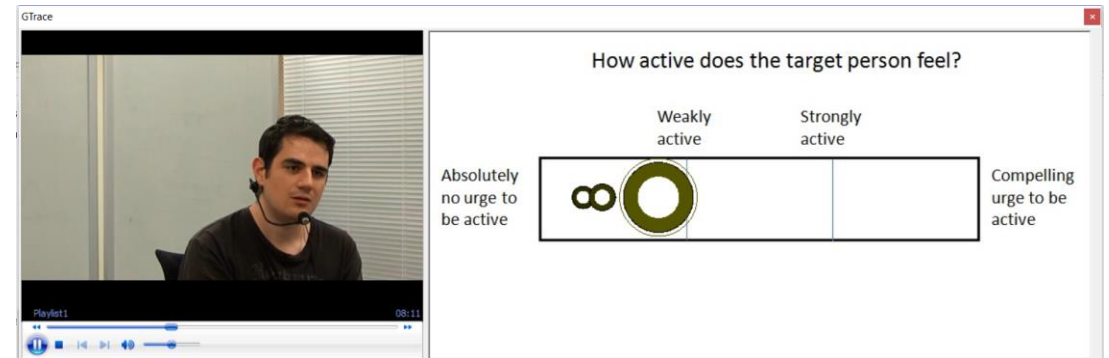
- Reacting to emotion inducer
- Discussing the topic and their reaction with the counselor
- 30 participants
  - 20 males, 10 females
  - Fluent English speakers (L1 or L2)



# Result

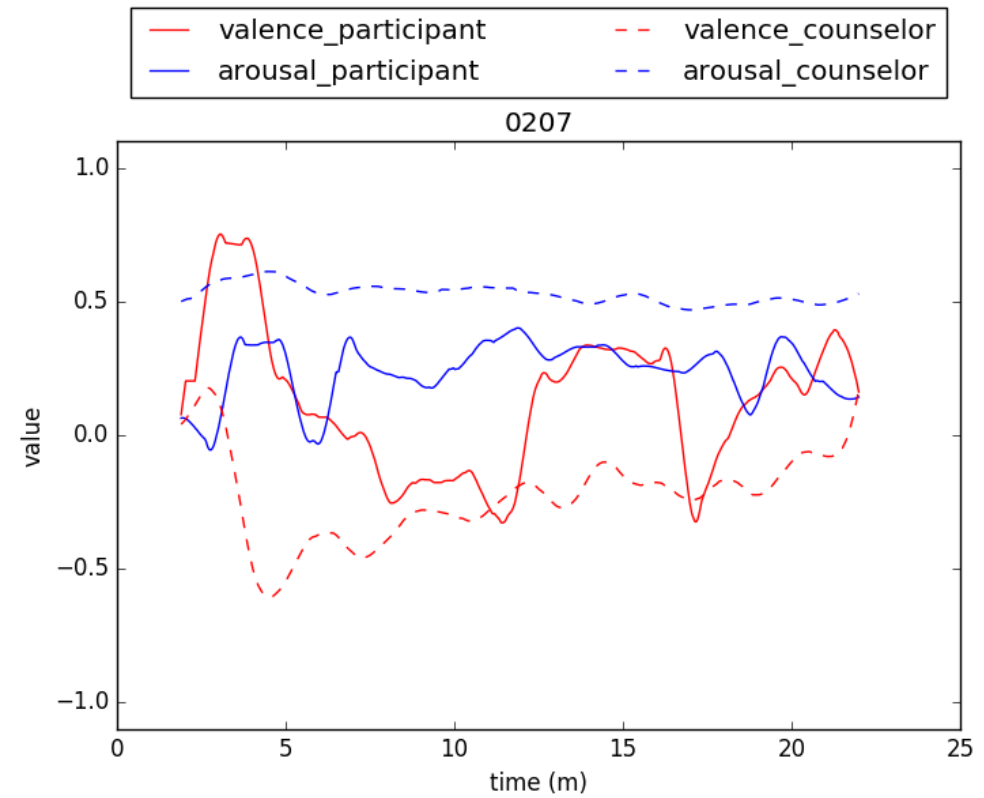
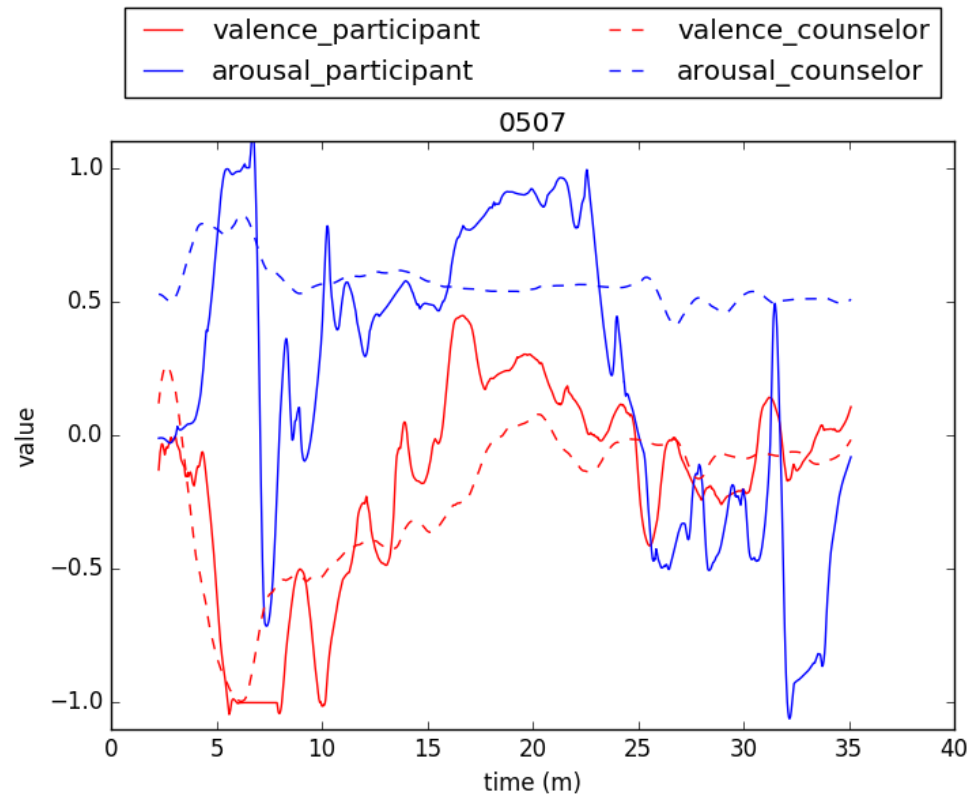
# Constructing the corpus

- 23 hours and 41 minutes of data were collected
- Fully annotated
  - ✓ Self-reported emotion by participant
  - ✓ Perceived emotion by counselor
  - ✓ Transcription
- Emotion annotation: Circumplex model of affect [Russel, 1980]
  - Arousal: level of activity of emotion
  - Valence: positivity-negativity of emotion

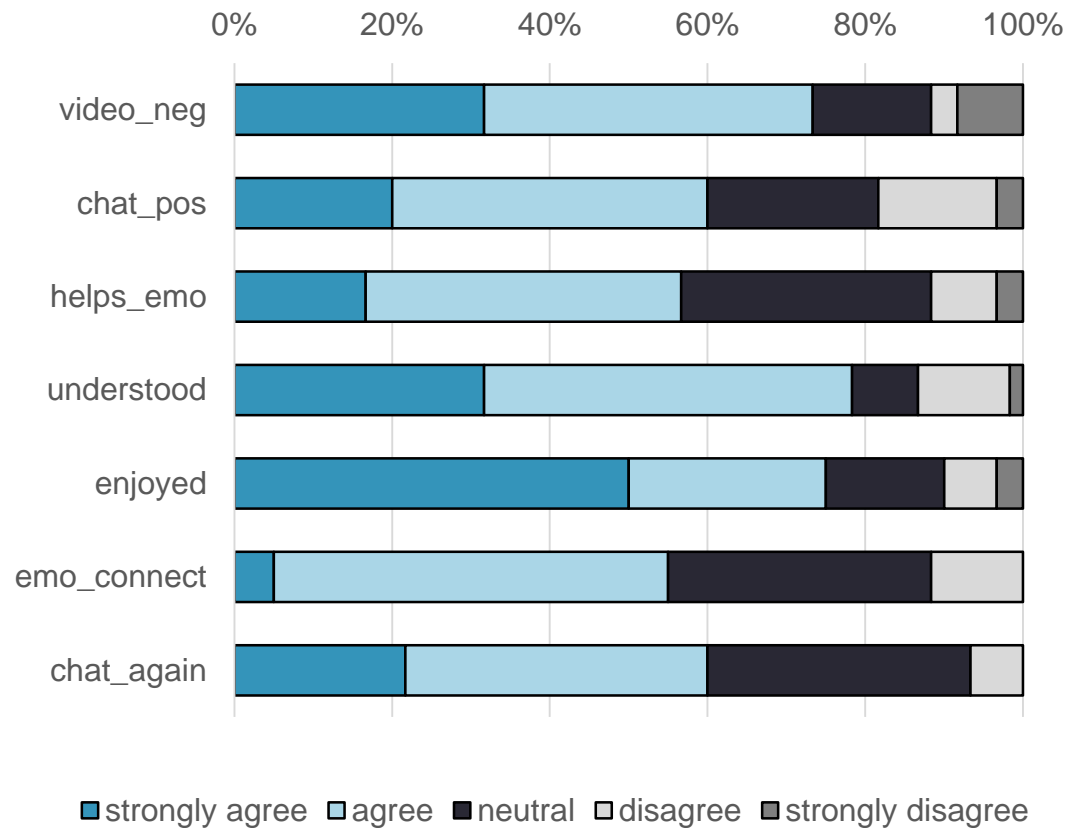


Emotion annotation with Gtrace [Cowie+, 2000]

# Emotion Annotation



# Post-recording questionnaire



- the emotion inducer videos are effective
- the participants reported positive emotional effect of the conversation
- the conversation helps to process emotion
- the conversation is enjoyable
- the participants feel understood
- emotional connection appears to be the most difficult feeling to achieve
  - possibly due to the limited time and lack of continuity of the interaction, and
- in general, the participants would like to interact with the expert again in the future

# Conclusion and future works

# Conclusion and Future Works

- We presented recordings between a professional counselor and 30 participants
- Allowing observation of emotion change and how an expert can guide negative emotion processing
- The corpus amounts to 23 hours and 41 minutes of data
  - Fully annotated
  - Analyzed
- In the future
  - Learn expert strategy explicitly
  - Use expert strategy for positive emotion elicitation in a dialogue system

# Thank you