USE OF FACIAL EXPRESSION RECOGNITION IN MARKET RESEARCH

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BACKGROUND ON FACIAL EXPRESSION RECOGNITION

- Facial Action Coding System (FACS) is a system that can classify human facial expressions. This system was originally developed by a Swedish anatomist named Carl-Herman Hjortøj.
- Action Units (AUs) are an essential component of this system. They describe the actions of individual muscles or groups of muscles.
- Researchers can code nearly any possible facial expression by deconstructing it into specific AUs. Until recently, this coding was done manually by trained researchers. This was time intensive and costly. More recently, software has been developed that can code these expressions.

APPLICATIONS TO MARKET RESEARCH

- Marketers are interested in emotions as they can contribute to purchase decisions by consumers as well as loyalty towards brands.
- Traditional techniques often cannot measure emotions or introduce bias by requiring consumers to think about and respond to questions about their emotions.

STUDY DESIGN

- We tested FACET Vision and Facet 2.1 SDK to identify emotional responses of participants by performing frame-by-frame analysis of videos.
  - Emotions that can be encoded include: anger, contempt, disgust, fear, happy, sad, and surprised as well as neutral.
  - The twenty-eight AUs that can be encoded include: Inner Brow Raiser, Outer Brow Raiser, Dimpler, Lip Puck, Lips Part, and Jaw Drop.
- We primarily use FACET Vision and Facet 2.1 SDK to identify emotional responses of participants by performing frame-by-frame analysis of videos.
- Video clip databases to validate emotion encoding accuracy with more natural expressions recorded on video:
  • FEED Database
  • Lab participants while they responded to emotion evoking photos:
  • We used the International Affective Picture System (IAPS), a standardized database of photos designed to evoke a range of emotions. Color photos range from everyday objects like a fan to extreme encounters like someone vomiting.

PRELIMINARY RESULTS

- Analyses of FEED videos and reactions to the IAPS photos are currently underway in our lab.

WORKING CONCLUSIONS

- The software can accurately identify emotions in standardized photos datasets such as the Ekman the Radboud Faces databases.
- Accuracy of valence (positive vs. negative) is very high.

SELECTED COMPANIES ADOPTING FACIAL ENCODING

- Coca-Cola and Unilever use facial expression recognition to test advertising effectiveness. Millward Brown uses Affdex software to perform these tests.
- Xbox One and PlayStation have cameras that allow facial recognition.

CURRENT STUDIES

- We are currently running experiments on Super Bowl commercials and movie trailers using:
  1. Traditional measures like: self-reported liking, recall, purchase intent, expert ratings.
  2. Physiological measures like: facial expression recognition, heart rate, heart rate variability, eye tracking.
  3. Other measures like: frequency and valence of social media.
- We hypothesize movie success can be predicted by physiological responses to movie trailers.
- We further hypothesize that impact of commercials can be measured with physiological responses.

REFERENCES


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