

Recognizing Emotions Through Audio Analytics

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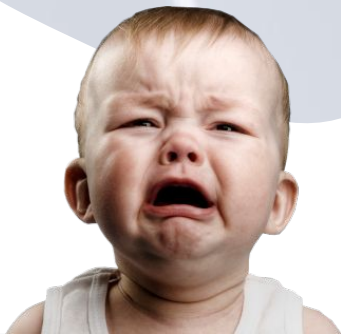
Introduction



- Introduced overall around 1970s with facial recognition, moved to voice in 2000s
- Artificial machine replication & machine emotional comprehension
- Use of **primary** and **secondary inputs** to evaluate emotions – ML, DNN
- Extract **acoustic** or **linguistic** features from acquired data
 - Determine relationships between particular features and emotional states
- **SIGNIFICANT:** In order for a machine to respond to emotions, it needs to understand emotions!

Research of emotion recognition in speech has potential for development in socio-technical models to improve the relationship between machines and users.

Applications



- Data pulled from movie databases, actors reading same text in different tone modulations
- **USE CASES**
 - Baby voice analysis - cry identification
 - Detection of abnormal driver behaviours from a dataset of driver recordings
 - Anger recognition to improve user satisfaction in call centers
 - Distinguish deceptive speech from truthful speech, investigative help
 - Potential for therapy, hotlines, counseling!

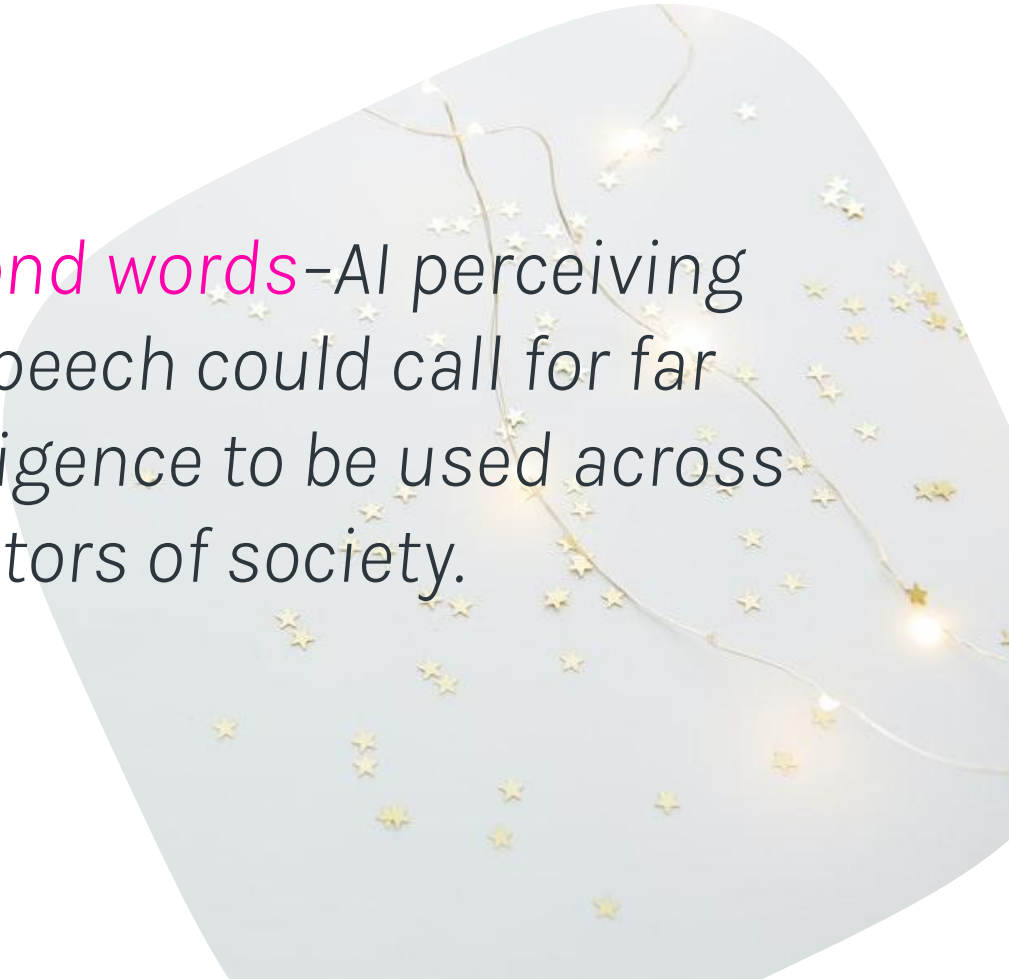
Challenge

- Ethical Concerns - boundaries between experience emotion states, evaluative signals from social cues, and intrinsic motivation are not **clear-cut**.
- Emotional AI (**EAI**) could make assumptions, push stereotypes about emotional responses about a person or a group
 - Not always predict a future outcome with greatest accuracy

Rebuttal

- Machine recognition of emotions could be significant to the advancement of socio-technical systems in research
- DAILY USE CASE: data revealing intentions at deeper level, team management environmental harmony
- Tracking emotional states and behaviors of different social groups-revealing drawbacks and obstacles in communities previously unseen





Language goes beyond words – AI perceiving emotion through speech could call for far more advanced intelligence to be used across various sectors of society.



Thank you.

References

- https://link.springer.com/chapter/10.1007/978-981-19-2211-4_25
- https://link.springer.com/chapter/10.1007/978-981-19-2211-4_25
- [https://www.frontiersin.org/articles/10.3389/fcomp.2020.00014/full#:~:text=Speech%20Emotion%20Recognition%20\(SER\)%20is,irrespective%20of%20the%20semantic%20contents.](https://www.frontiersin.org/articles/10.3389/fcomp.2020.00014/full#:~:text=Speech%20Emotion%20Recognition%20(SER)%20is,irrespective%20of%20the%20semantic%20contents.)
- <https://arxiv.org/ftp/arxiv/papers/1506/1506.06832.pdf>
- https://www.researchgate.net/publication/303824219_Techniques_and_Applications_of_Emotion_Recognition_in_Speech
- <https://montrealethics.ai/the-ethics-of-emotion-in-ai-systems-research-summary/>