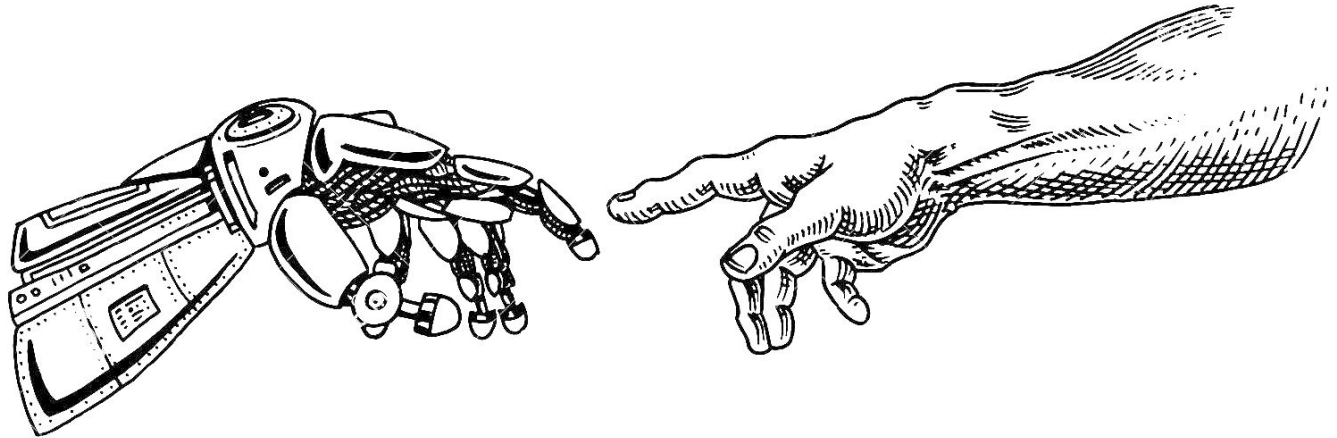# Affective Streaming

Classifying Facial Emotion with Real Time Image Processing


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Metis 2019

A historical turning point

- Machine learning applications are everywhere
- Human-machine interaction is increasing in daily life
- Decisions today shape tomorrow
- Human-centered design through incorporating emotion

Emotional creatures

- Emotion is central to humanity.
- Emotion leads to meaning, subjectivity, art, love, and beauty.
- Facial emotion is foundational to communication.
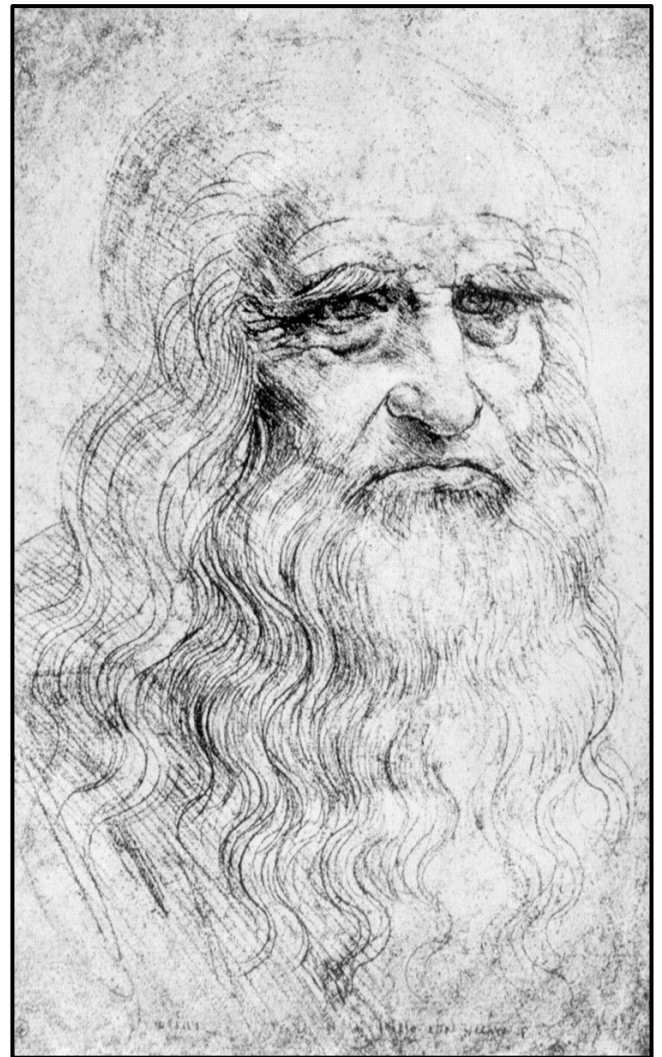
Emotional Intelligence

- Applications of emotional perception in machines:
  - Vehicle operator safety
  - Patient monitoring
  - Improved focus group results
  - Mental health intervention

- Dangers to avoid:
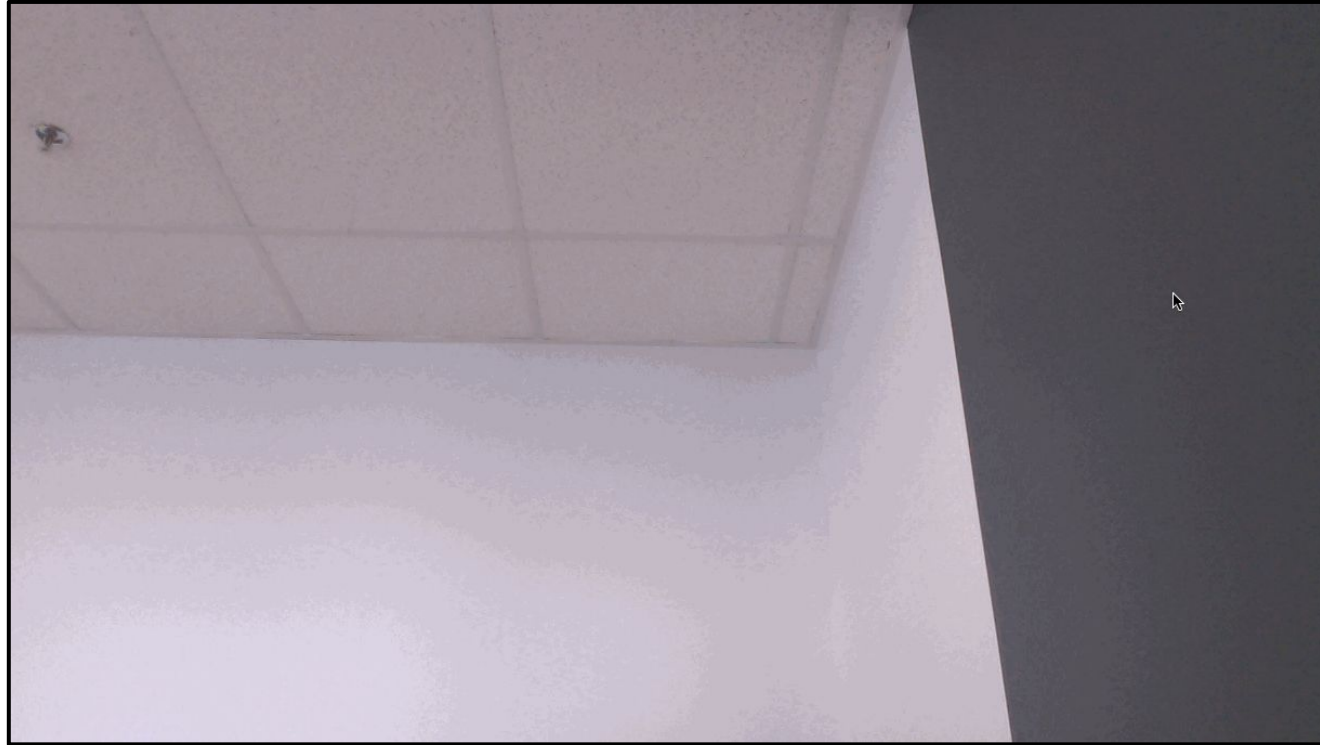 - Attention economy pitfalls
  - Manipulation
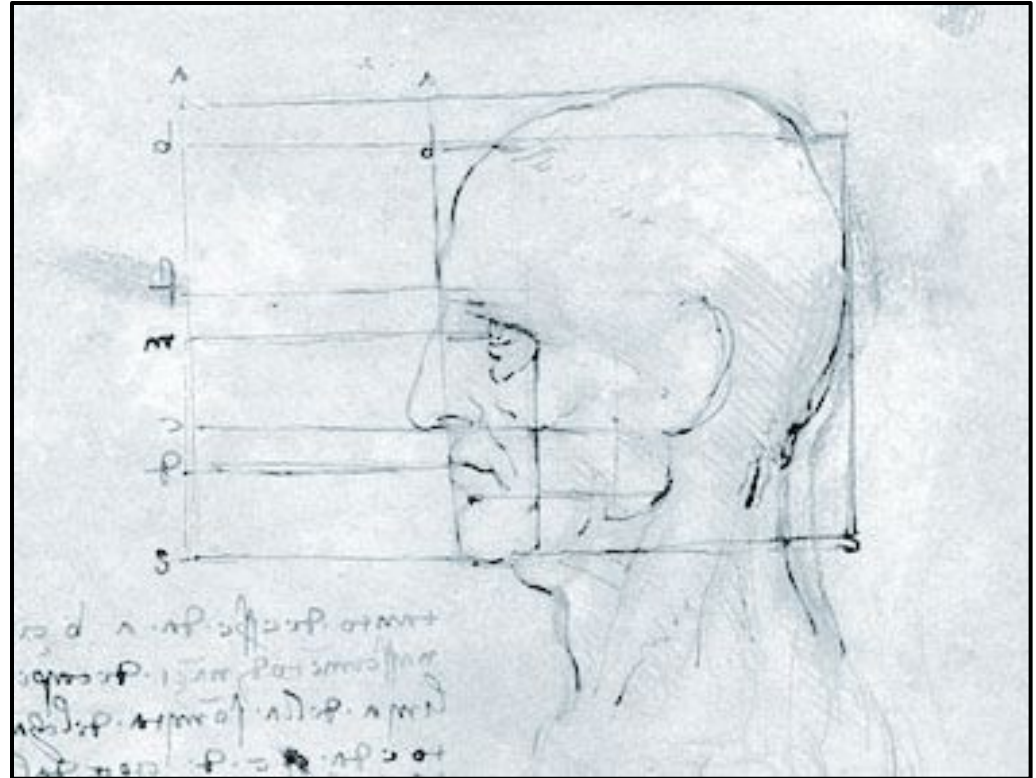
Training machines to feel

- *First pass:* Find faces in labeled images
- Feed face images into deep learning neural network.

Training machines to feel

- *Second pass:* Find **facial landmarks** and feed into support-vector classification algorithm.
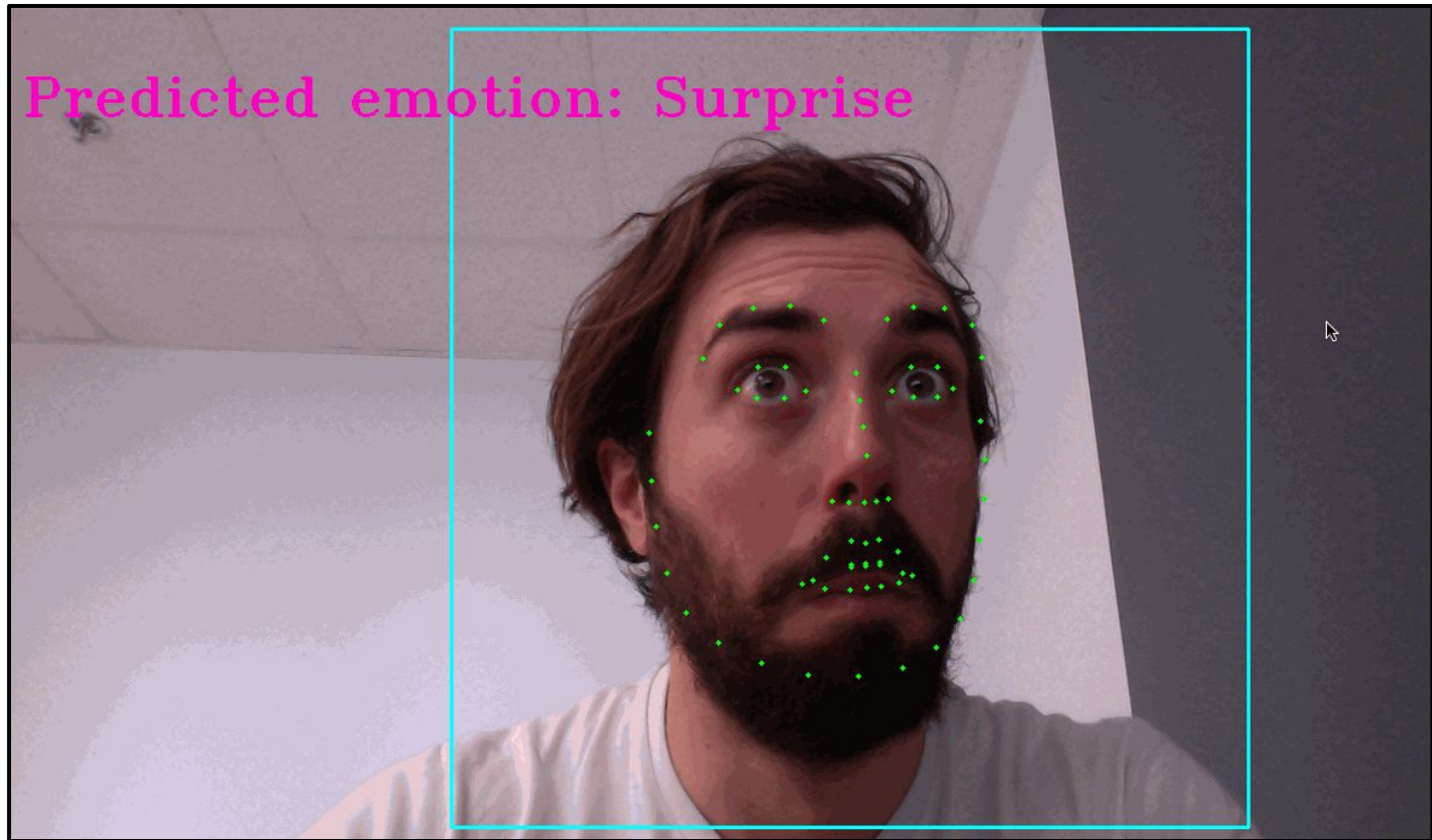- More reliable, simple, and lightweight.

Training machines to feel

- **82% accuracy** classifying:
    - Anger
    - Disgust
    - Fear
    - Happiness
    - Neutral
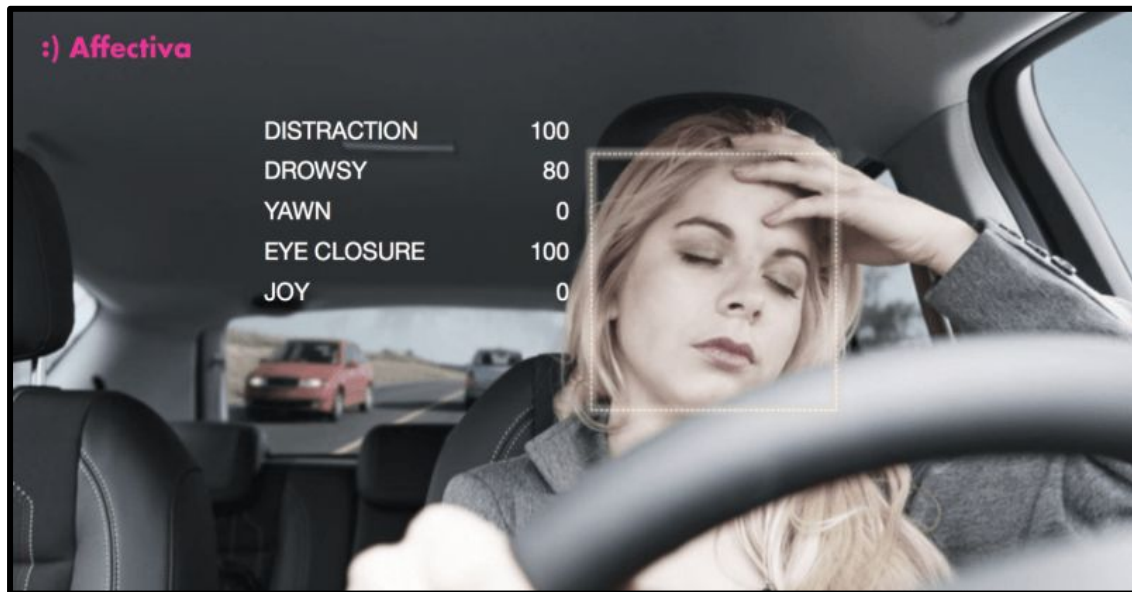   - Surprise

Predicted emotion: Happy

Real time predictions

Future work

- Improve model accuracy and use with more diverse data

- Combine this with my emotional speech audio classifier

- Experiment with other face-based features

Thank you

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Image sources

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