



# Designing a computation tool for recoloring drawings based on user emotions

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# Motivation

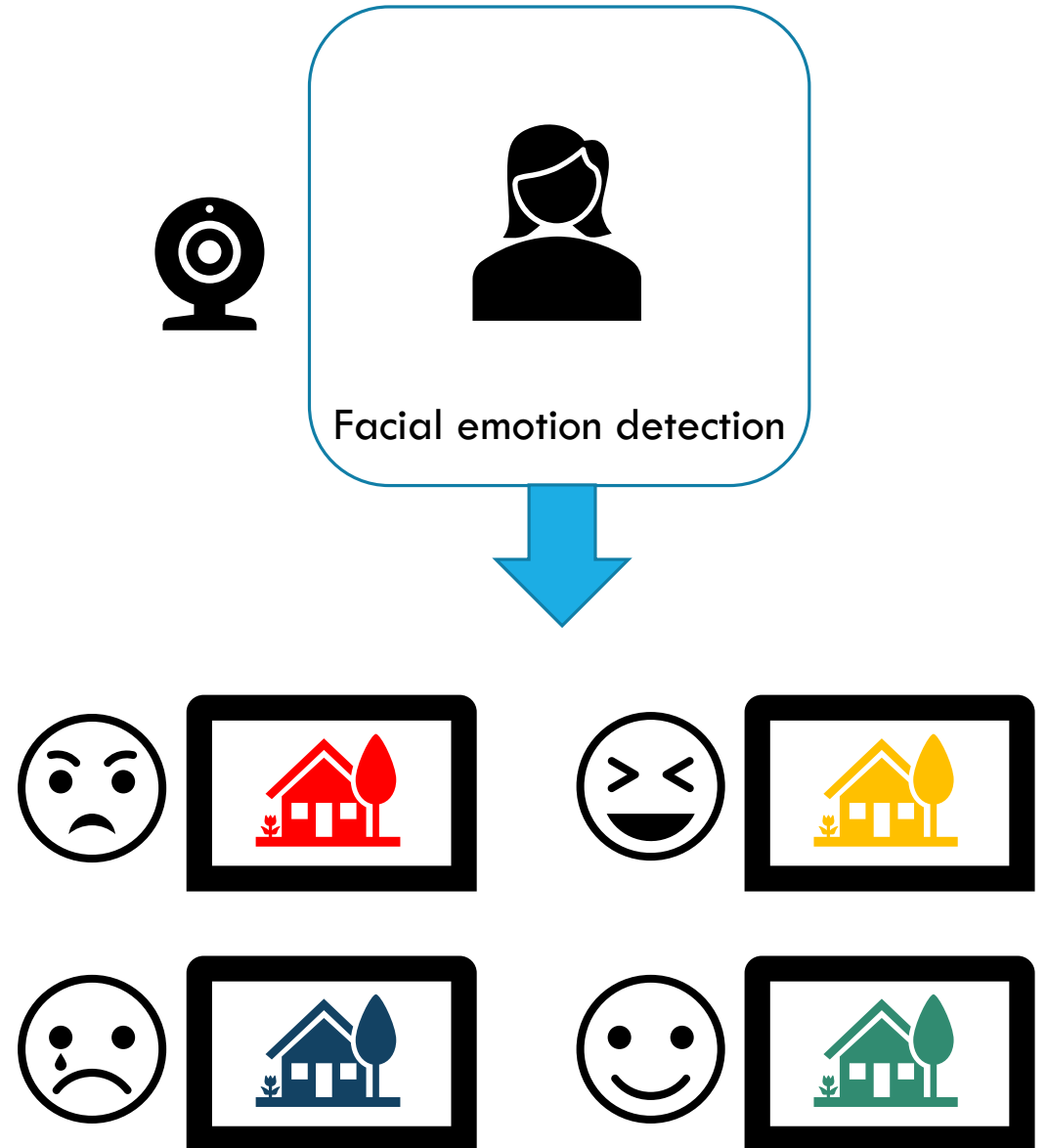
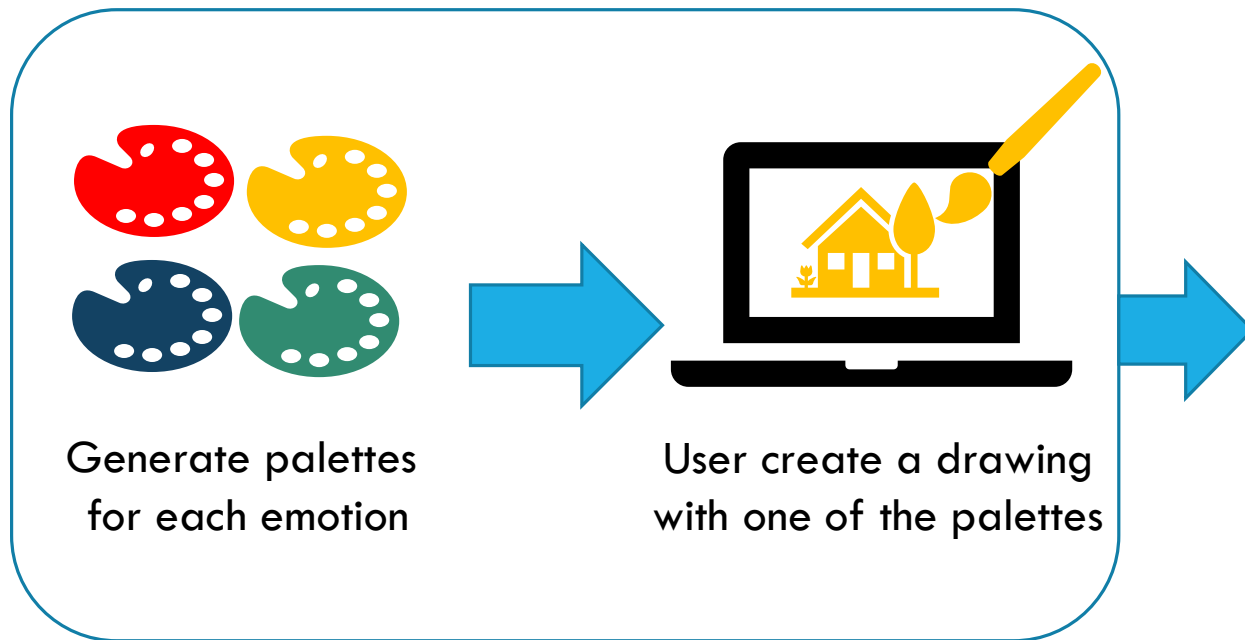
Color provokes a psychic vibration. Color hides a power still unknown but real, which acts on every part of the human body.

- Wassily Kandinsky



Yellow-Red-Blue by Kandinsky

# Concept



# Emotion Detection

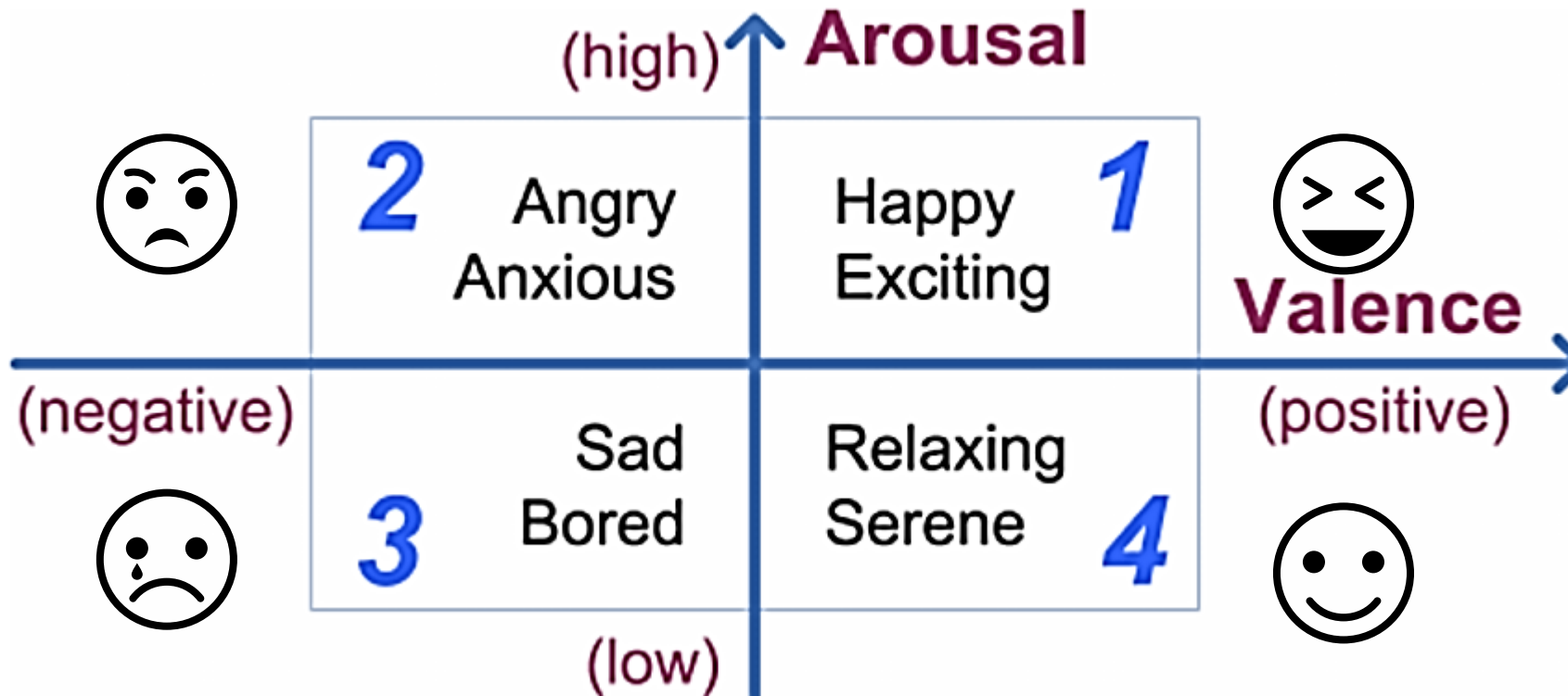


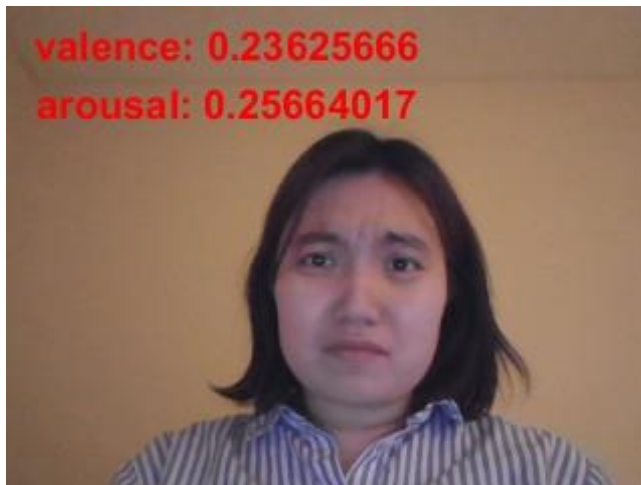
Figure from Yang et al.'s paper,  
*Pacific-Rim Conference on Multimedia*  
(2008)

# The Aff-Wild Database

- Contains about 300 videos annotated for valence and arousal.
- All captured 'in-the-wild' (the main source being Youtube videos).
- Provided the pre-trained models on the Aff-Wild.



# Experiment

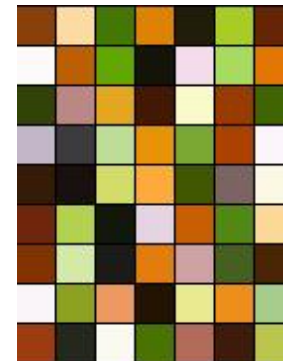
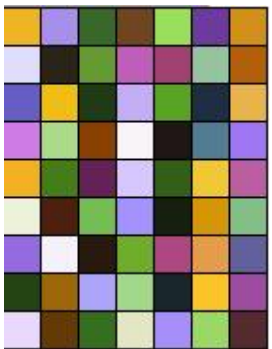
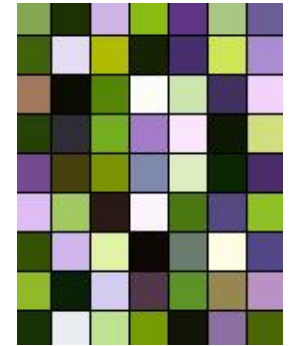
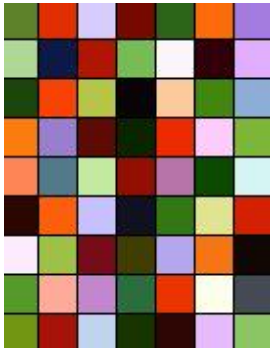


# Palette selection

- Used Chang et al.'s automatic color palette selection implemented by Hideki Todo.
- A variant of the k-means algorithm, which selects a set of  $k$  colors that distill the main color groups in the image.



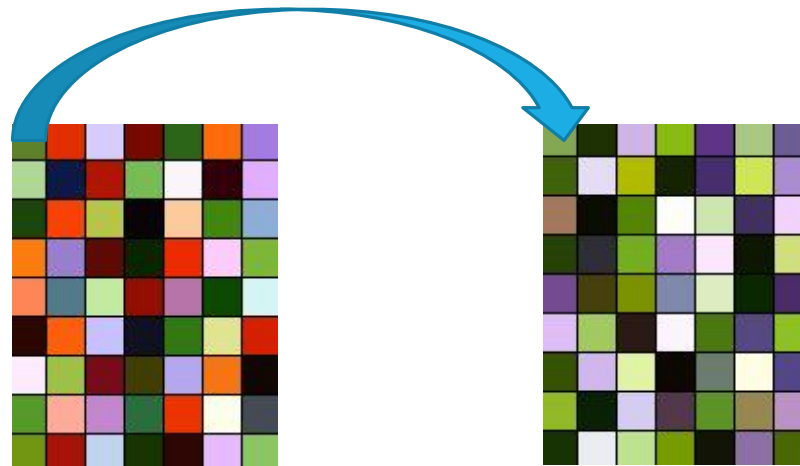
# Palette selection





# Recoloring

- Saved strokes with the index of the color chosen from original palette.
- Mapped the original colors of the saved strokes to the corresponding colors at the same position in a new palette.



# Demo



<https://www.youtube.com/watch?v=7eih59ZPE4o>

# Future Work

- Automatic calibration to adjust arousal and valence thresholds.
- Explore emotion detection methods.
- Recolor only the objects that user has designated.
- Mapping colors considering semantic meanings.





**Thank you.**