Designing a computation tool for recoloring drawings based on user emotions
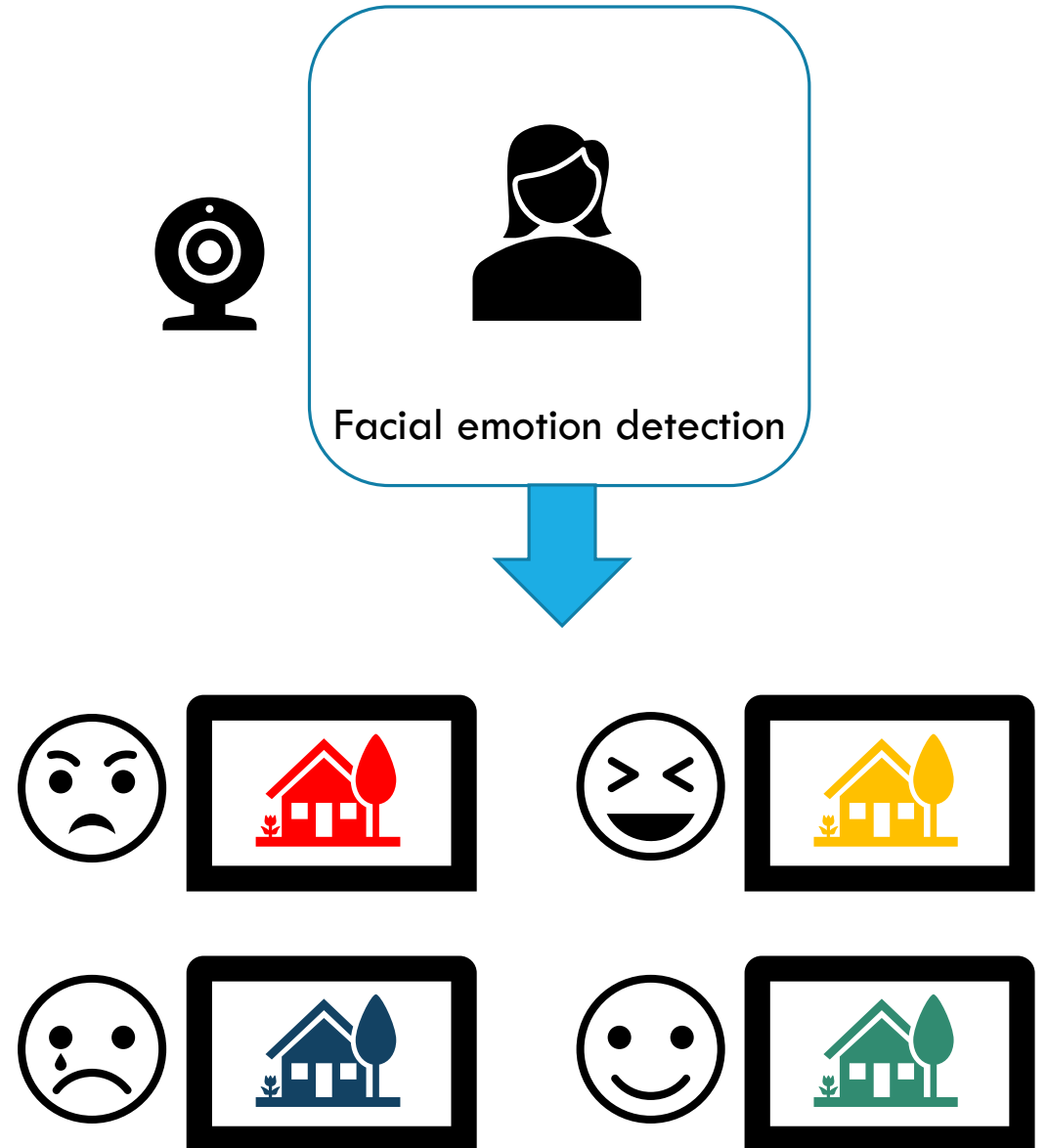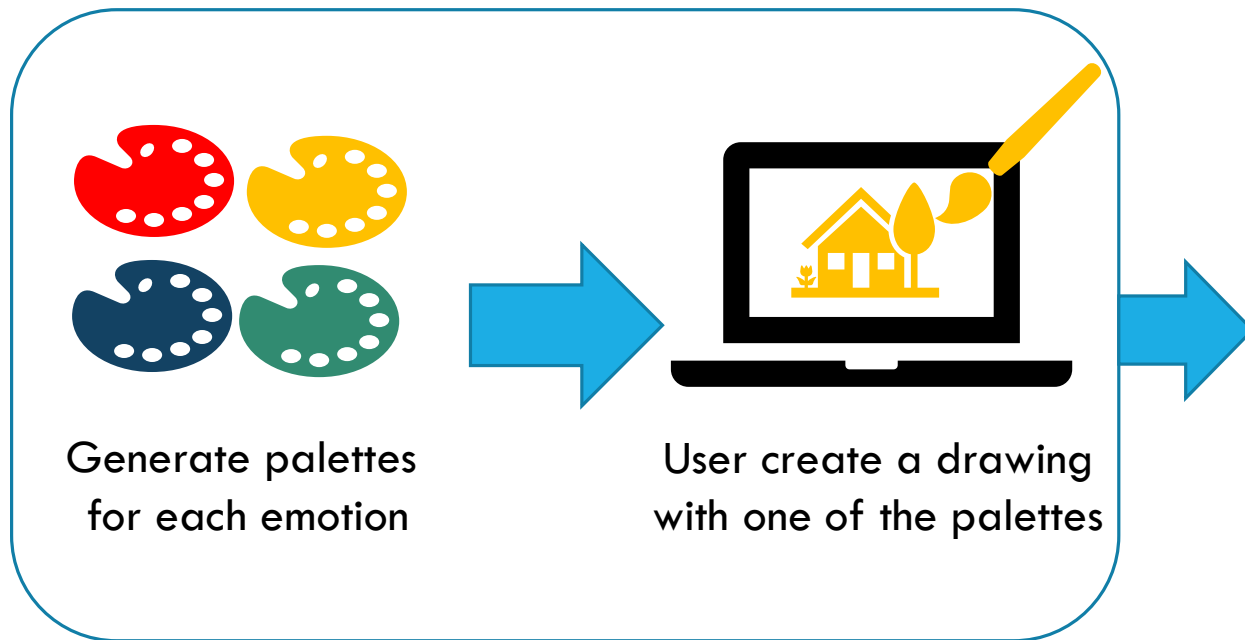
Jungah Son

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

Facial emotion detection

Generate palettes for each emotion

User create a drawing with one of the palettes
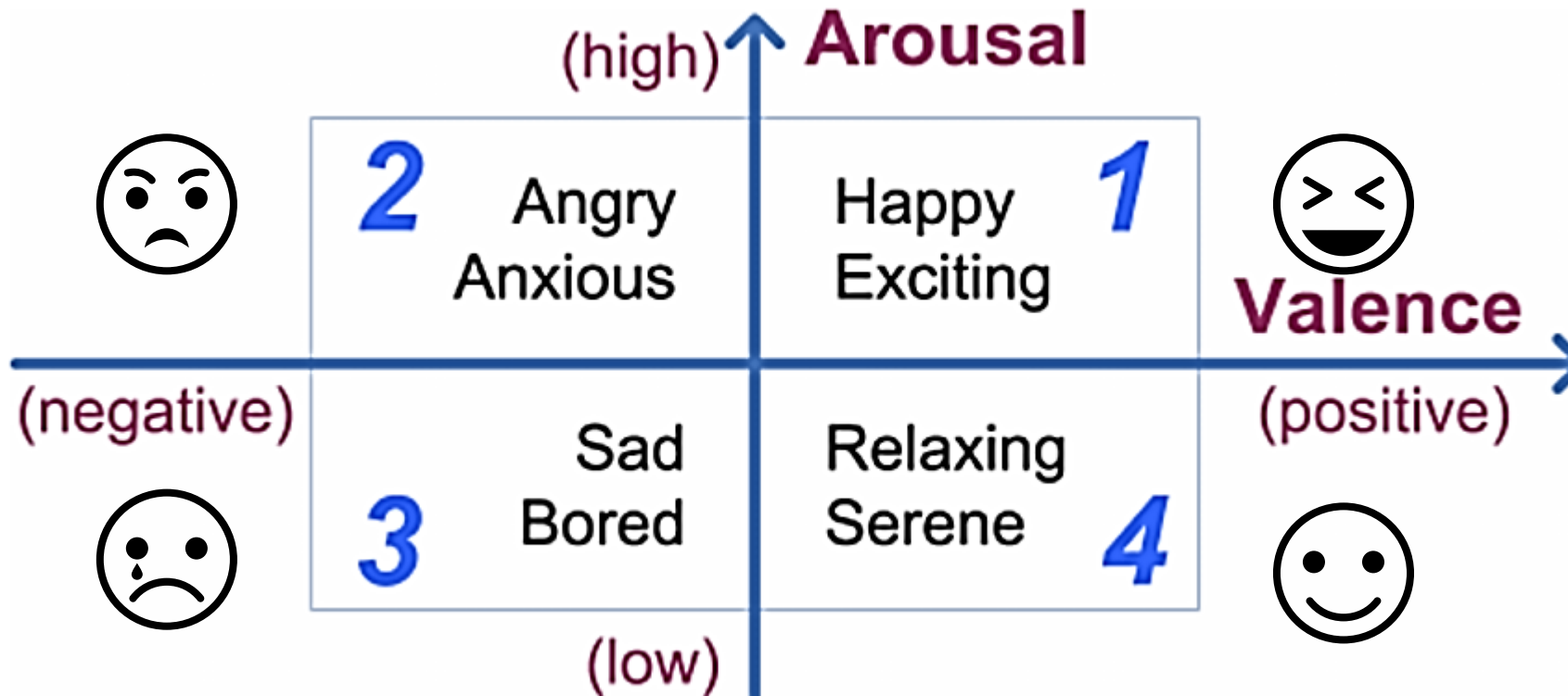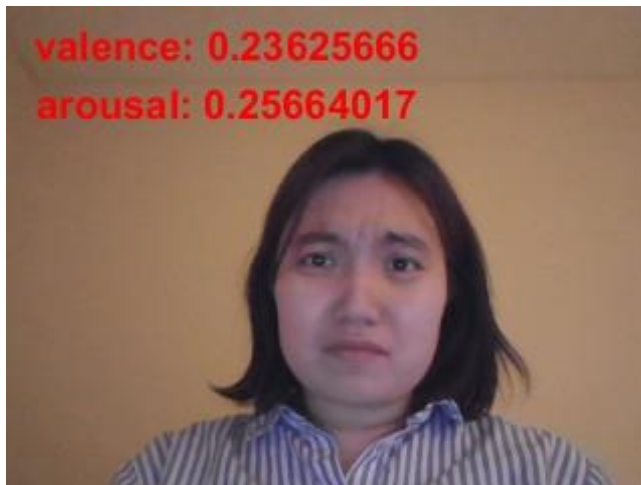
Emotion Detection

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).

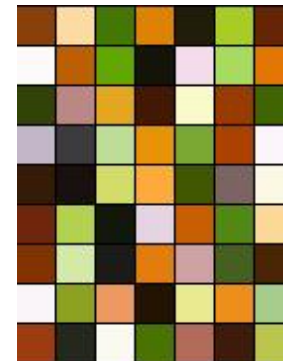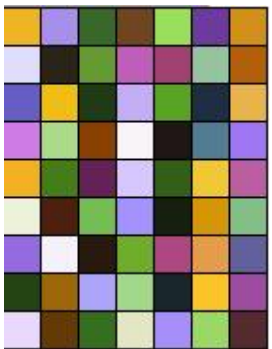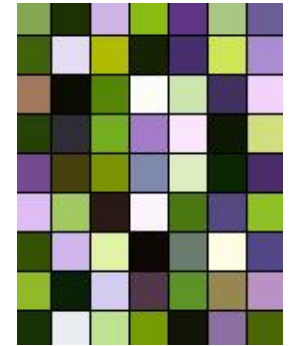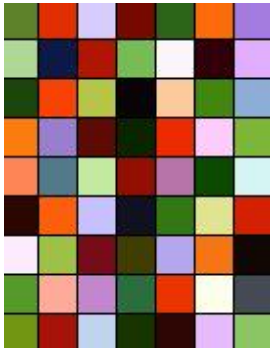- Provided the pre-trained models on the Aff-Wild.

Kollias et al., *CVPRW* (2017)

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.

Chang et al., *ACM Trans. Graph.* (2015)

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

EMOTIONTYPE

DONE
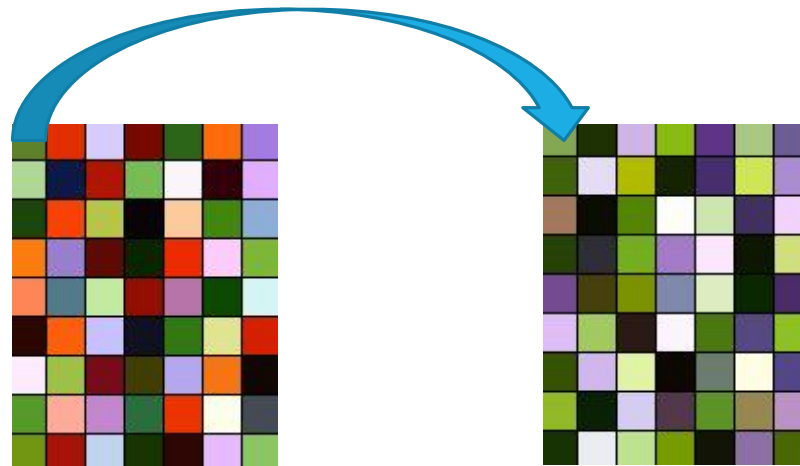
Future Work

- 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.