Supplementary Material: A Personalized Affective Memory Model for Improving Emotion Recognition

Pablo Barros [1]   German I. Parisi [1 2]   Stefan Wermter [1]

1. Personalized Recognition (P): Supplementary Results

The main parameter to be optimized in our P category experiments was the maximum number of frames that we would use the PK generated images during the affective memory training. Table 1 illustrates the summary of the final results, in terms of Concordance Correlation Coefficient (CCC), when experimenting with different maximum frames over the entire OMG-Emotion test set. The optimal value, which we choose in our final experiments, was set to be 1 second.

Table 1. Arousal and valence Concordance Correlation Coefficient (CCC) regarding the maximum duration (in frames and seconds) in which the PK image generation was turned off during the affective memory training.

Frames (Seconds)	Arousal	Valence
1 (0.04)	0.28	0.36
5 (0.25)	0.34	0.40
12 (0.5)	0.38	0.47
25 (1)	0.43	0.53
37 (1.5)	0.40	0.48
50 (2)	0.41	0.46
62 (2.5)	0.39	0.45
87 (3.5)	0.37	0.44
100 (4)	0.36	0.43
112 (4.5)	0.37	0.42
125 (5)	0.37	0.44
250 (10)	0.36	0.42
500 (20)	0.37	0.43
750 (30)	0.36	0.43
all frames	0.37	0.42

2. Examples of Generated Faces

Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 illustrate different examples of edited faces by the PK. We observe that the model imposes the desired facial characteristics on the person's face, but maintain the general facial structure. The examples we illustrate here demonstrate the capability of the PK to impose expressions on very different faces. The original images were collected from both AffectNet and OMG-Emotion datasets.
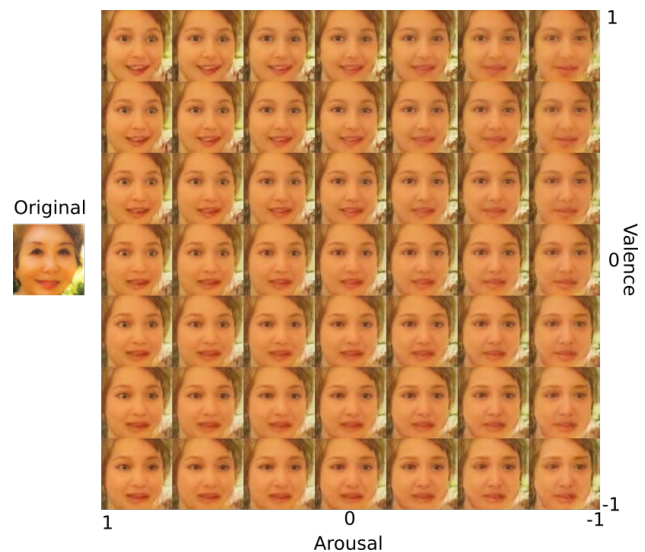

Figure 1.

*Equal contribution [1]Knowledge Technology, Department of Informatics, University of Hamburg, Germany [2]Apprente Inc, Montain View, CA, USA. Correspondence to: Pablo Barros <barros@informatik.uni-hamburg.de>.
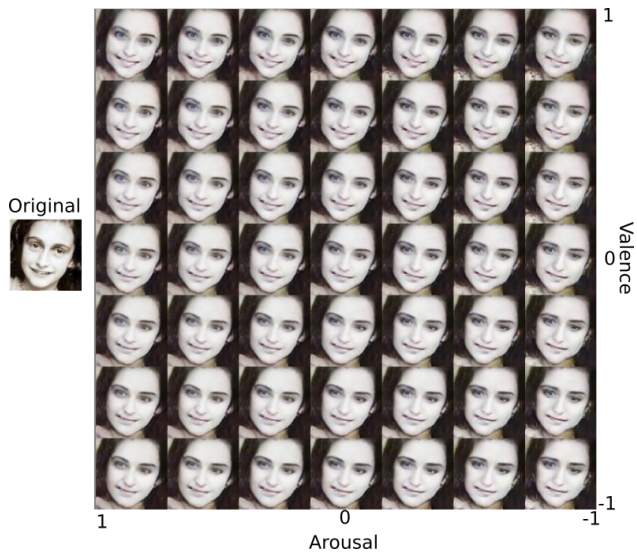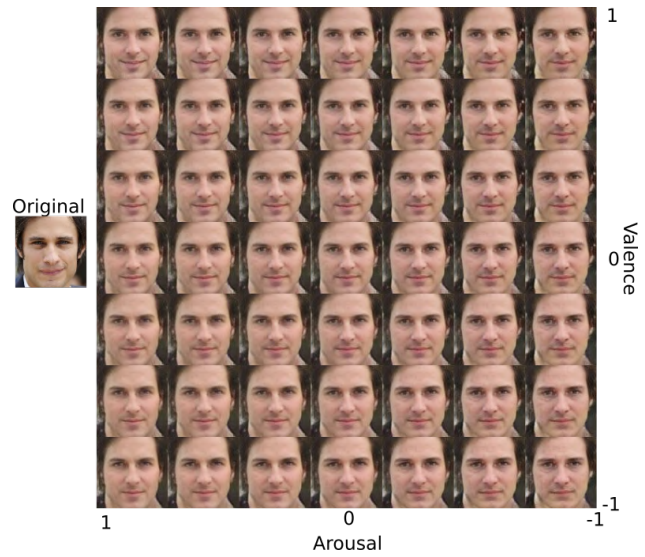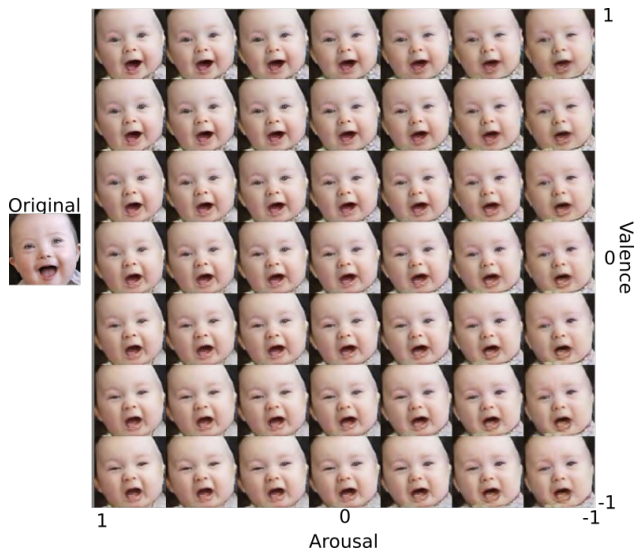
Figure 2.

Figure 4.
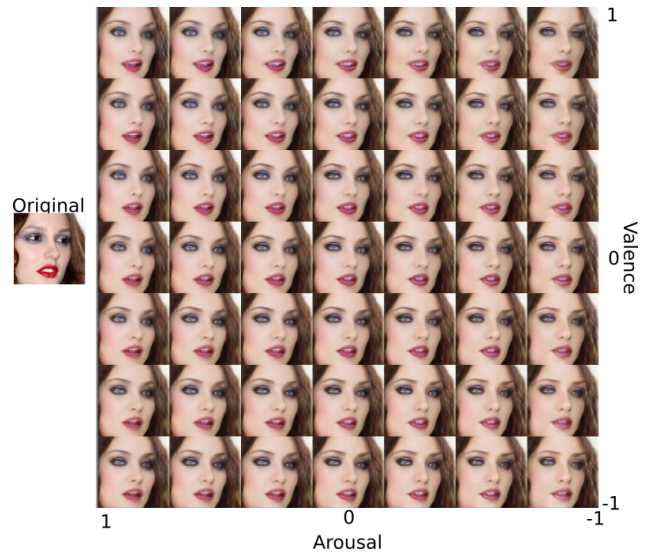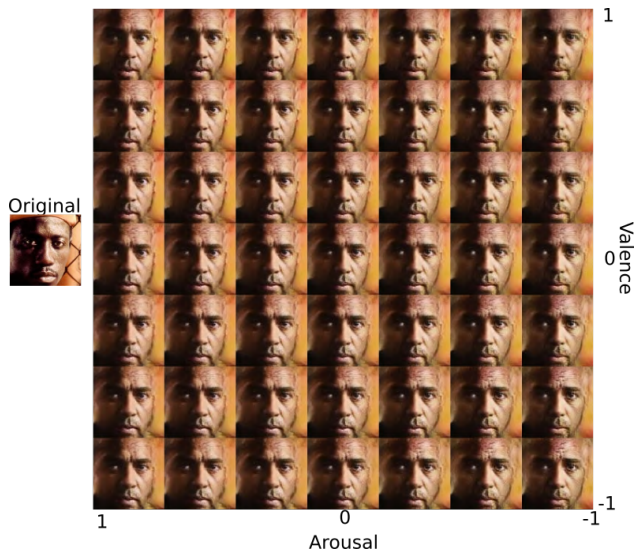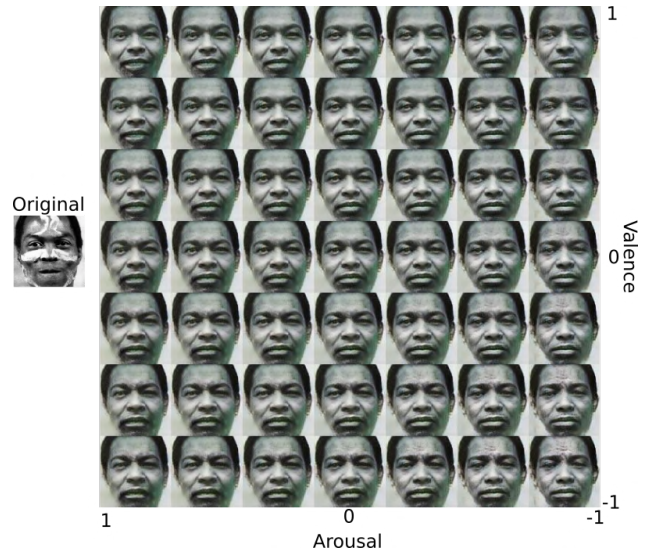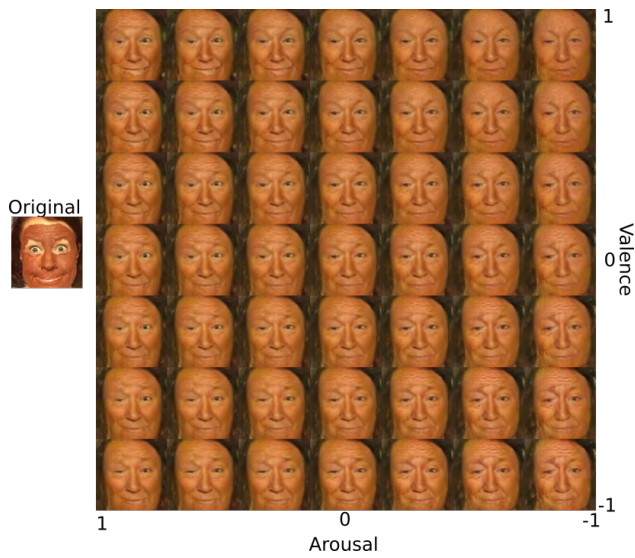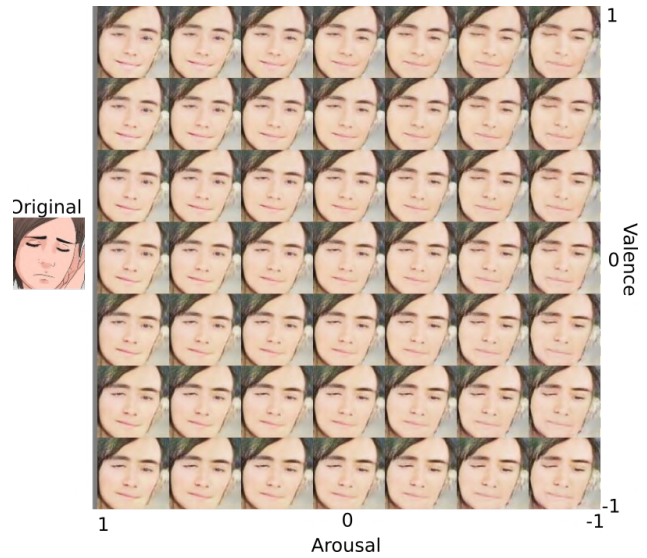

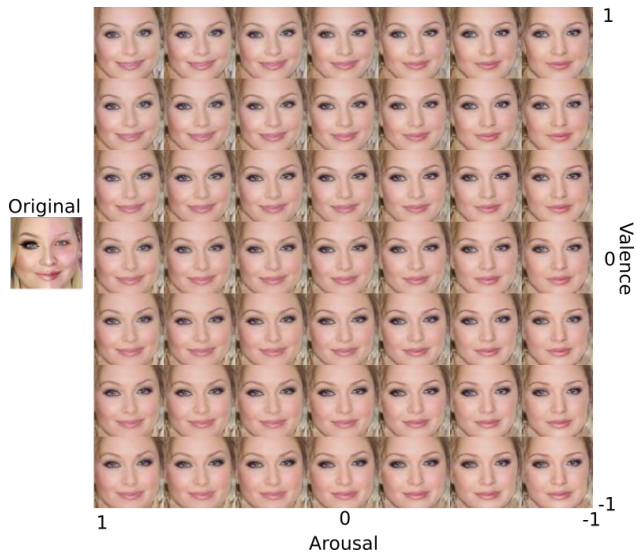*Figure 3.*
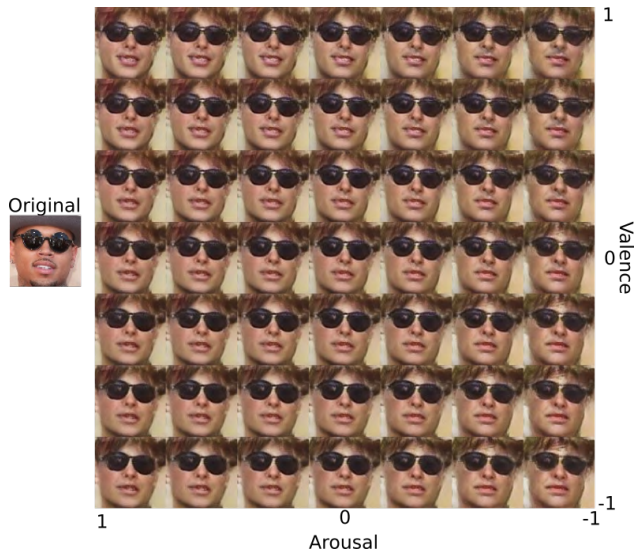

Figure 5.

Figure 6.

Figure 8.

Figure 7.

Figure 9.

Figure 10.

Figure 11.