

# Learning Social Relation Traits from Face Images: Supplementary Material

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## 1. Social Relation Dataset Construction Details

Each image is annotated with eight binary labels. Each label indicates whether the according trait is positive. To reduce subjective bias, a total of *five* annotators vote for the trait of each face pair. A label is accepted if more than three annotations are consistent. The inconsistent samples were presented again to the five annotators to seek consensus. The average Fleiss' kappa of the eight relation traits' annotation is 0.62, indicating substantial inter-rater agreement.

We provide multiple cues to the annotators, to facilitate the annotation process:

1. For each relation trait, we list ten adjectives for the positive and negative dimensions, respectively (see samples in Table 1, the full list can be found in [1]). We also accompany multiple sample images for each trait. Some samples are shown in Fig. 1.
2. For movie frames, the annotator can refer to the subtitle;
3. We define some measurable rules for the annotation of all relation traits. We list some examples as below:
  - The annotation is just based on the image. For example, the annotator should not refer to his own opinion on the relation between politicians in real world.
  - A trait is defined as negative, if the annotator cannot find the indications for its positive side. For example, if the annotator cannot decided whether the two people are friendly, then the image should be labelled as negative for the "friendly" trait. We apply this rule to resolve the ambiguous cases.
  - If two people open their mouths, the relation trait of "demonstrative" is considered as positive.
  - If a teacher is teaching his student, the relation trait of "dominant" is considered as positive.
  - If two people are both worried, the relation trait of "assured" is considered as negative.
  - If two people face each other, the relation trait of "attached" is considered as positive.
  - If two people are intimate, the relation trait of "warm" is considered as positive.
  - If two people are hugging, the relation trait of "friendly" is considered as positive.

Table 1. Some adjectives for relation traits definition.

Relation trait	positive	negative
dominant	controlling/leading/influencing/commanding/dictatorial	equal/matched/
competitive	critical/driven/enterprising	content/approving/flattering/respectful
trusting	unguarded/generous/innocent	mistrusting/suspicious/cunning/vigilant
warm	gentle/pardoning/soft/absolving	cold/strict/icy/harsh/cruel
friendly	cooperative/helpful/devoted	hostile/harmful/imploite/rude
attached	outgoing/involved/active/socialble	detached/distant/aloof
demonstrative	talkative/casual/suggestive	mute/controlled/silent/unresponsive
assured	confident/cheerful/self-reliant/cocky	dependent/unassured/helpless/depressed

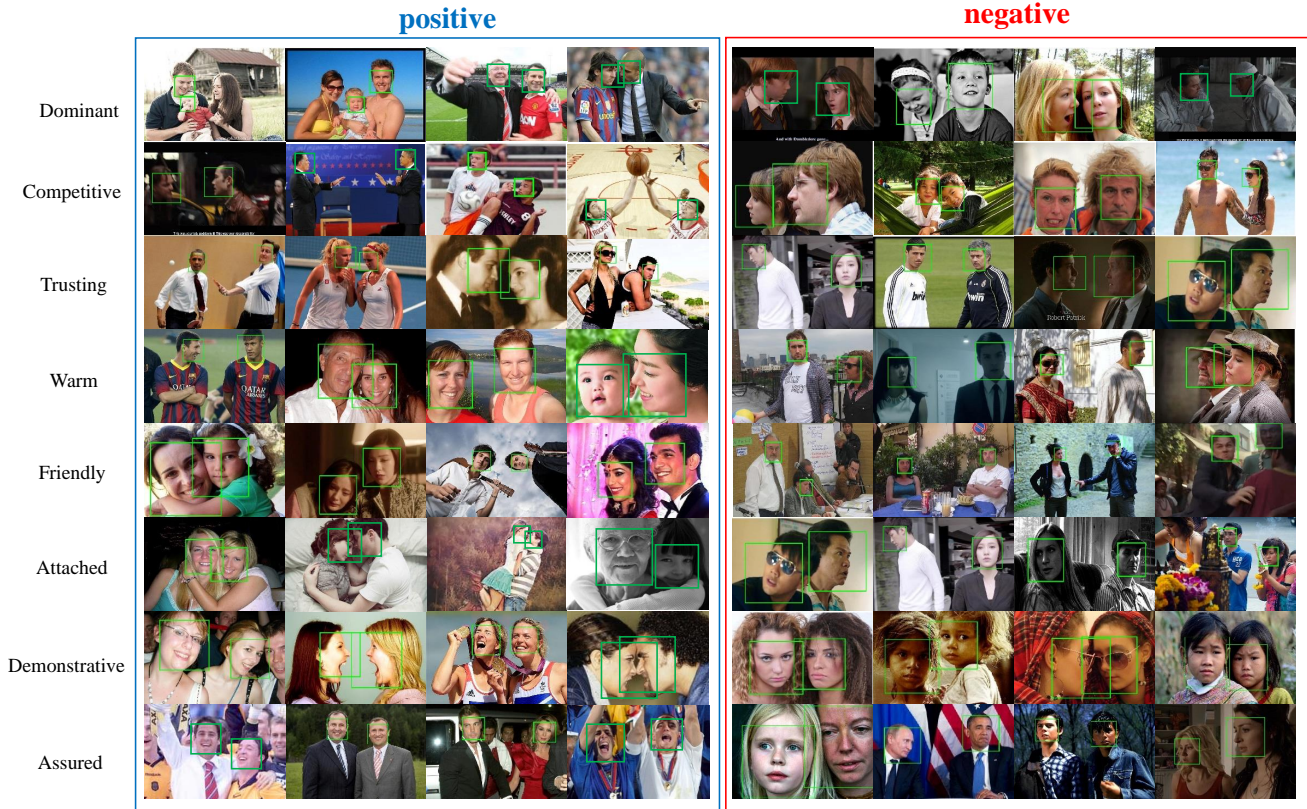


Figure 1. Some sample images for relation traits annotation.

Table 2. Statistics of the social relation dataset.

Relation trait	#positive	#negative
dominant	530	7776
competitive	661	7645
trusting	6897	1409
warm	6843	1463
friendly	7524	782
attached	7102	1204
demonstrative	7254	1052
assured	7280	1026

## 2. Dataset Statistics

The social relation dataset contains 8,306 images. Table 2 shows some statistics for the relation traits.

## References

- [1] D. J. Kiesler. The 1982 interpersonal circle: A taxonomy for complementarity in human transactions. *Psychological Review*, 90(3):185, 1983. 1