Do you see what I see? A cross-cultural comparison of social impression of faces

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Intro

Motivation

- It is vital to understand the universals and idiosyncrasies of facial impressions across cultures because:
- (I) Facial impressions influence interpersonal relationships, political preferences and financial decisions.
- (II) Face-to-face cross-cultural collaborations are more prevalent than ever given globalization & digital media.

Overview

- We conducted a large-scale study of facial impressions, collecting over a million ratings on thousands of faces on 18 subjective traits related to warmth, attractiveness, competence and masculinity.
- We compared Chinese Asians' and American Caucasians' impressions of Chinese and Caucasian faces.
- We annotate facial features like eyeglasses and smiles, and probe how these factors mediate impression perception across cultures.

Result Highlights

- Chinese Asians give overall lower positive impression ratings of faces compared to American Caucasians.
- Raters from both cultures agree more on approachability-related traits, but less on competence-related ones.
- American Caucasians rate older people as more successful and responsible, whereas Chinese Asians tend to rate younger people higher on these traits.

Method

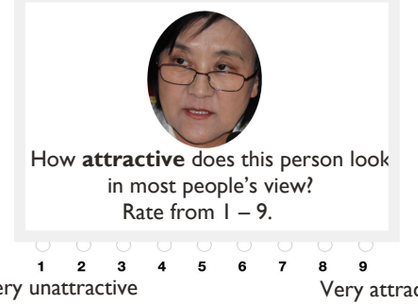
Faces & Impression Traits

1,836 Caucasian faces and 1,738 Chinese faces are rated on 18 impression traits.

attractive-有魅力的
calm -平和的
capable-有能力的
diligent-勤奋的
extroverted- 外向的
friendly-友好的
happy-幸福的
healthy-健康的
(of) high social status-社会地位高的
humble-谦虚的
intelligent-聪明的
kind-善良的
masculine-有男子气概的
powerful-有权力的
responsible-负责任的
successful-成功的
trustworthy-可信任的
warm-热情的

Rating Task

Each subject rated multiple faces in a sequence. Below is a sample screen.



We collected an average of 12 unique raters for each image-trait combination for each ethnicity group.

Rater Recruitment

	Unique raters	Unique user-image-trait ratings
American Caucasian	384	819,000
Chinese Asian	10,953	778,000

- Rater recruitment and data collection protocols were different in the US and China due to practical constraints.
- Repeated trials are included in the first task sequence to ensure check for rater attention by measuring reliability.
- See paper for details.

Face Feature Annotation

Smiling	High cheekbones	Having a beard
Ethnicity	Wearing lipstick	Bushy eyebrows
Gender	Wearing eyeglasses	Age (continuous)

- We used Celeb-A, which includes high-level labels, to train a CNN on these in order to annotate our own dataset, using 8 binary features.
- Age is labeled by Amazon Rekognition.
- These features are then used as regressors to predict impressions.

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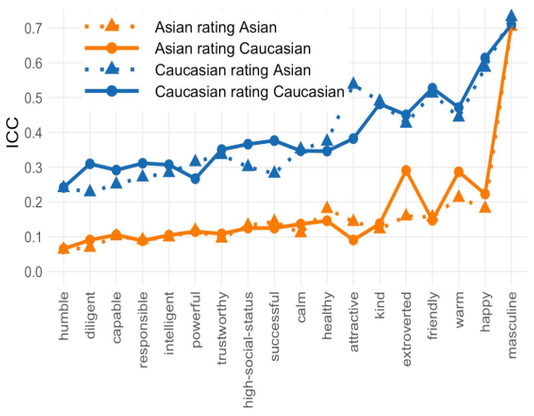
Results

Figure 1: Intraclass correlation coefficient (ICC) as a function of trait, rater ethnicity and image ethnicity (Asian/ Caucasian).



- ICC indicates within-group agreement level.
- Caucasians have higher ICCs than Asian raters.
- Warmth related traits have higher agreement than competence related traits.

Figure 2: Attenuated Pearson correlation between Asians and Caucasians' ratings as a function of trait and image ethnicity.

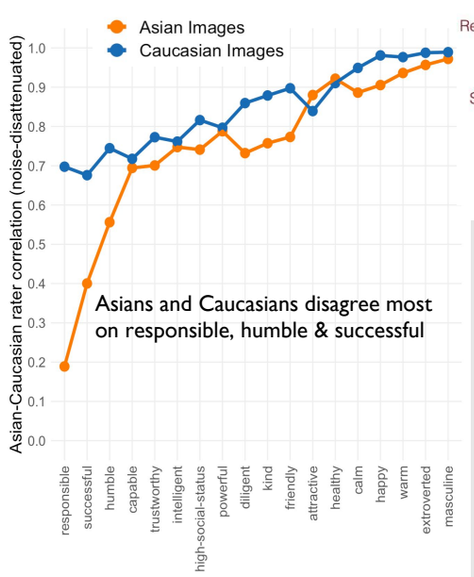


Figure 3: Morphs of faces that are rated most differently by Caucasians and Asians on three least agreed traits.

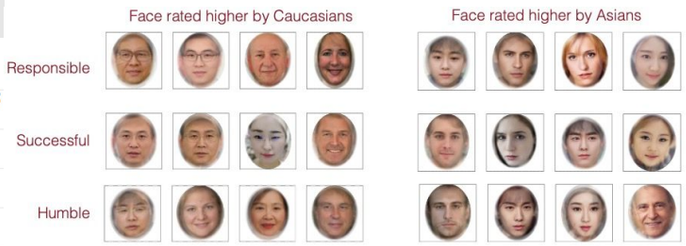


Figure 4: Caucasians give higher ratings of responsible, successful, and humble to more senior people, whereas Asians are opposite (plot of responsible as an example)

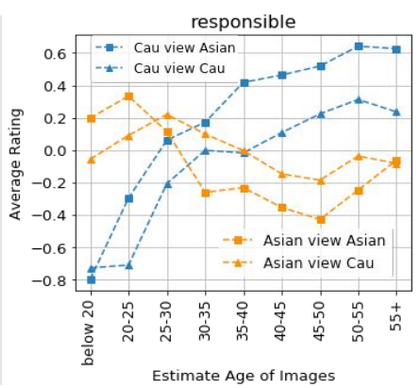
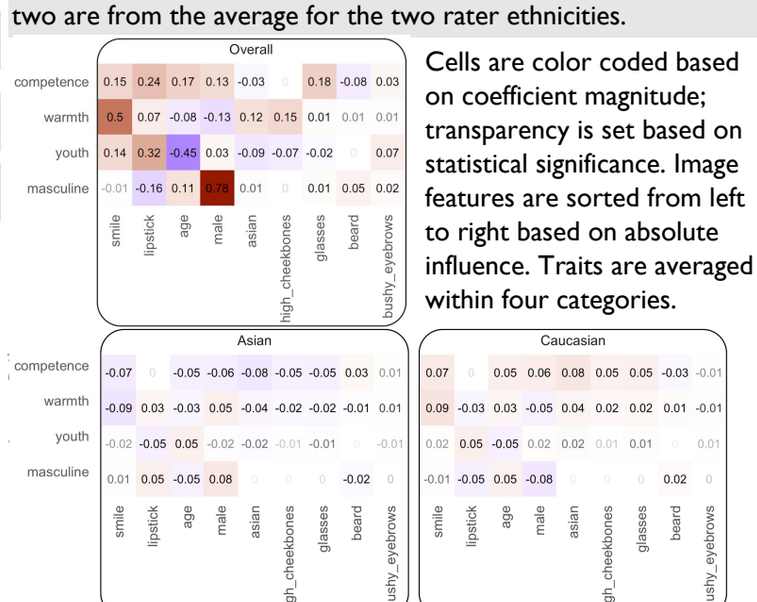


Figure 5: Standardized regression coefficients predicting social impressions (y-axis) from image features (x-axis). The upper panel shows the average coefficients for Asians and Caucasians, the other two are from the average for the two rater ethnicities.



Cells are color coded based on coefficient magnitude; transparency is set based on statistical significance. Image features are sorted from left to right based on absolute influence. Traits are averaged within four categories.