

¹ Reproducible Methods for Face Research

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Abstract

12 Face stimuli are commonly created in non-reproducible ways. This paper will introduce the
13 open-access online platform webmorph and its associated R package webmorpheR. It will
14 explain the technical processes of morphing and transforming through a case study of
15 creating face stimuli from an open-access image set.

16 *Keywords:* faces; morphing; transforming; reproducible; webmorph

17 Word count: X

18

Reproducible Methods for Face Research

19 **Introduction**

20

People manipulate faces.

21

Give some examples.

22

Scope of this type of research.

23

Common Techniques.

24

Photoshop/Image editors.

25

- (Gronenschild, Smeets, Vuurman, Boxtel, & Jolles, 2009)

26

Commerical morphing.

27

- 831 Google Scholar responses for “fantamorph face”
- 158 Google Scholar responses for “WinMorph face”
- Many others: MorphThing (no longer available), xmorph, et. Basically impossible to survey the literature about the methods used because of poor documentaation

31

Codable Methods.

32

- imagemagick
- Matlab
- Psychomorph
- WebMorph

36

Reproducibility! I gave up on a research project once because I couldn’t figure out how to manipulate spatial scale in MatLab to make my stimuli look like a relevant paper.

³⁸ When I contacted the author, they didn't know how the stimuli were created because a
³⁹ postdoc just did it in photoshop.

⁴⁰ Faces are sampled, so replications should sample new faces as well as new participants.

⁴¹ Difficulty in creating equivalent face stimuli is a barrier to this, resulting in stimulus
⁴² sets that are used across dozens or hundreds of papers.

- ⁴³ • The Chicago Face Database ("The chicago face database," 2015) has been cited in
⁴⁴ almost 800 papers.
- ⁴⁵ • Ekman POFA **selling** for \$399 for " 110 photographs of facial expressions that have
⁴⁶ been widely used in cross-cultural studies, and more recently, in neuropsychological
⁴⁷ research".
- ⁴⁸ • Image sets are often private and reused without clear attribution (FRL and Perception
⁴⁹ Lab are particularly bad for this).

⁵⁰ **Main techniques.**

⁵¹ **Averaging.**

- ⁵² • Visualise group differences

⁵³ **Transforming.**

- ⁵⁴ • Sexual dimorphism

⁵⁵ **Methods**

⁵⁶ **Averaging.**

⁵⁷ **Transforming.**

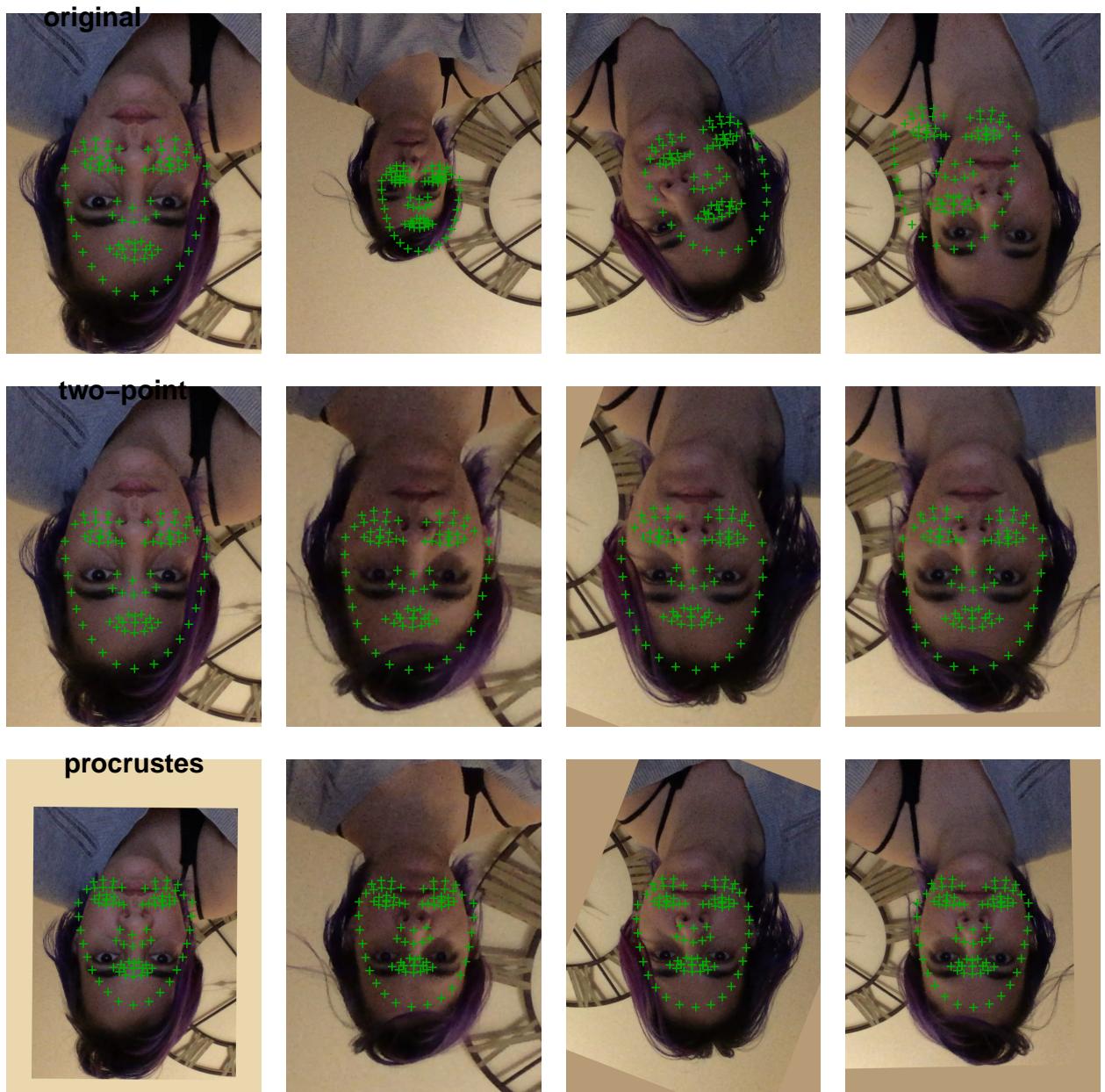
58 Case Study

59 London Face Set.

60 **Delineation.** Automatic versus manual delineation.

61 **Normalisation.** Why normalise?

62 2 point versus Procrustes normalisation (in webmorphR)



64 Masking. (effect in masc paper)

Averaging. Texture/no

⁶⁶ **Symmetrising.** How this is different from LL/RR mirroring.

67 Sexual dimorphism transform. Continuum

68 Self-resemblance transform.

Discussion

- head position in 2D images
 - morphometrics
 - facefun
 - Natural vs standardised source images
 - right image for the question
 - Averaging is N=1

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References

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78 0.1.0.9997; Aust and Barth (2020)], and *webmorphe* [Version 0.0.0.9001; DeBruine (2020)] to
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