

Abstract

Fluctuating Asymmetry, Sexual Dimorphism and Attractiveness in Humans: The Development towards a 3D Approach [†]

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[†] Presented at Symmetry 2017—The First International Conference on Symmetry, Barcelona, Spain, 16–18 October 2017.

Published: 5 January 2018

Perfect bilateral symmetry is the optimal outcome of the development of bilateral traits in the absence of developmental perturbations. Any random perturbation in this perfect symmetrical state, called Fluctuating Asymmetry (FA), is an indicator of Developmental Instability (DI). Fluctuating asymmetry has been proposed to reflect an individual's fitness in a good genes context in different species, including humans. From an evolutionary perspective, where selection for good genes plays a major role in sexual selection, it is hypothesized that more symmetric people should appear more attractive to their potential mates. This hypothesis has been studied mostly using 2D images and a limited number of landmarks to assess the asymmetry of the subjects.

We develop an analysis protocol to use high density 3D scans of human faces and bodies to analyze the level of FA and its correlation with attractiveness and fitness-proxies. A symmetric high density anthropometric mask is mapped on all faces using a non-rigid registration algorithm. A set of 20 manually indicated landmarks are used to validate the precision of the algorithm. In this presentation, the algorithm pipeline as well as the validation results will be presented and future steps and the possible applications will be discussed.



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