



New Study by ELLIS Alicante Reveals the Complex Impact of Beauty Filters on Cognitive Biases and Social Perceptions

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A [groundbreaking study](#) led by Dr. Nuria Oliver and her team at ELLIS Alicante, in collaboration with FBK and two universities, explores the profound effects of beauty filters on social perceptions and cognitive biases. Published today at the Royal Society Open Science journal, the research explores how these widely-used augmented reality tools influence the attractiveness halo effect—a cognitive bias that links physical attractiveness to positive attributes such as intelligence and trustworthiness.

This study, using a diverse sample of 462 real face images and data from 2,748 participants, offers the first independent large-scale insight into the connection between beauty filters, societal biases, and ethical concerns in the digital age. Participants rated their “gut feeling” on a random selection of original and beautified faces, which had been modified by a popular beautify filter app.

Key findings from the study include:

- Beauty filters increase perceptions of attractiveness and other attributes: Application of beauty filters led to universally higher attractiveness ratings. Participants also rated individuals as more intelligent, trustworthy, happy, and sociable when their images were enhanced by the filters.
- Gender and age influence perceptions; ethnicity does not: Younger individuals and females were perceived as more attractive than older individuals and males, with females benefiting significantly more from the filters regarding attractiveness. Ethnicity showed no impact on perceived attractiveness or filter effectiveness.
- Reduction of the halo effect for certain traits: Filters weakened the link between attractiveness and traits like intelligence and trustworthiness, introducing a “saturation effect.” However, this mitigating effect was not observed for sociability and happiness.
- Exacerbation of gender stereotypes: Males were rated as more intelligent than females, with the gap widening after beauty filters were applied. This indicates that filters may inadvertently reinforce and amplify gender biases.

While the study highlights the potential of beauty filters to alter perceptions positively, the study’s first author, Aditya Gulati said that the research “*raises critical ethical questions about transparency, authenticity, and the unintended reinforcement of societal biases. These findings underscore the need for regulatory guidelines and public awareness around the use of such technologies.*”



Project leader Dr. Oliver emphasized, *“Our research demonstrates that while beauty filters can reduce certain cognitive biases, they also risk perpetuating harmful stereotypes and social inequalities. These results call for urgent dialogue on the ethical design and use of AI technologies in social media”*.

Link to the article:

<https://royalsocietypublishing.org/doi/10.1098/rsos.240882>

About ELLIS Alicante | www.ellisalicante.org/ia

ELLIS Alicante is a non-for-profit private research foundation focused on **ethical and responsible Artificial Intelligence (IA)** for social good. Hence, it is also known as the **Institute of Humanity-centric AI**. ELLIS Alicante aims to be an international reference in **AI research by and for people**, by focusing on three areas of fundamental research in the intersection between humans and AI: 1) **AI that understands us**; 2) **AI that interacts with us**; 3) **AI that we trust**.

ELLIS Alicante is part of the European network of excellence in Artificial Intelligence ELLIS (European Laboratory for Learning and Intelligent Systems - www.ellis.eu), being the only ELLIS unit dedicated exclusively to this area. ELLIS Alicante is the only ELLIS unit created from scratch, with the spirit of a scientific startup.

ELLIS Alicante was launched thanks to the vision, commitment, and generous financial support of the Generalitat Valenciana. It is also funded by other public and private institutions, including the Banc Sabadell Foundation, Balearia Foundation, Intel Corporation, Nippon Gases and the H2020 ELIAS project. The Foundation's work has won major awards including the 500k XPRIZE Pandemic Response Challenge by Cognizant (2021) and the Social Innovation Award (2022).

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