

Title: A first look into users' perceptions of facial recognition in the physical world

Authors: Sovanharith Seng, Mahdi Nasrullah Al-Ameen, and Matthew Wright

Journal: [Computers & Security](#), [Volume 105](#), June 2021, 102227. Received 8 September 2020, Revised 14 January 2021, Accepted 13 February 2021, Available online 21 February 2021, Version of Record 12 March 2021.

DOI: <https://doi.org/10.1016/j.cose.2021.102227>

Abstract:

Facial recognition (FR) technology is being adopted in both private and public spheres for a wide range of reasons, from ensuring physical safety to providing personalized shopping experiences. It is not clear yet, though, how users perceive this emerging technology in terms of usefulness, risks, and comfort. We begin to address these questions in this paper. In particular, we conducted a vignette-based study with 314 participants on Amazon Mechanical Turk to investigate their perceptions of facial recognition in the physical world, based on thirty-five scenarios across eight different contexts of FR use. We found that users do not have a binary answer towards FR adoption. Rather, their perceptions are grounded in the specific contexts in which FR will be applied. The participants considered a broad range of factors, including control over facial data, the utility of FR, the trustworthiness of organizations using FR, and the location and surroundings of FR use to place the corresponding privacy risks in context. They weighed the privacy risks with the usability, security, and economic gain of FR use as they reported their perceptions. Participants also noted the reasons and rationals behind their perceptions of facial recognition, which let us conduct an in-depth analysis of their perceived benefits, concerns, and comfort with using this technology in various scenarios. Through this first systematic look into users' perceptions of facial recognition in the physical world, we shed light on the tension between FR adoption and users' concerns. Taken together, our findings have broad implications that advance the Privacy and Security community's understanding of FR through the lens of users, where we presented guidelines for future research in these directions.