The Adaptive Glasgow Face-Matching Task

Necdet Gurkan
Stevens Institute of Technology, Hoboken, New Jersey, United States

Jordan Suchow
Stevens Institute of Technology, Hoboken, New Jersey, United States

Abstract

Current face-comparison tests use a fixed set of stimuli, such that task difficulty is not tailored to the participant's ability to perform face matching, which varies greatly across people. Here, we create an adaptive version of the Glasgow Face Matching Test (GFMT). To accomplish this, we make use of recent advances in machine learning that can encode photographs into a learned face space and then generate photorealistic morphs that interpolate between mid-level features of the depicted individuals. In particular, we first use the StyleGAN neural-network architecture to generate challenging variants of the GFMT. We then use QUEST+, a Bayesian adaptive psychometric testing procedure, to estimate the observer's sensitivity to appearance changes during face matching. The resulting test, the adaptive GFMT (aGFMT), aims to more efficiently estimate a participant's face-matching ability.