Age-related effects on selective processing of horizontal structure in a whole-face context

Introduction

- Younger observers use horizontal structure in the eyes to identify faces\(^1,2\) and the extent to which they do so is correlated with overall identification performance and the face inversion effect\(^3\).
- Older observers show poorer discrimination of horizontally filtered faces than younger controls when the target band is specified precisely\(^4,5\).
- Here, we examined horizontal selectivity in younger and older observers under more ecologically valid conditions using: multiple face sets, intact faces, and stimuli from different viewpoints (i.e., \(0^\circ\) and \(90^\circ\)).

Methods

Timing matched across expts. Pre-filtering \(\text{RMS}_{\text{target}} = 0.2\) Stim size = 256x256 px (3.6° x 3.6°) Filter bandwidth = 90° Measured selectivity (PC\(_C\) - PC\(_\text{GRF}\))

Experiment 1 (Face Set 1)

Experiment 2 (Face Set 2)

Conclusion

Across all manipulations, older observers perform worse and show less selectivity, may use relevant identity information less efficiently. (also see poster 56.535)

• Context effect depends on face set. Set 1: context reduces selectivity for older; enhances for younger. Set 2: no context effect for same viewpoint; context reduces selectivity with different viewpoint.

• Currently exploring interactions of these effects with filter bandwidth and presentation duration (see poster 33.563)

References