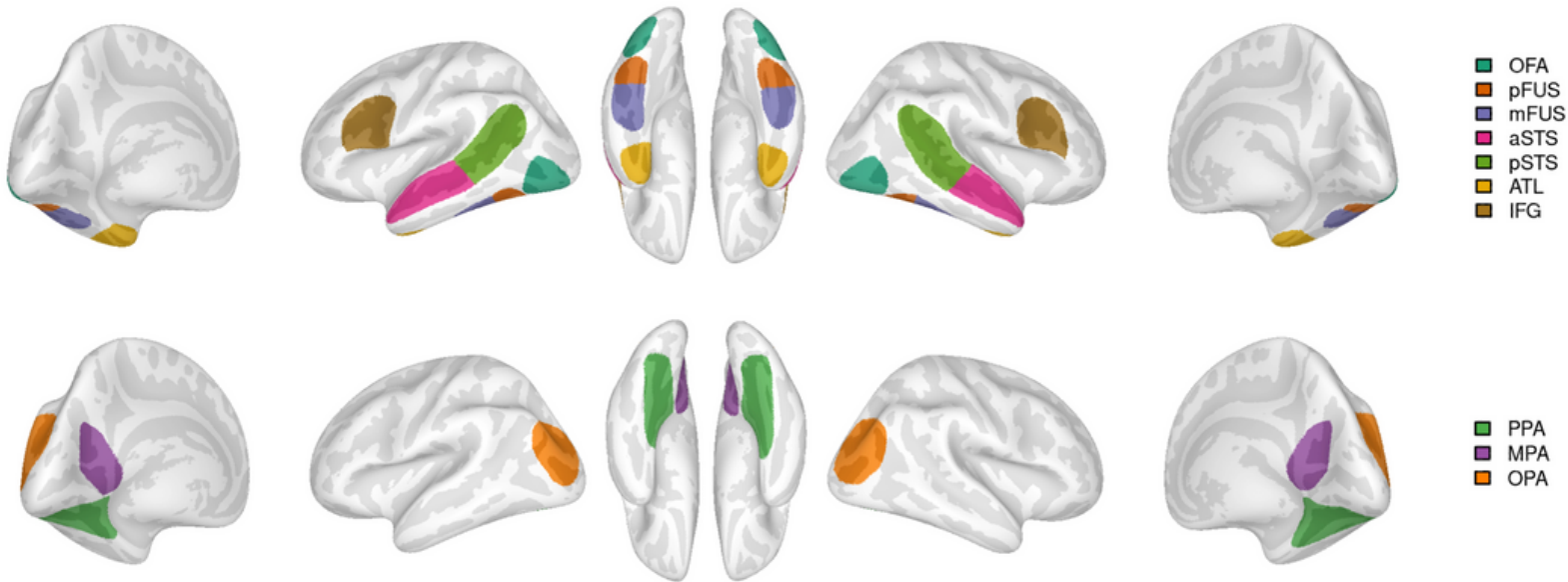


SPRING 2023

Face To Face

Prosopagnosia Research Center at Dartmouth



These are some of the brain areas we aim to examine in DP. Top: areas that are activated when seeing faces; Bottom: areas that are activated when seeing scenes

PROJECT UPDATE

We want to give you a quick update on the progress of our large-scale project aiming to broaden the scope of our understanding of developmental prosopagnosia (DP). So far, we have tested 50 people who have self-reported problems with face recognition online and identified 20 of them as DPs. Among those 20 DPs, we have fully tested 10 and are looking forward to testing 5 more by the end of May. Looking forward, we expect that we will hit our goal of 20 participants for the first stage pretty soon! Since the last time we posted about this project, we have heard from over 100 people hoping to sign up as participants. Although we are unable to offer the opportunity to participate to all of you, we sincerely appreciate your support and enthusiasm for our project.

Lastly, our study is still looking for more participants. If you are aged between 18~55, live in the New England region, have experienced issues with face recognition from a young age, please reach out to us at social.perception.lab@dartmouth.edu to learn more!

Newsletter Highlights

Project Update

Do you See Distorted Face?

Researcher Spotlight

New Paper on Persistent Face Blindness Caused by COVID-19

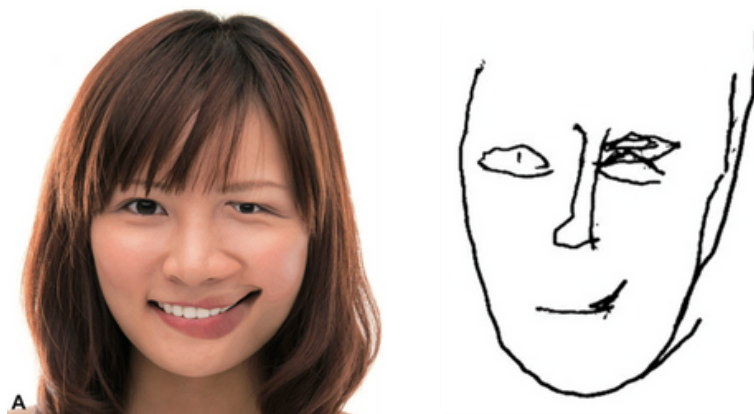
Do You See Distorted Faces ?

Introduction to Prosopometamorphopsia

Do you ever see distortions when you look at faces? For example, do facial features sometimes seem stretched, enlarged, or discolored?

As we mentioned briefly in our last newsletter, we are working with several people who frequently see distortions when they look at faces. This striking condition is known as prosopometamorphopsia. That's a mouthful though so it is usually called PMO.

PMO comes in different forms. In bilateral PMO, features on both sides of the face are perceived as distorted, and in hemi-PMO, distortions are restricted to one side of the face. The examples below depict right hemi-PMO, but others with hemi-PMO see distortions on the left side of the face.



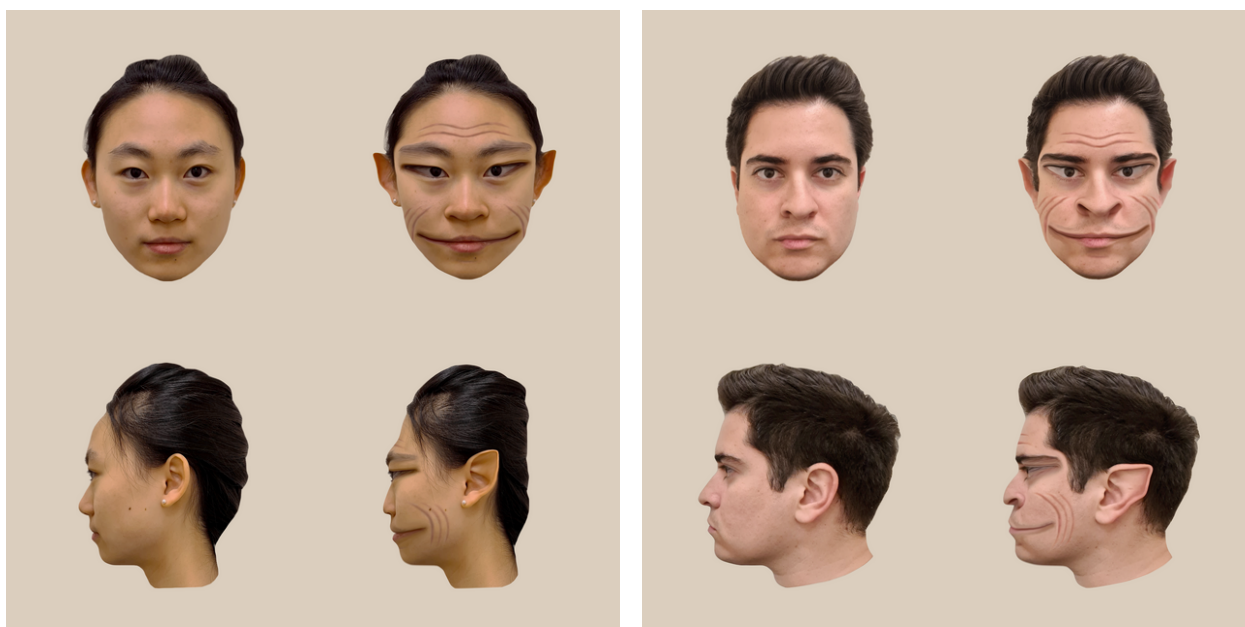
We recently were involved in a study about a patient with the initial A.D. (Almeida et al., 2020). Here are two examples of the distortions A.D. experienced:



The right sclera looks a lot bigger. The right eyebrow is going down, as is the right side of the nose and lips.



The nose is going up. Can't see the lips equally well. Right eye has fallen.



The two figures above are the visualizations of the face distortions perceived by one of our PMO participants, V.S.

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Face distortions sometimes result from damage to gray matter, but the most common cause of hemi-PMO is damage to the splenium, a white-matter fiber bundle that transmits visual information from one hemisphere to the other hemisphere. Interestingly, all the hemi-PMO patients reported to have a lesion to the left hemisphere see distortions to the right side of the face (from the observer's perspective). In contrast, cases with lesions to the right hemisphere see distortions to the left side, right side, and on both sides of faces. These lesion/behavior relationships suggest that the left hemisphere is specialized for perceiving the right side of the face whereas the right hemisphere handles both halves of the face.

Although face distortions in all PMO cases in the literature emerged after previously normal face perception, we suspect that there may be a developmental form of PMO too. You can imagine that if someone has seen distorted facial features their entire life, they may not realize that the distorted features are unusual. In addition, one of the people with PMO who we're working with is also a developmental prosopagnosic, so his case raises the question of whether face distortions may be more common in folks with DP than people with typical face recognition.

Here's a link to our PMO website if you'd like to read more about it:

<https://prosopometamorphopsia.faceblind.org/>

If you sometimes see distortions when you look at faces, we'd love to hear from you!

Researcher Spotlight

Three new members joined our lab recently. They will work on research projects pushing our understanding on face processing in the upcoming five to six years! Get to know them!



Antônio Mello

Antônio joined our lab as a graduate student in Fall 2022. He started his career as a lawyer in Brazil, having graduated from the Federal University of Ceara (bachelor's) and the Getulio Vargas Foundation (MBA). After getting interested in eyewitness memory, he continued his studies at the University of Fortaleza, Brazil, where he received a bachelor's in Psychology. Antonio is interested in understanding how and why people vary in their abilities to perceive and recognize faces. To answer these questions, he has been using behavioral and neuroimaging methods and working with atypical populations, such as individuals with prosopometamorphopsia, prosopagnosia, and super-recognition.

Sarah Kerns

Sarah will join our lab as a graduate student in Fall 2023. She served in the armed forces as a linguist, and raised a family before beginning her academic career. She attended Wellesley College as a Davis Scholar and graduated with a B.A in Biochemistry(H), and Psychology. After graduation, she spent three years as a research associate with Jeremy Wilmer and Ken Nakayama working toward an understanding of graph cognition and data visualizations that capture the individual human experience. Sarah is interested in applying her focus on measurement, measure-creation, and data communication to the physiological and psychological causes of face recognition/memory and their disruption.



Elizabeth Li

Elizabeth joined the lab as an undergraduate research assistant in Summer 2022. As an undergraduate student in the class of 2025 majoring in psychology and minoring in education, she is also a Stamps Scholar, and her Stamps project investigates behavioral and neural differences in the lateralization of face perception. Elizabeth is also passionate about prosopometamorphopsia, emotional face perception, and cross-cultural differences in face perception. Elizabeth founded the Dartmouth Psychological and Brain Sciences Student Society, and she is the President of the Dartmouth Undergraduate Journal of Science.



New Paper!

Two newsletters ago, we described a project led by one of the PhD students in our lab, Marie-Luise Kieseler, investigating a prosopagnosia case that's caused by COVID-19. The paper is now available in the journal *Cortex*, and it has received extensive mass media coverage.

Here's one of the media articles by the New York Post:

<https://nypost.com/2023/03/14/face-blindness-linked-to-covid-19-alarming-study-says/>

If you are interested in the original paper, here's a link to it:

<https://lab.faceblind.org/papers/kieseler23cortex.pdf>