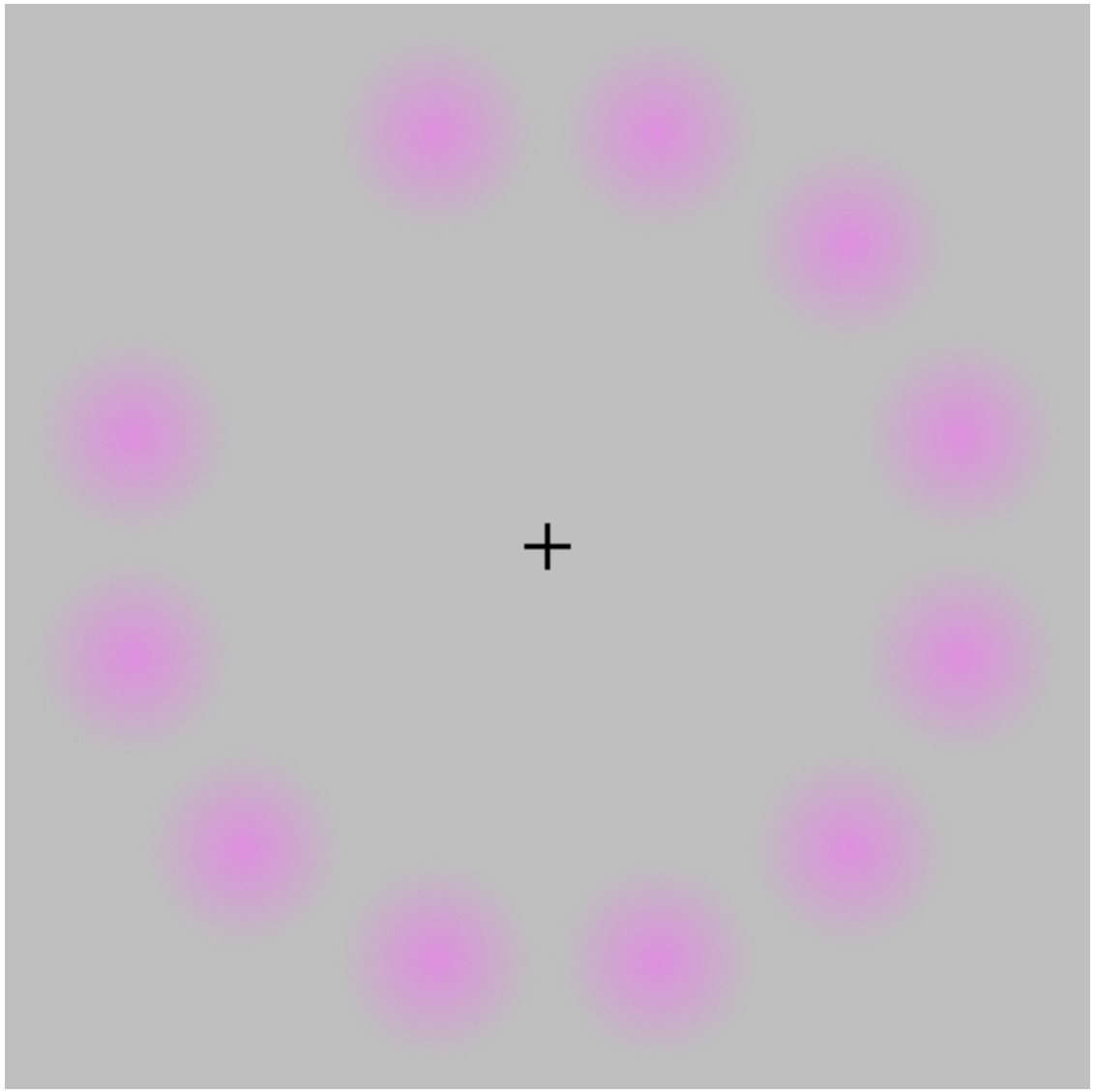
EE 193 Imaging systems: Speed and time

Steven Bell

26 September 2018

Tufts UNIVERSITY

Lilac chaser



http://www.123opticalillusions.com/pages/lilac_chaser.php

Afterimages

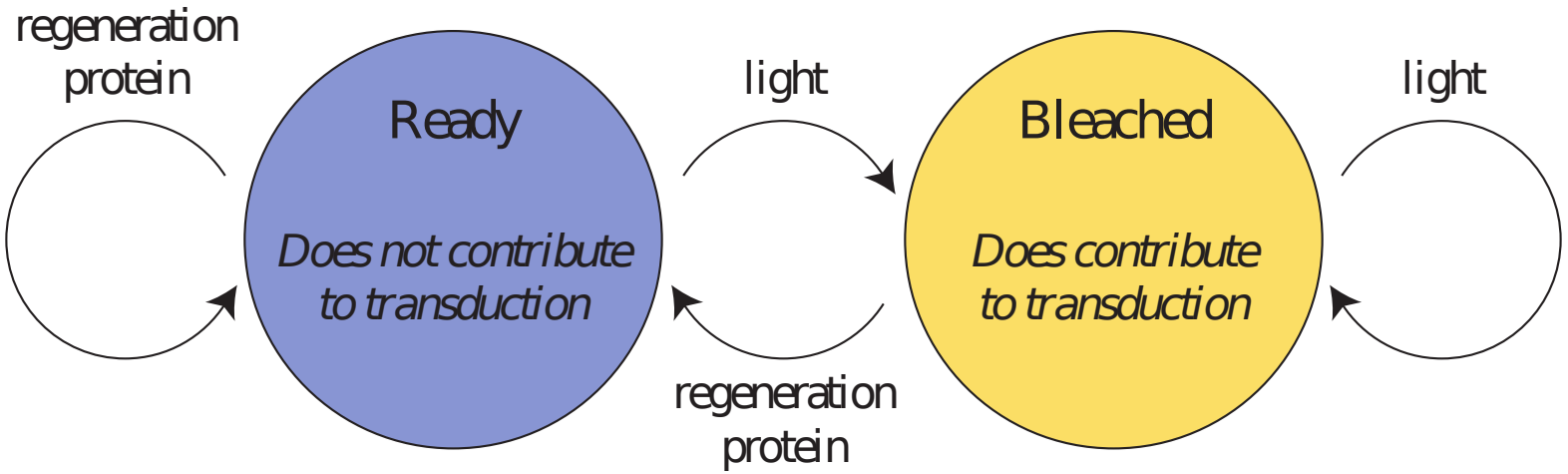
There are two basic sources of afterimages:

- Bleaching/regeneration (positive afterimages)
- Adaptation (negative afterimages)

Bleaching afterimages

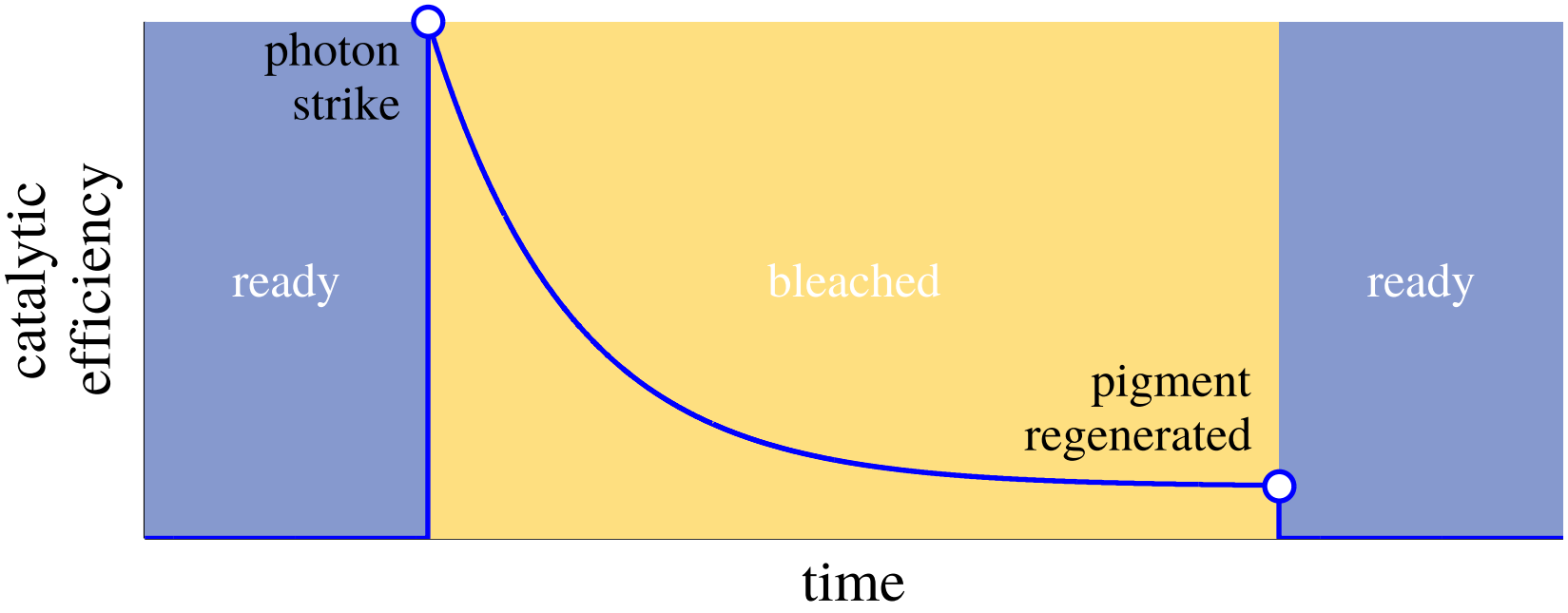
(A hypothesis by David Jacobs)

Cone pigments act as light-dependant catalysts, and have two states



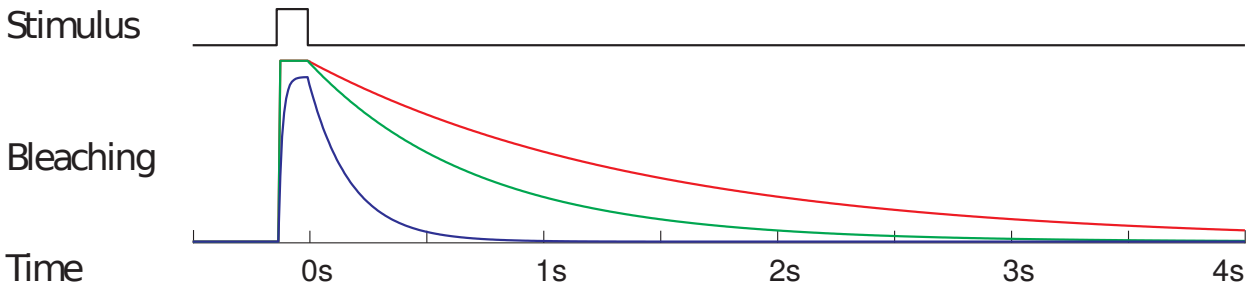
Bleaching afterimages

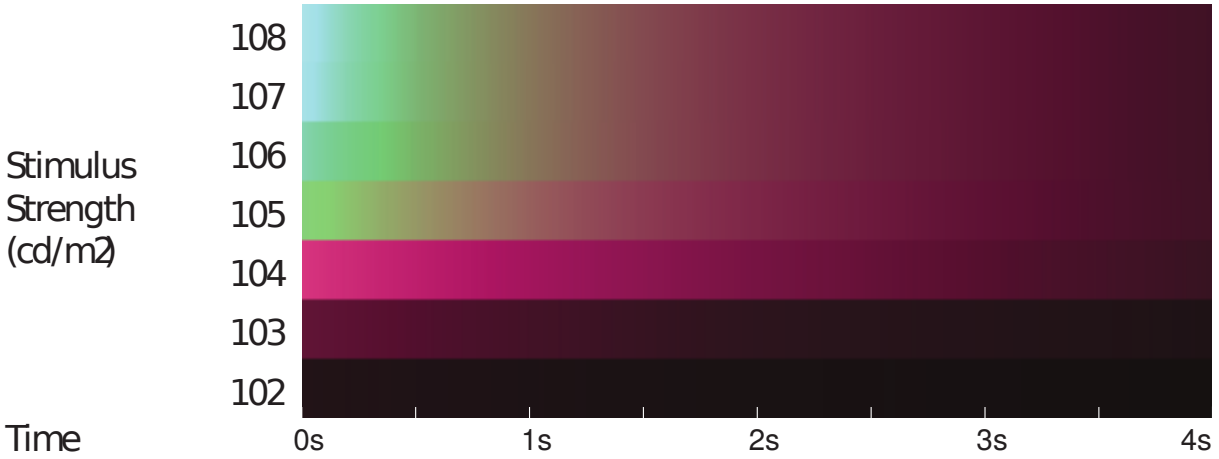
(A hypothesis by David Jacobs)



Bleaching afterimages

(A hypothesis by David Jacobs)

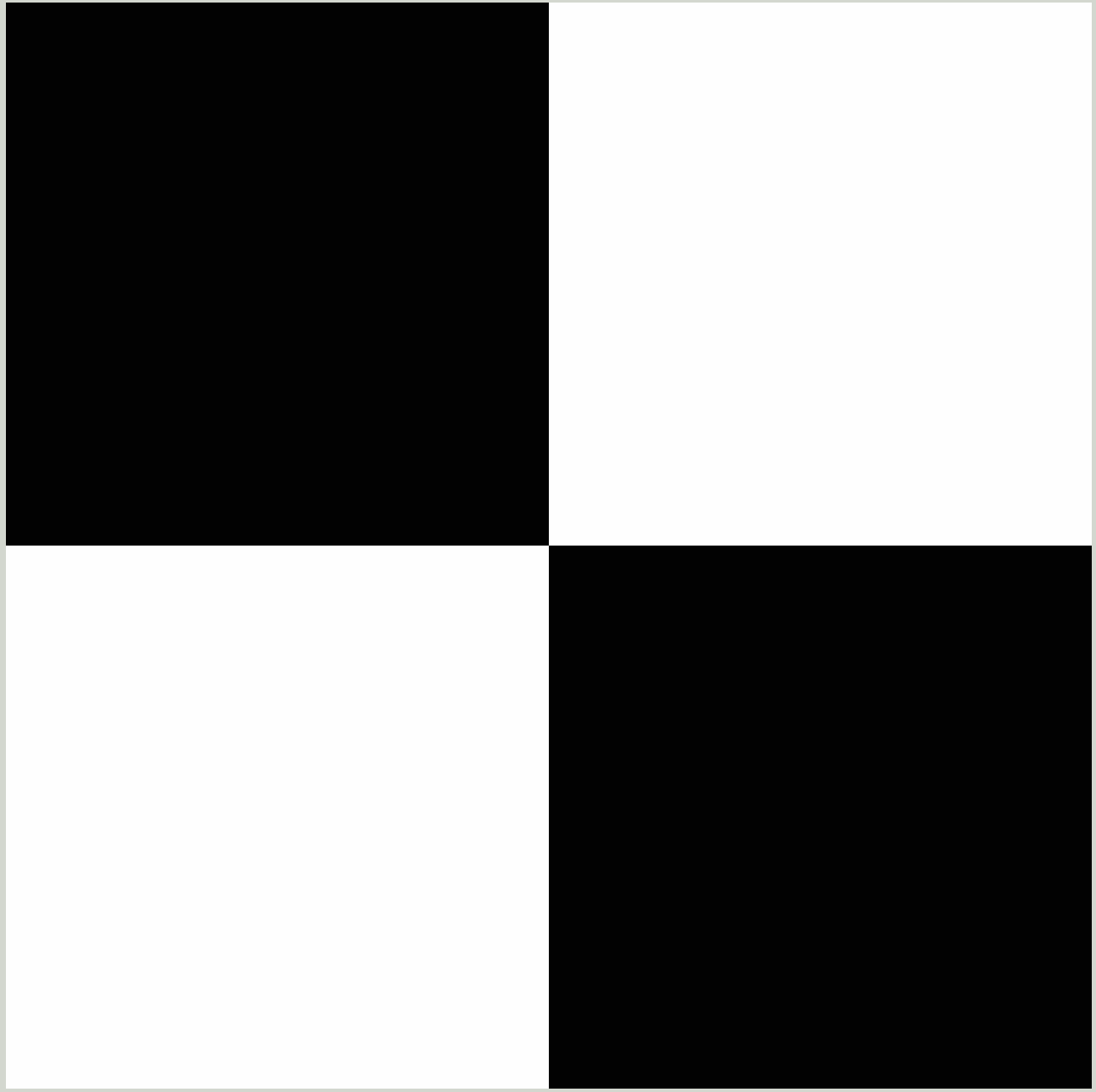


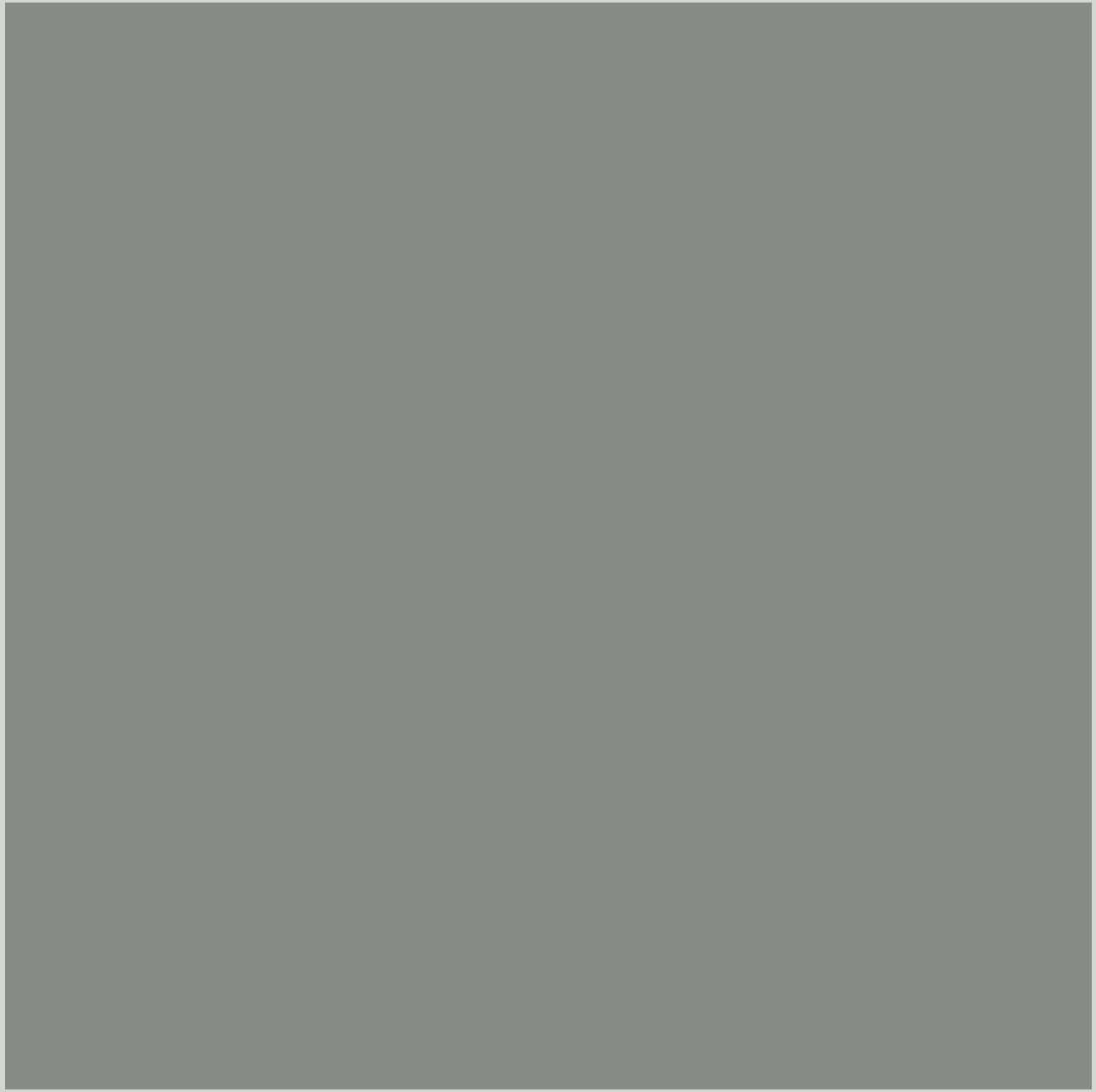


Adaptation afterimages

Your eyes (and brain) adapt based on a "gray world" assumption

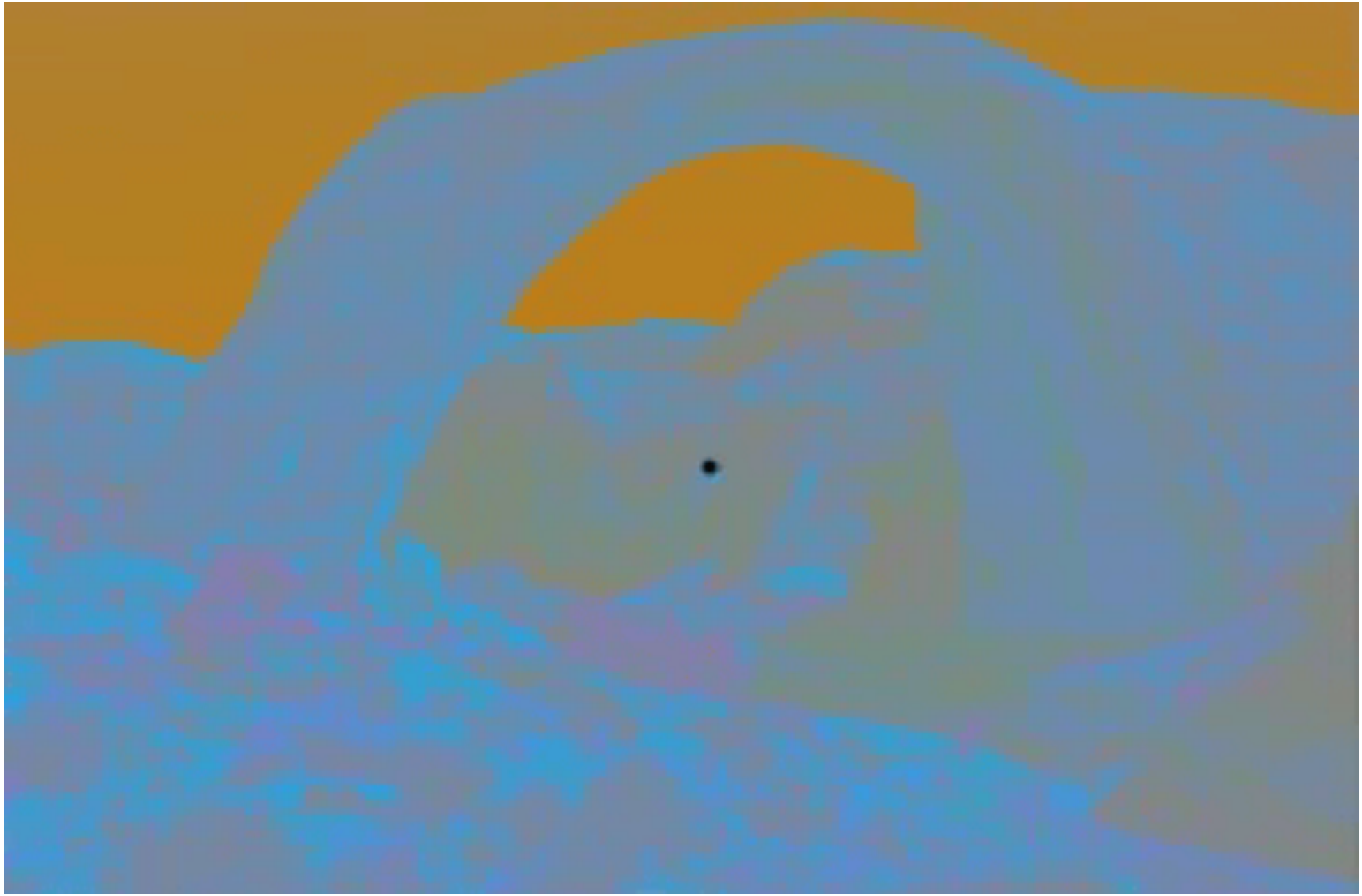
This takes a few seconds, and your eyes are usually moving around.

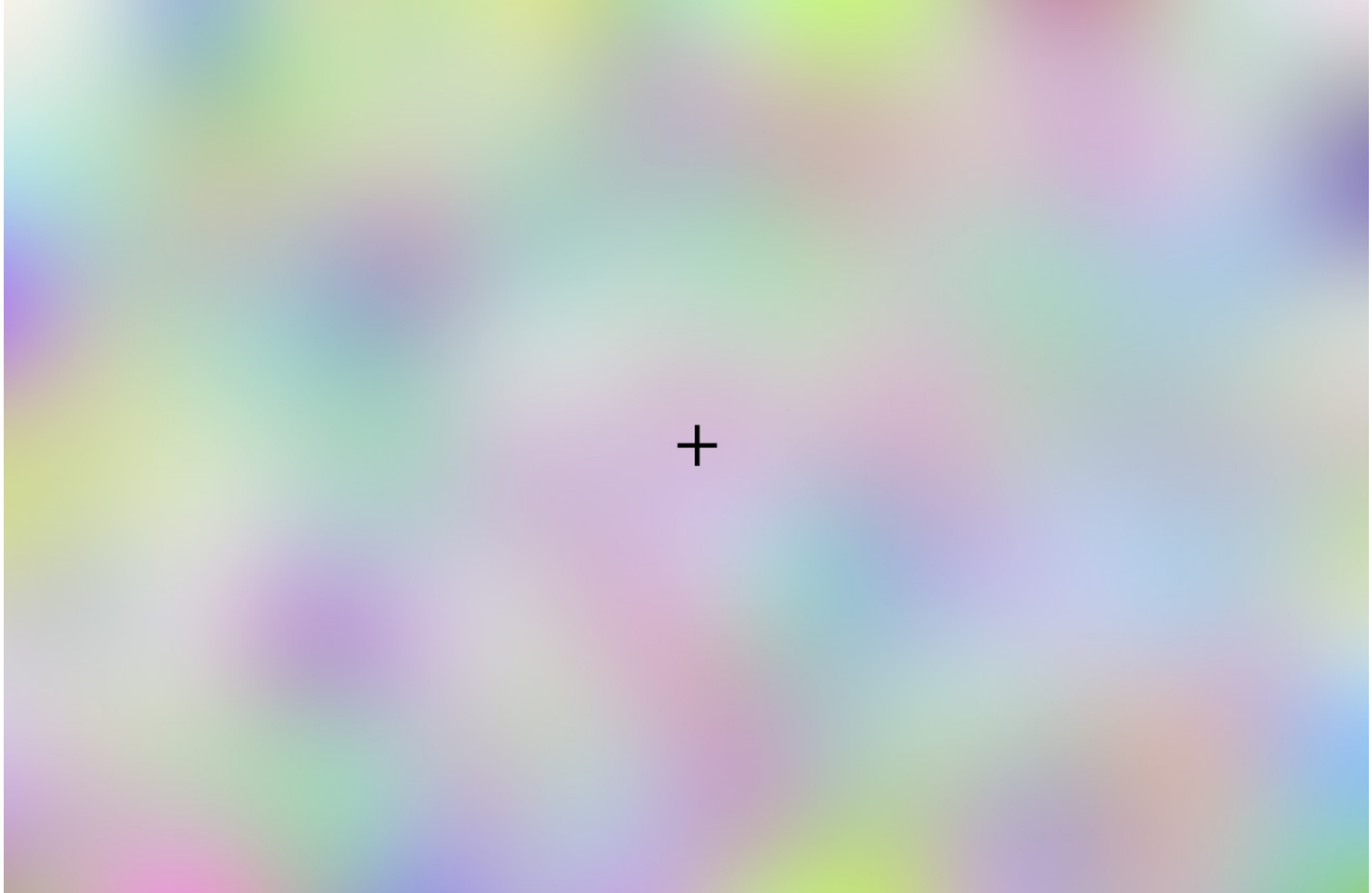




keep staring at the black dot.

johnsadowski.com





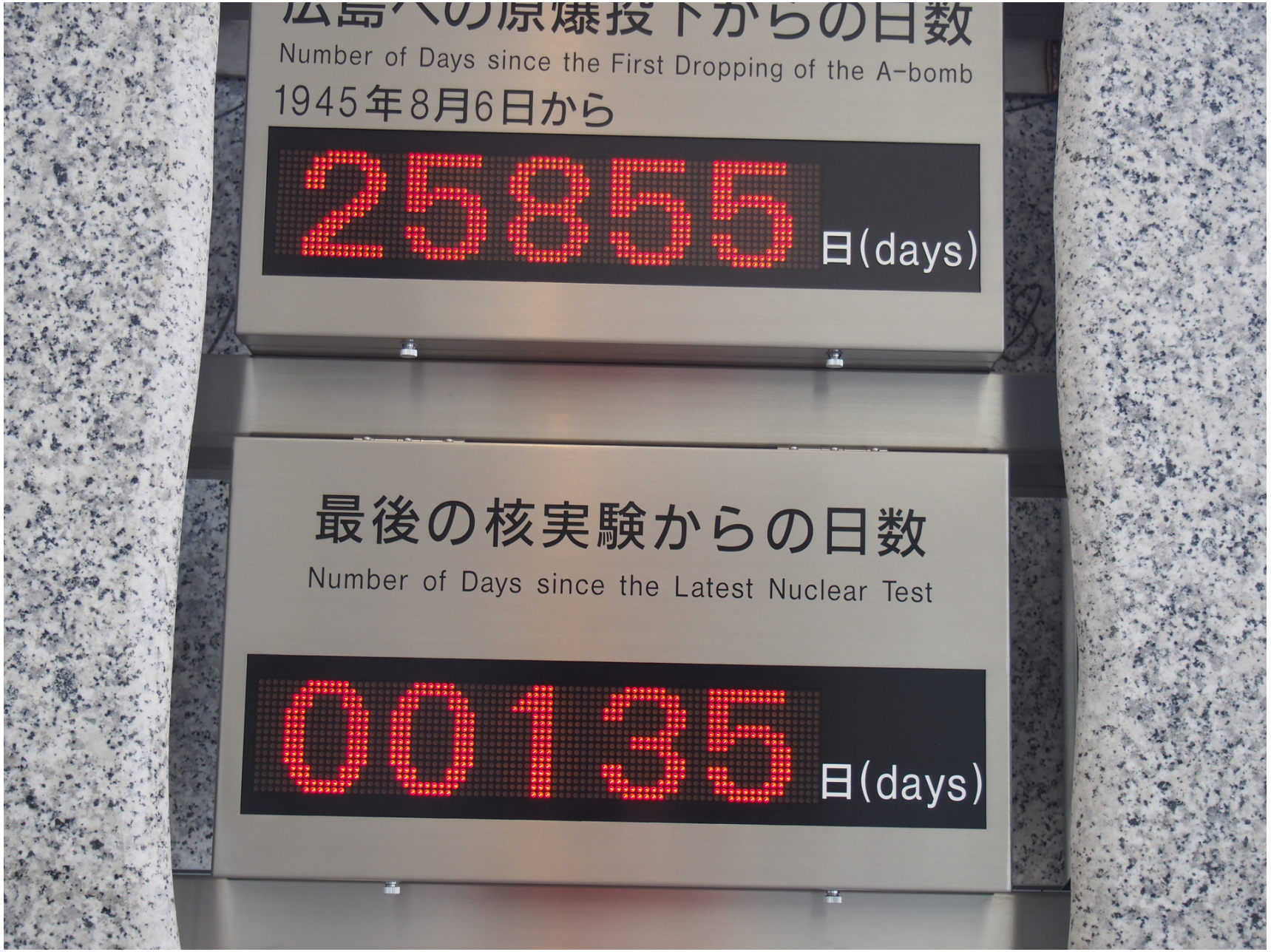
Flicker fusion

The illusion of a blinking light appearing constant

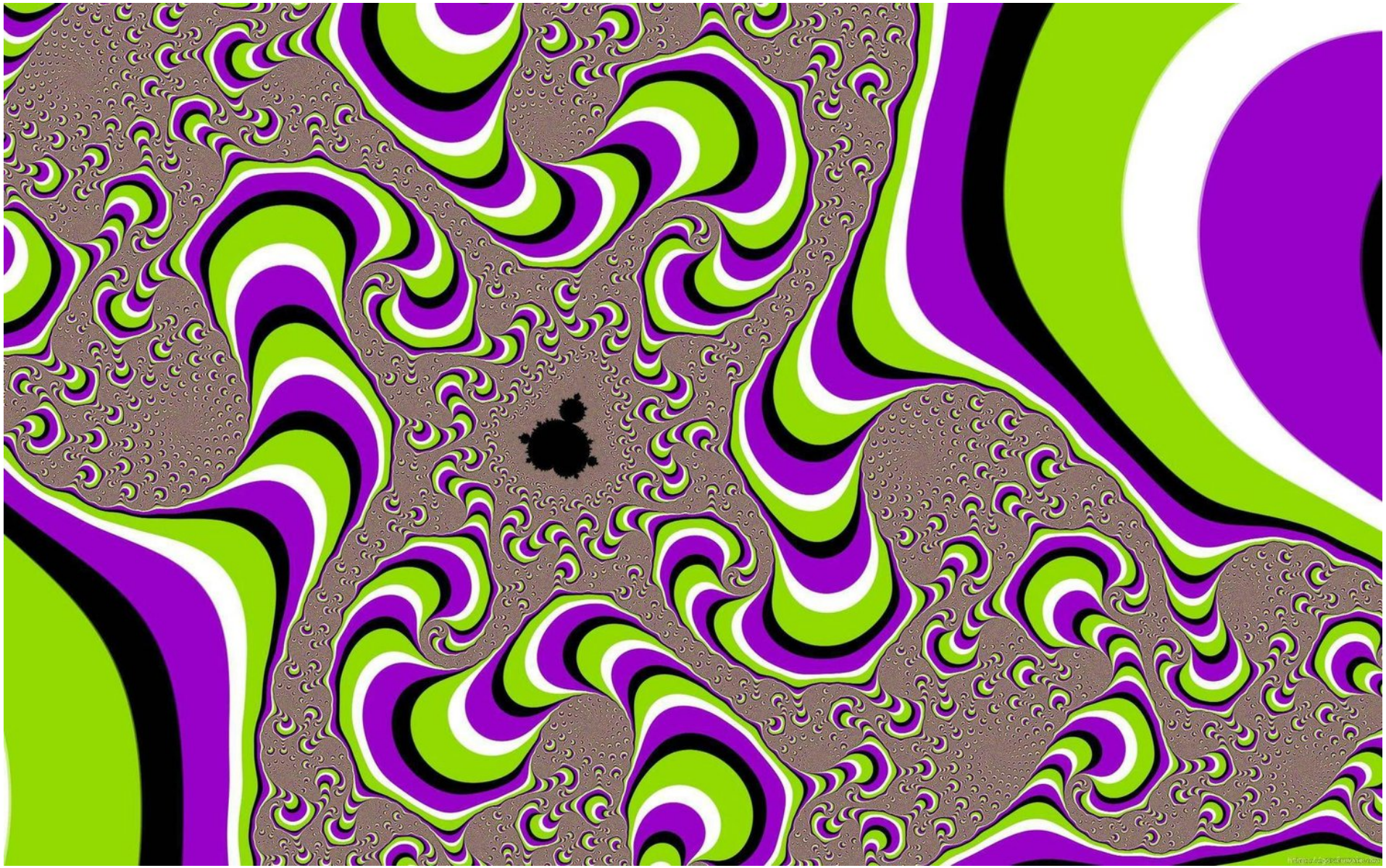
Ranges from 20Hz to 60+ Hz in humans.

Used in pretty much everything. Nearly every display is blinking if you look fast enough.

5ms
exposure



1ms
exposure



https://www.puzzleprime.com/motion-illusions/

https://www.puzzleprime.com/motion-illusions/