Comparing the performance of computational models of human brightness perception through parametric variations in visual stimuli
contrast

shift away from surrounding context

https://www.upf.edu/en/web/etic/more-news/-/asset_publisher/PpDYvlsAQAQ6/content/id/7432778
assimilation

shift towards surrounding context

https://www.upf.edu/en/web/etic/more-news/-/asset_publisher/PpDYYYYsQAQ6/content/id/7432778
ganglion cells


https://books.google.de/books?hl=de&lr=&id=0wx17IC275EC&print&pg=PA339&dq=adelson+2000+lightness+perception&ots=RqCNzwJ0Qw&sig=SWLDULbdlwGtablWYeFAL7Hmsg#v=onepage&q=adelson%202000%20lightness%20perception&f=false
spatial filtering models

- new grayscale value for each pixel calculated
- depending on pixel itself and neighbors

spatial frequency

http://www.psy.vanderbilt.edu/courses/hon185/SpatialFrequency/SpatialFrequency.html
For what types of stimuli and for what variations of stimuli parameters do the models differ?
stimulus parameters

spatial frequency

target size

http://www.psy.vanderbilt.edu/courses/hon185/SpatialFrequency/SpatialFrequency.html
model responses to variations of the checkerboard illusion

- difference of predicted test patch brightness

- frequency

- ODOG
- LODOG
- FLODOG
model responses to variations of the bullseye illusion

frequency

difference of predicted test patch brightness

ODOG
LODOG
FLODOG
summary of some results

- ODOG and LODOG very similar

- FLODOG more likely to predict assimilation

- high spatial frequency -> (stronger) assimilation

- FLODOG less consistent to changes in target size