Visual Ergonomics

Hering's illusion

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Assignment 01

The design task brief for the first assignment as part of the Module- Visual Ergonomics under the guidance of Prof.Vivek Kant was to study, analyse and explore the Hering's Illusion.

The project work structure was initiated with the background research and further followed by the Explorations for the Hering's illusions.

about Hering's illusion

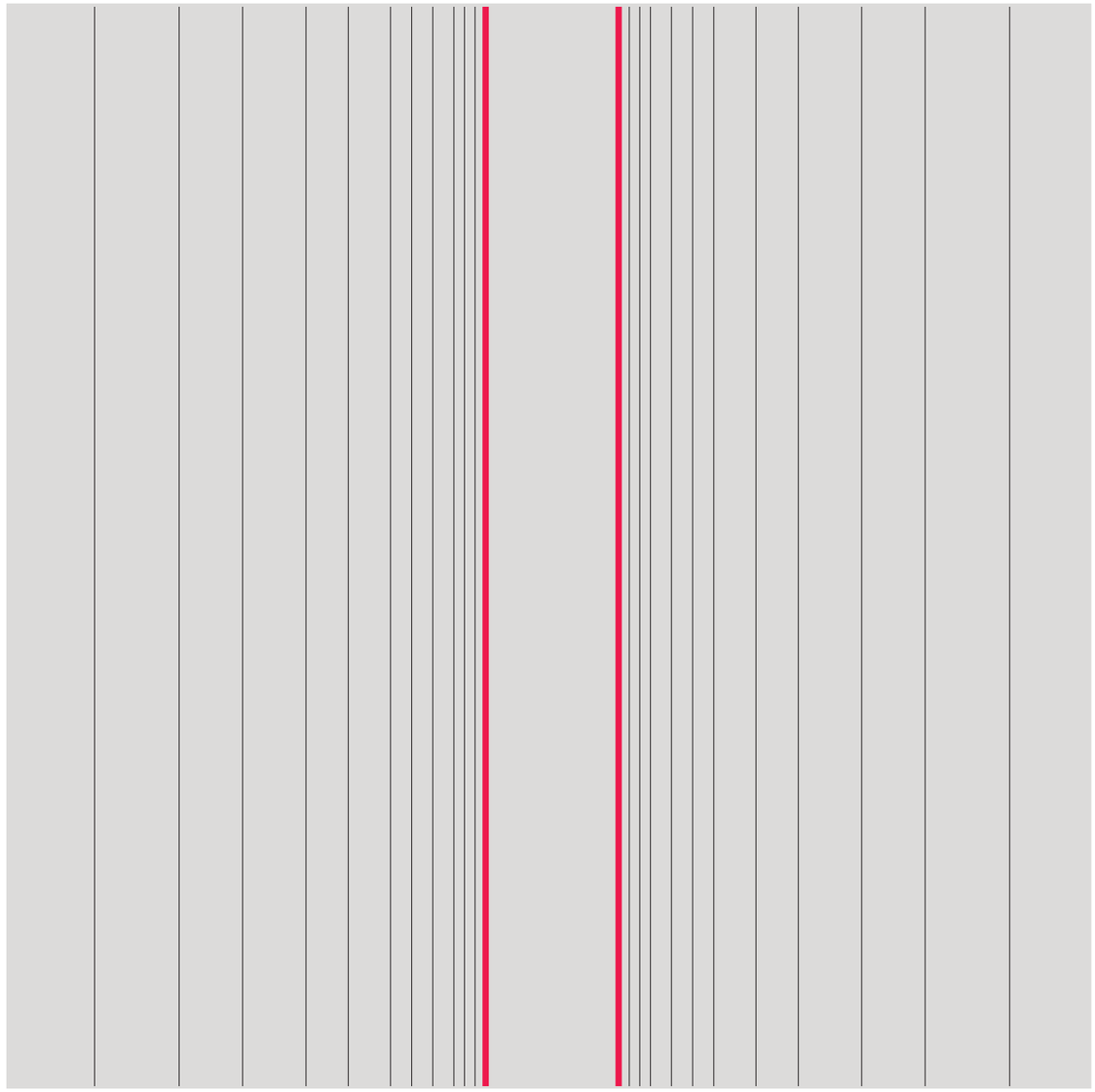
The Hering Illusion is one of many deceptions where a simple line's length, straightness, or parallelism is altered by other elements of the scene, such as other lines in the background or foreground or other crossing shapes. These are occasionally referred to as "geometrical-optical illusions." The Hering Illusion and the Wundt Illusion are inverted versions of one other, which makes them particularly similar.

German physiologist Karl Ewald Konstantin Hering, better known by his pen name Ewald Hering, invented the Hering Illusion. He lived from 1834 to 1918. The illusion was first published by Hering in 1861.

The reasons why people see the Hering illusion have been the subject of numerous general ideas. One is known as the "expanding" of acute angles or Acute Angle Expansion Hypothesis, which states that acute angles frequently appear larger than they actually are in our perceptual processes. Why human perception processes have a tendency to broaden sharp angles is still a mystery. However, despite numerous studies being conducted on the subject, the scientific evidence supporting the underlying causes of this illusion, which include elements other than the acute angel enlargement, is still unclear.

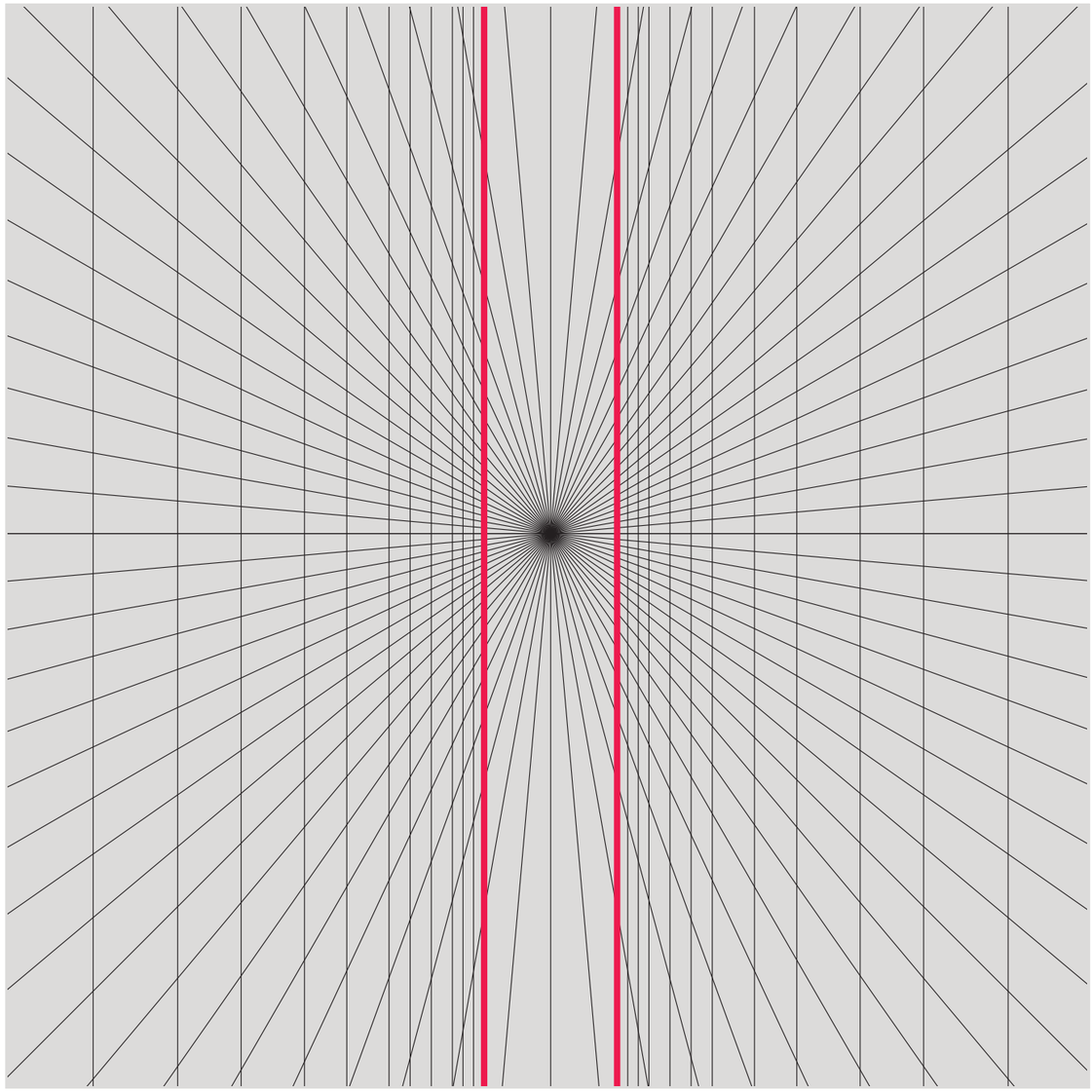
As for Hering's illusion, and its main charateristic feature of distored illusion of straight line and its minimalistic illusionary action felt as bit of a restriction in terms of exploratory illusion characteristics. And to tackle this in this assignments, explorations of Herings illusions along with fusion of multiple illusions approach have been followed.
The other illusions which work in rythm with Herings illusions to make are as Orbition illusion, zollners wundt's and other line geometric illusions.

Hering's illusion
Explorations

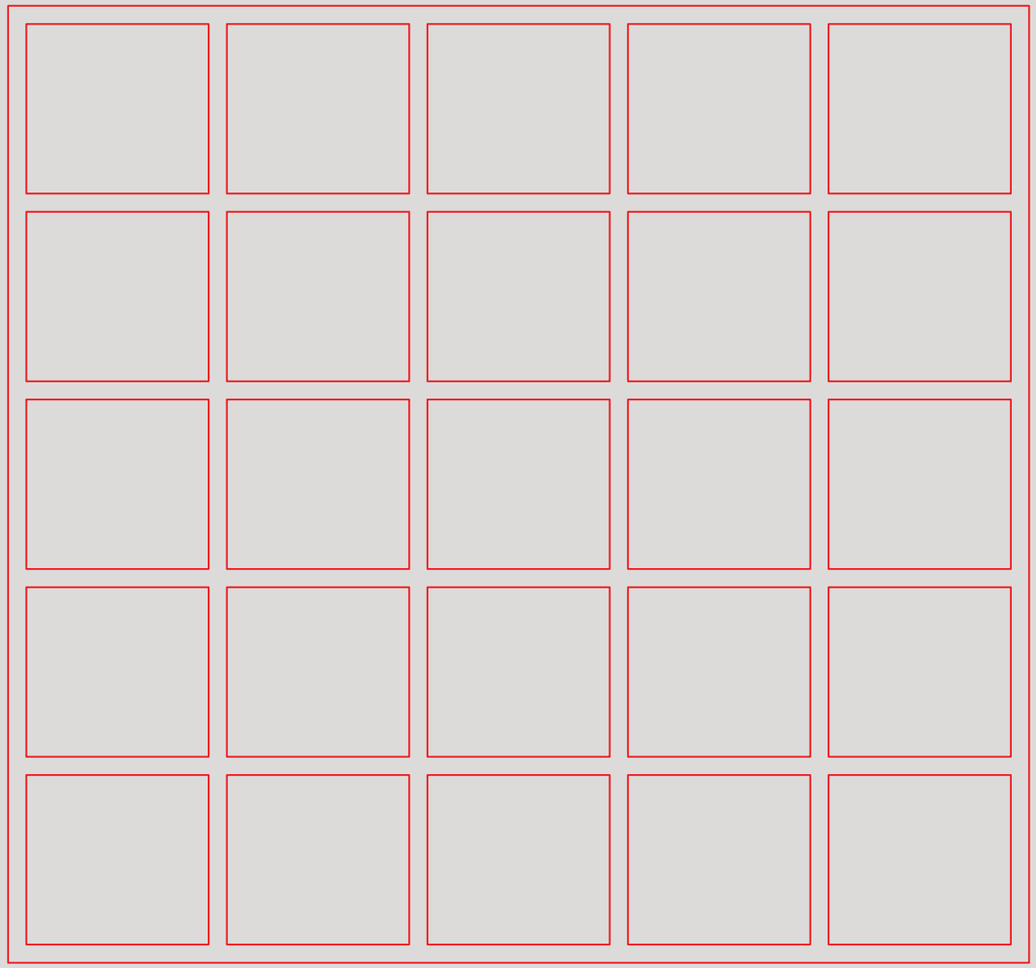


01

The initial exploration was done with a series of parallel vertical lines with the two centre most line highlighted with red and heavy lineweight in relation to the rest.

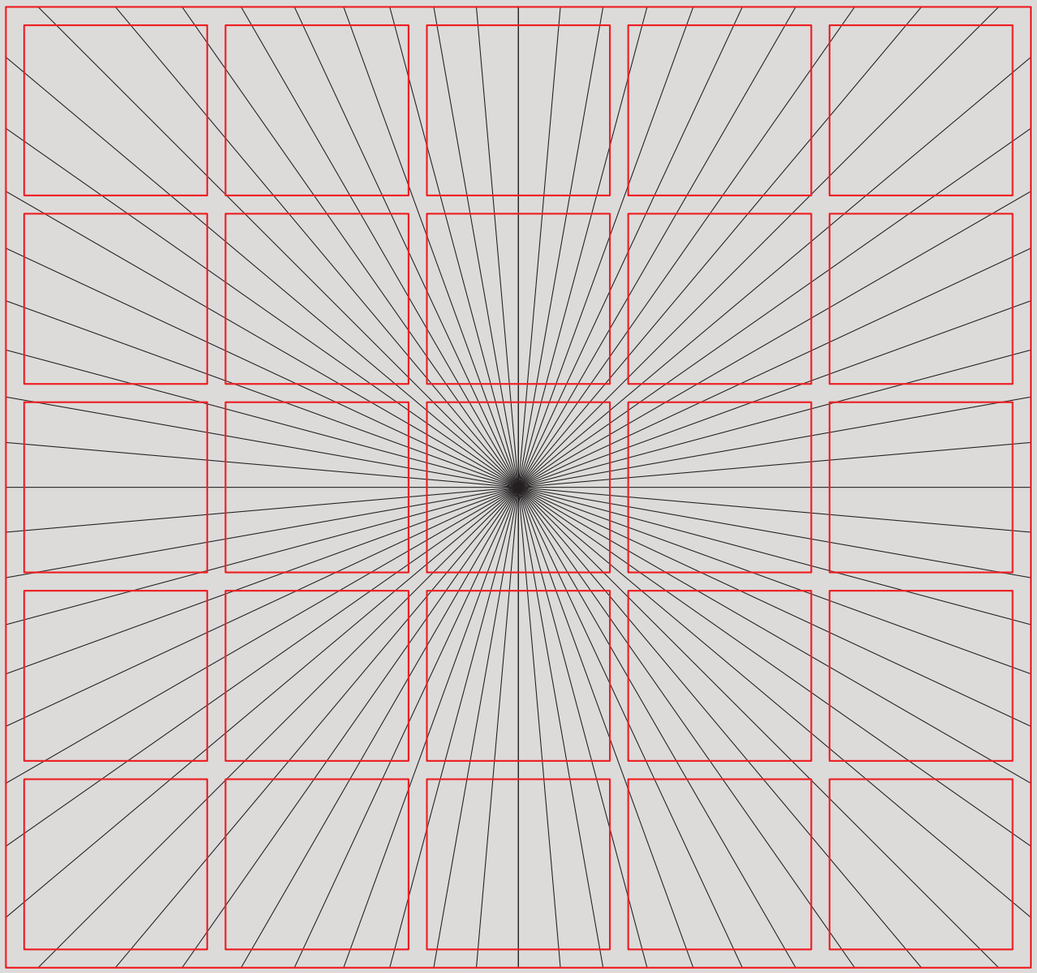


The simple and the best exploration to explain the Hering's Illusion as the Vertical foreground parallel lines seem bit bend outwards in the middle due to background radially converging lines as the acute angel expansion is induced to the visual perception. The illusionary effect over the line reduces as the verical lines moves away from the central converging point of the background lines.

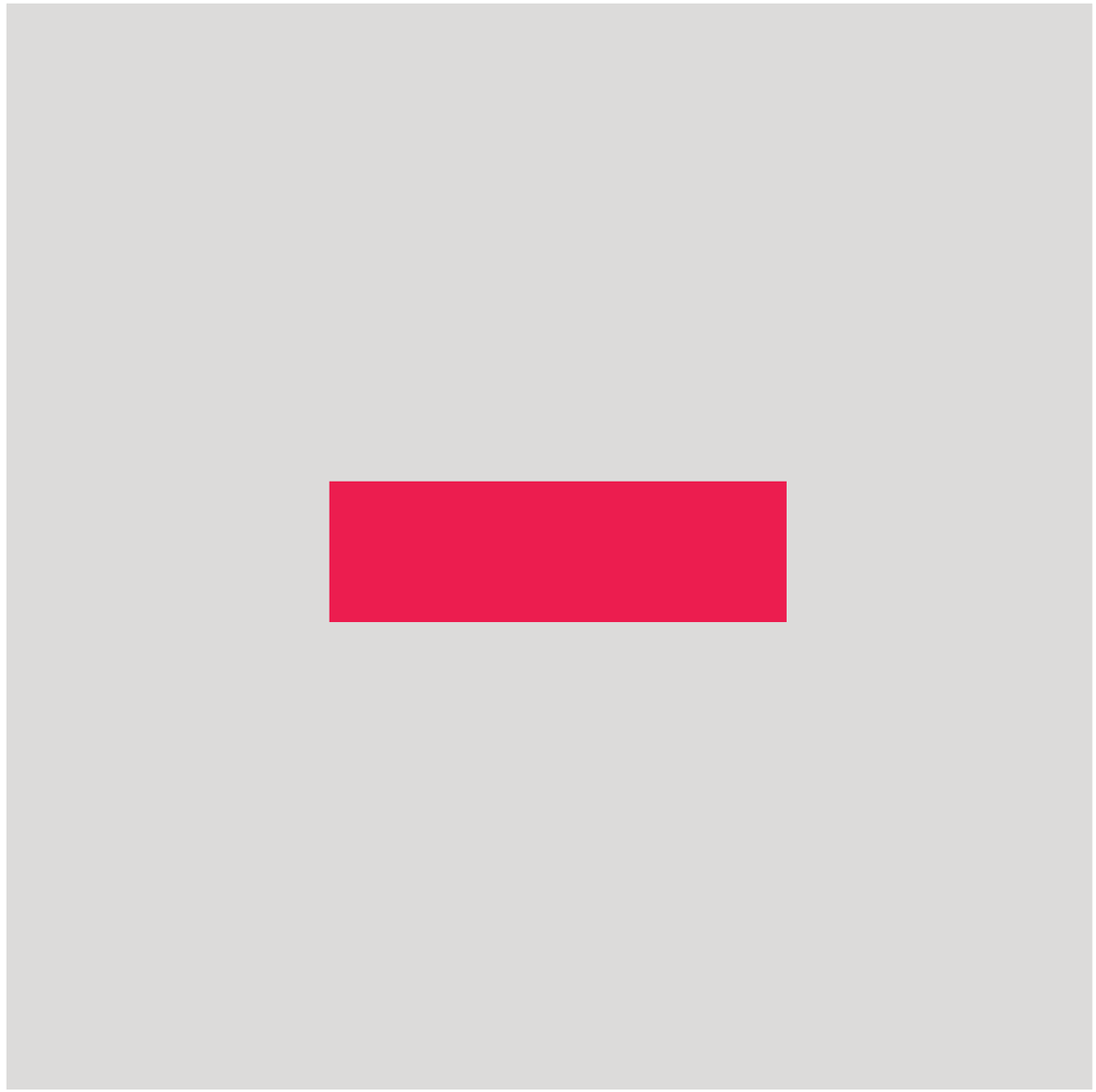


02

In the primary exploration the veritcal line and its illusionary impact was the main criteria and in this exploration is aimed to explore the effect of herings illusion in a setting of a 5x5 grid. Through which both the vertical and horizontal line can be analysed.

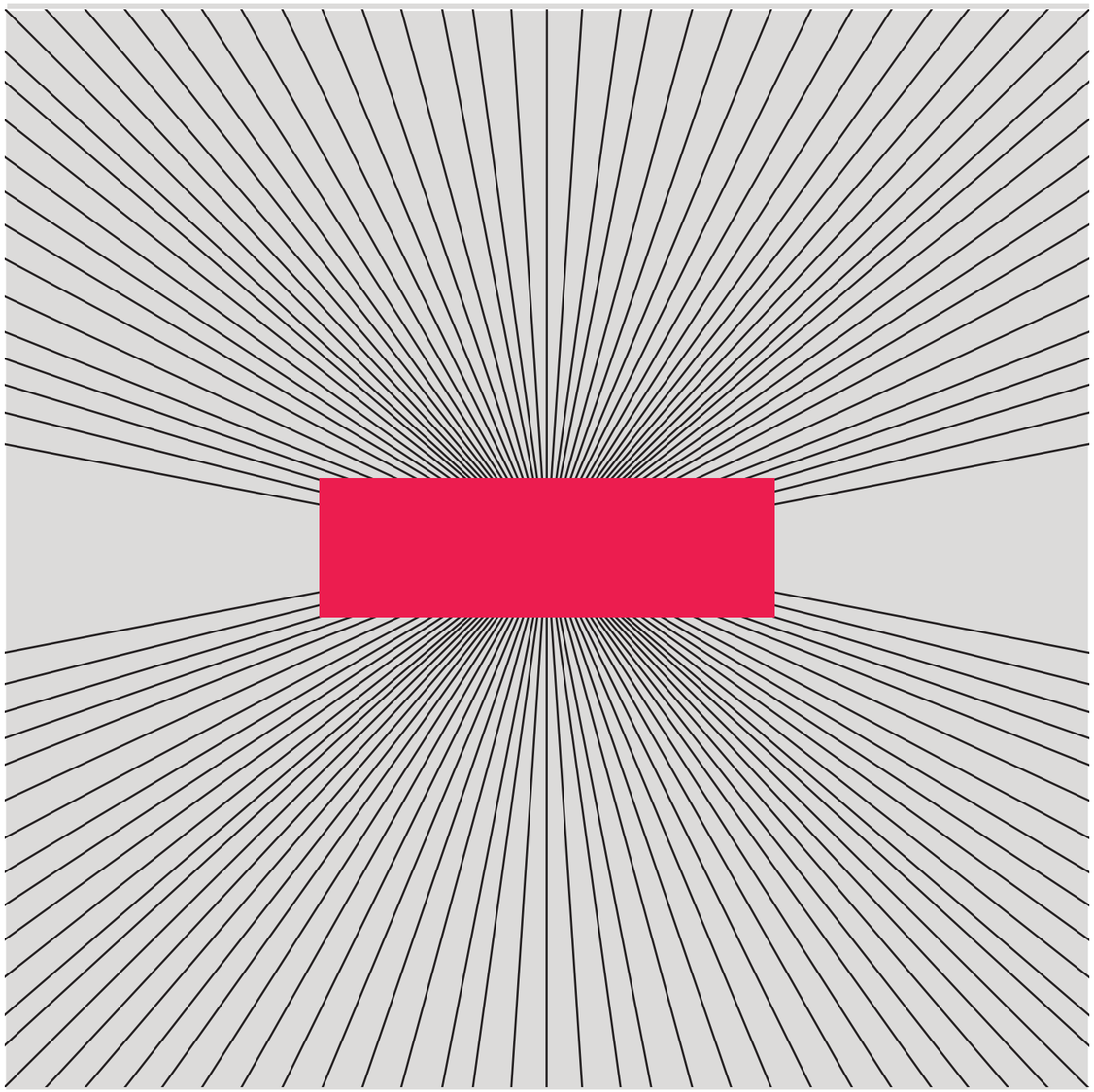


The Radial converging background lines and the acute angle expansion creates a slight visual impact of central one point perspective grid 3d and the lines both vertical and horizontal are equally having the distortion of benting outtward from the central point and hence create the herings illusion.

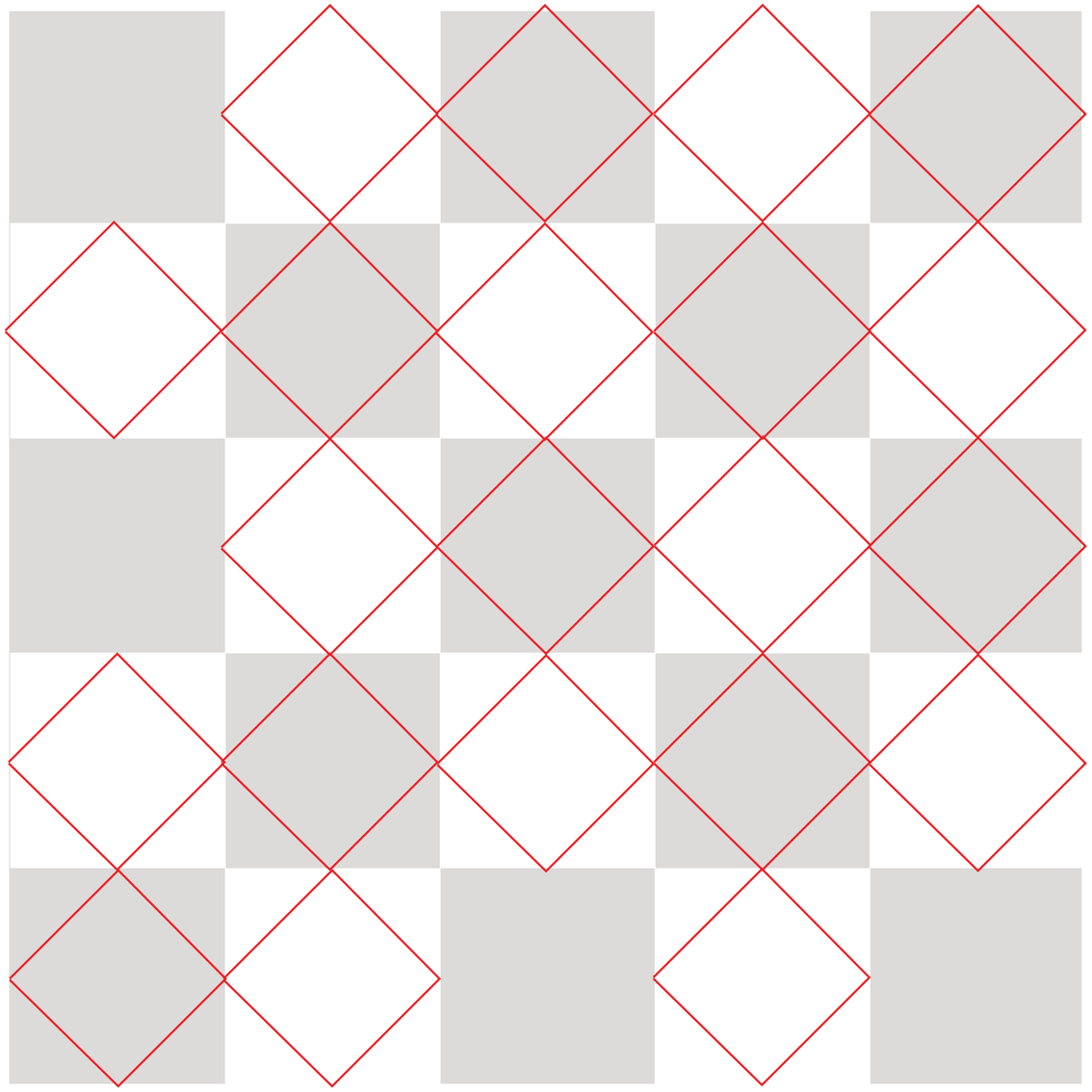


03

As we have seen the Hering illusion occuring with straight lines, its time to explore its visual persepective effects over a rectangular colour filled block.

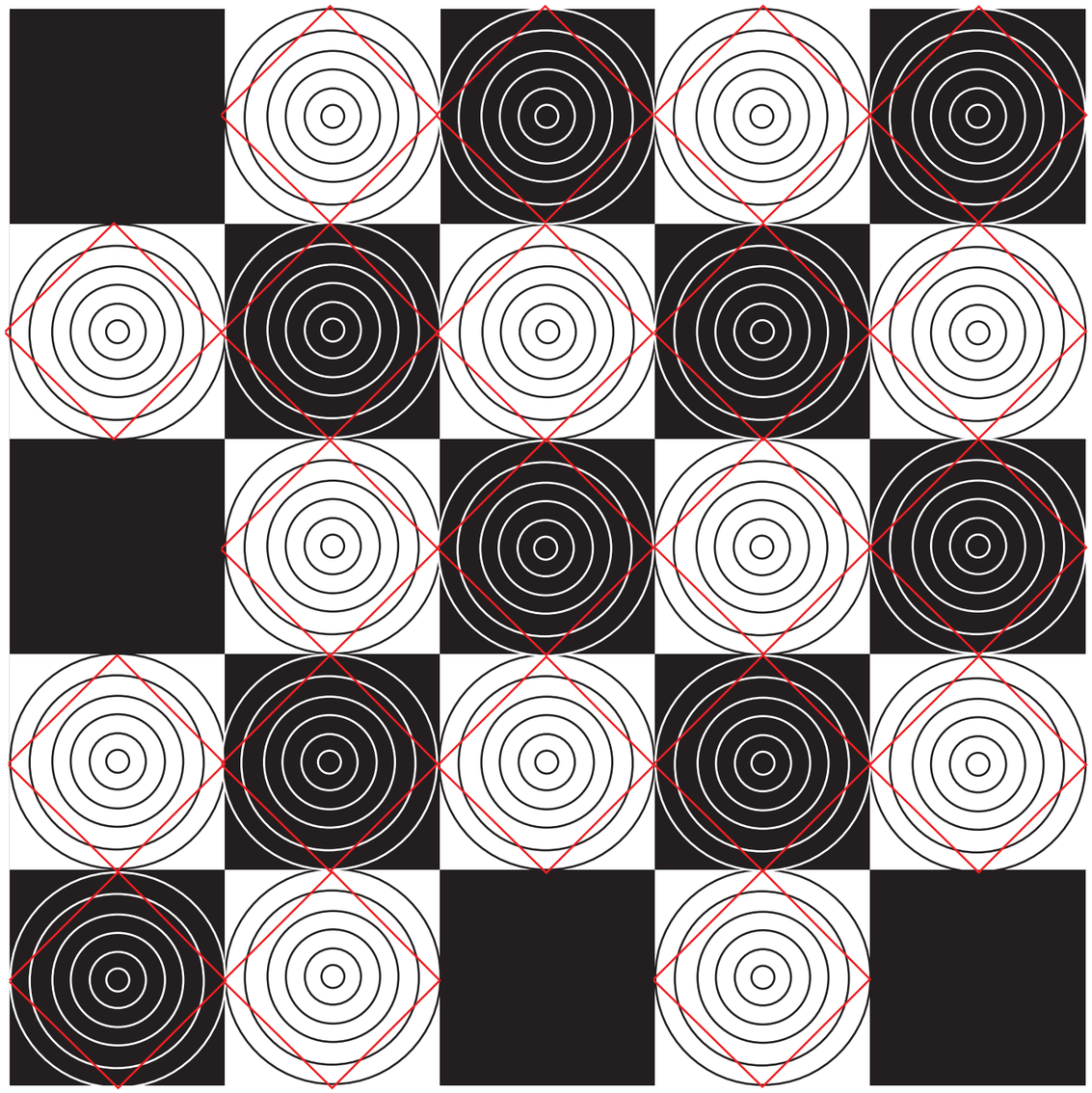


Upon placing the rectangluar red block once placed over the radial converging straight lines the rigid rectangle tends to give a distorted viusal perception with the straight edges seeming to bend a bit outwards. This simple illusion can have multiple use case scenarios as in the user interface design to create click button design and much more explorations can be developed over this initial idea.

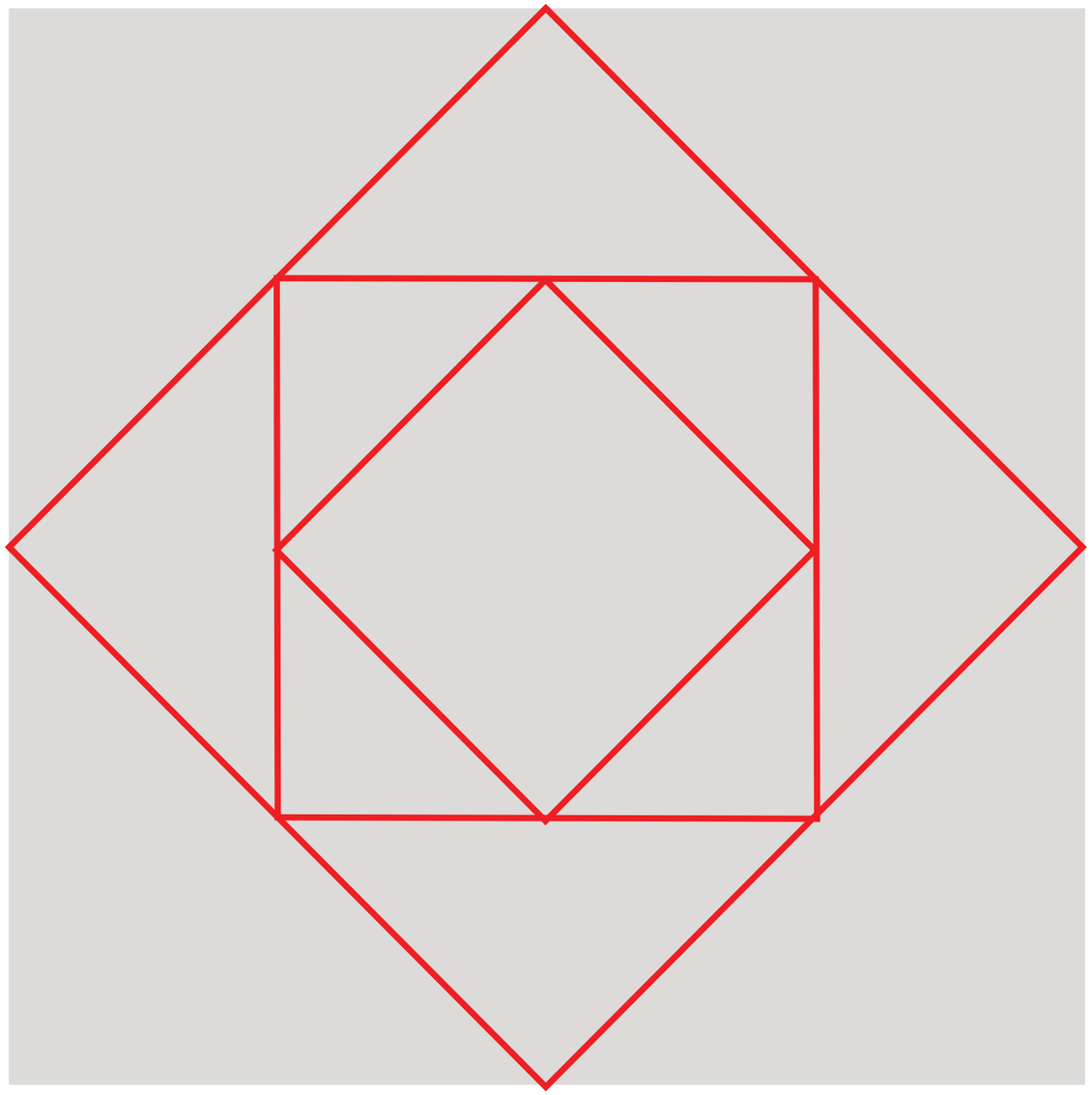


04

In this exploration a combination of Herings law with orbition illusion is to analysed and for it as per the fore-ground design diagonal grid system placed over the a black and white checker board to simultenously see the imapct of colour change is visual-ized based on a refernce illusion from *'michealbach.de'* .

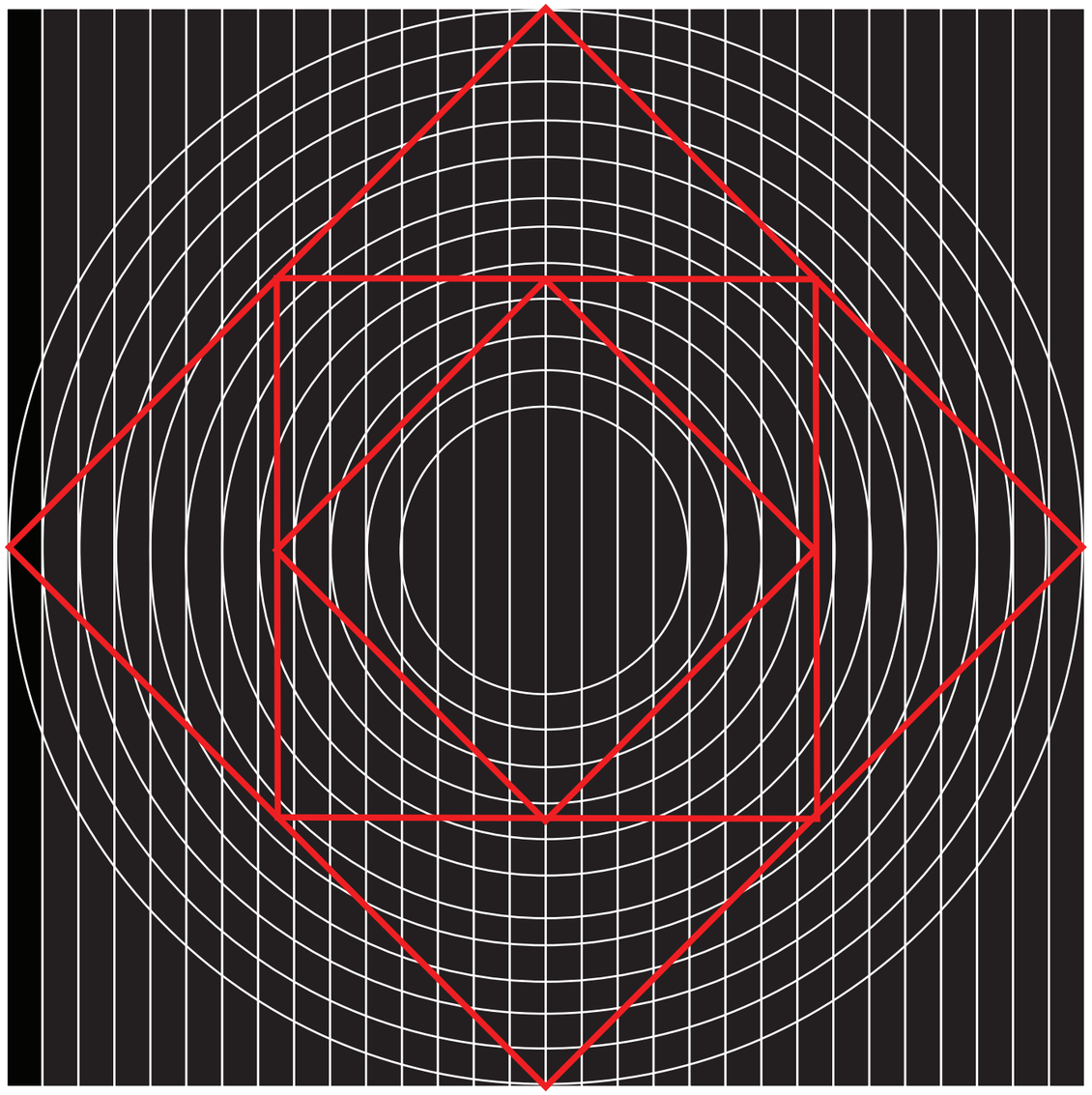


The orbition illusion which can be termed as an umbrel-la tag for the Hering and Wundt illusion can be clearly understood through this exploration as the diagonal square forground line have the illionary properties and seems to be distroted due to the concentric underlying circles. And with the black and white checker board background dosent add to any visual differnce as due to the high contrast value shared in both the aspect are same.

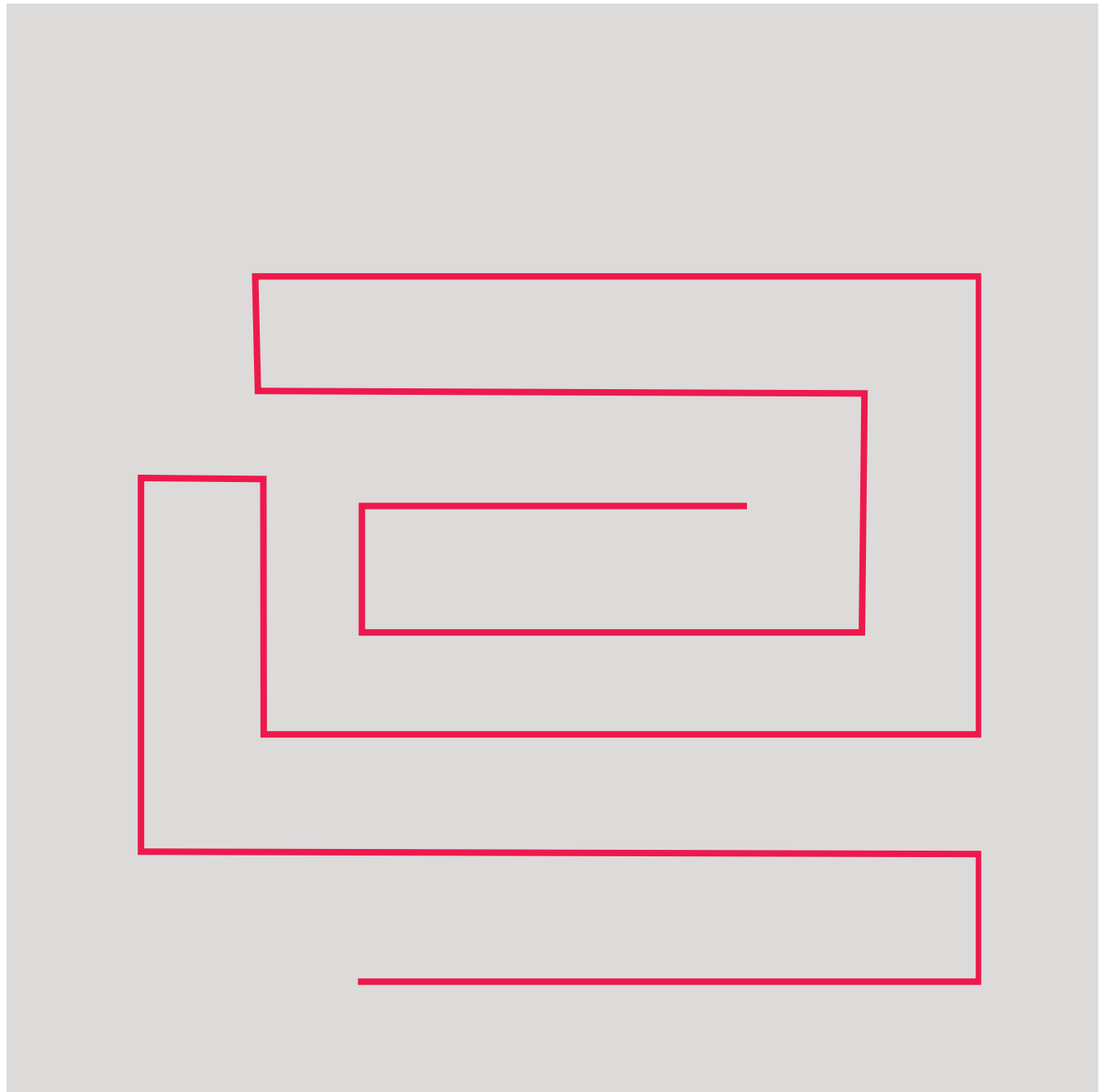


05

This exploration is to check the comparitive illusionary properties of a square and a diamond line shapes in foreground. The key concentration is to see which of the two have a prominent line illusion factor when set over on an orbition illusion setting background.

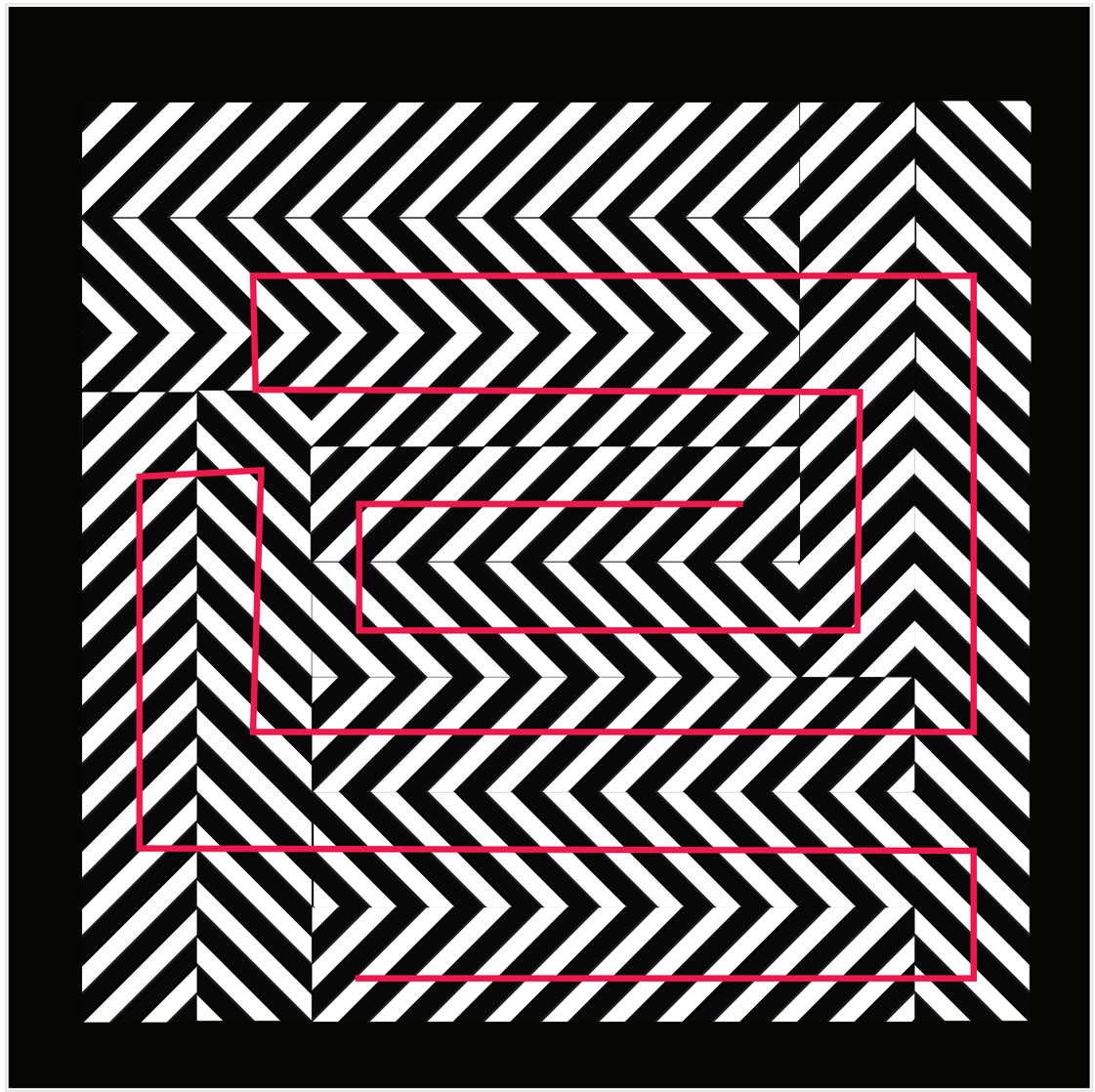


The concentric circles and vertical lines are placed with and equidistant layout and the diamond shape undergoes more illusion than the square as it undergoes more acute angle expansion when overlayed with the background .

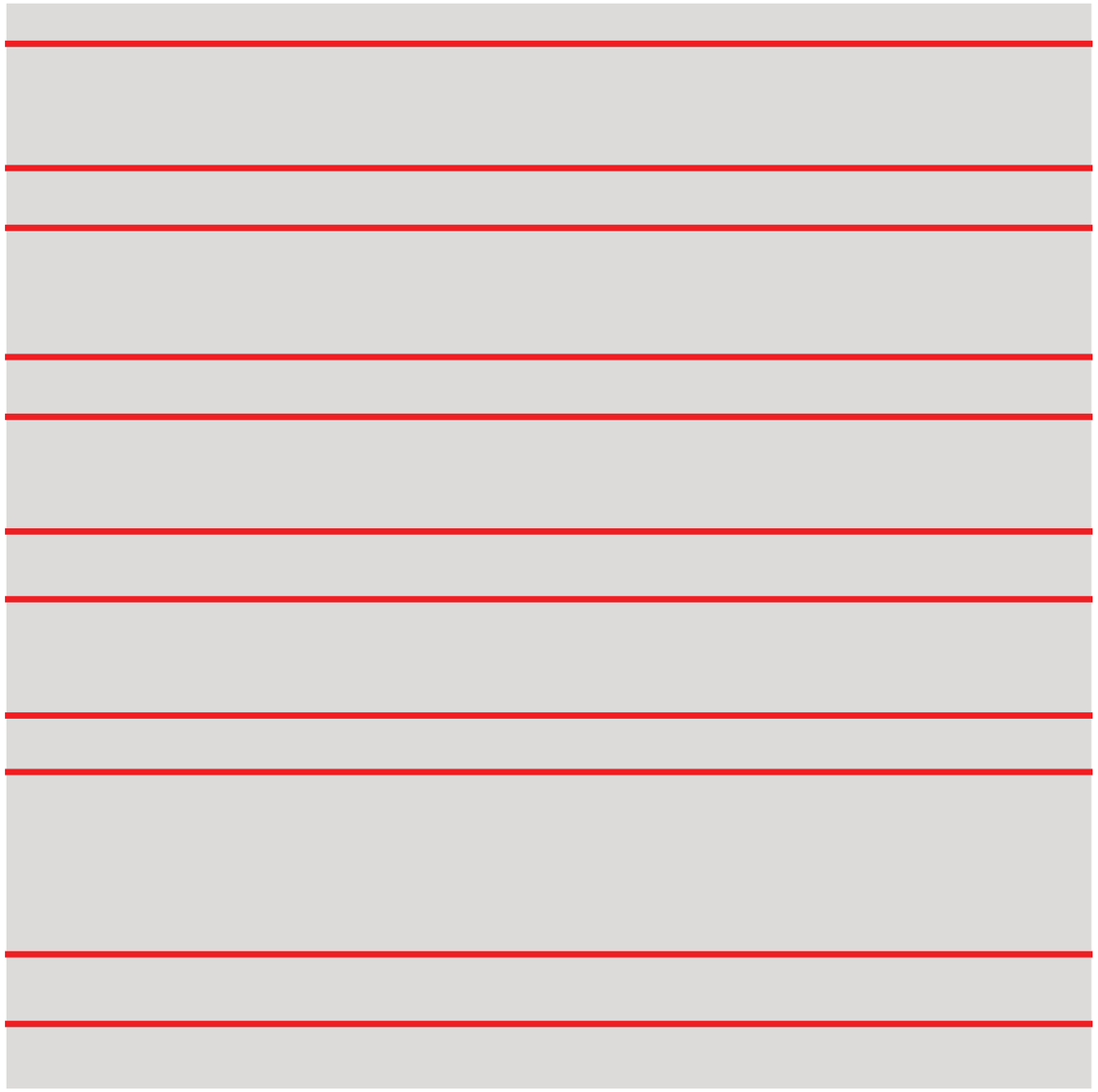


06

As to widen the horizon of scope in understanding the illusions an experiment with a maze design and its illusion envisoned to be explored.. The zig zaged maze red line is illustrated and its impact over the underlying herringbone pattern is to be analaysed.

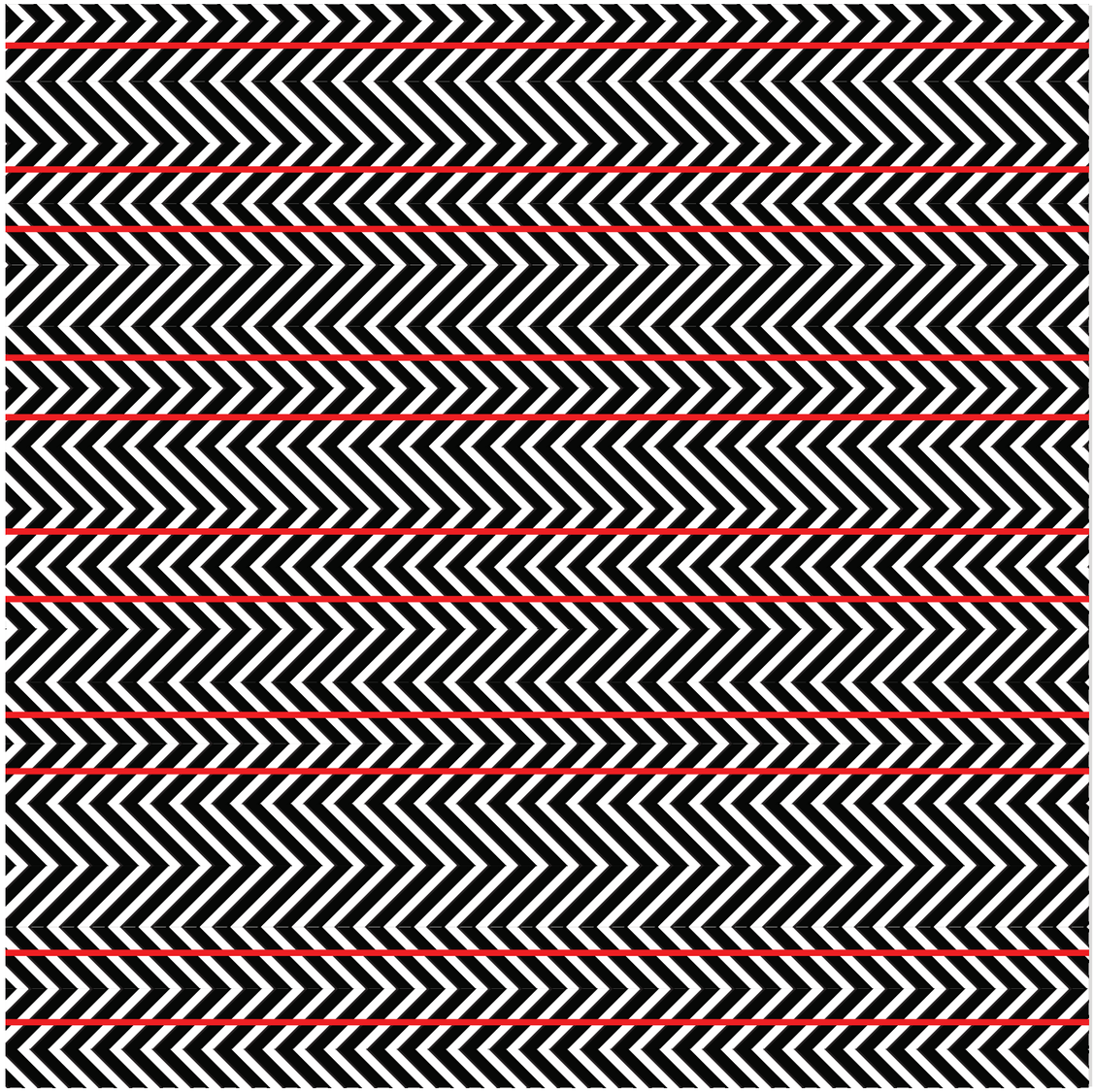


The combination of background herringbone pattern where it facilitaes the acute angles expansion make it to have a distored maze line which are in reality straight lines. This has a use case in graphic design and other visual design aspects too.

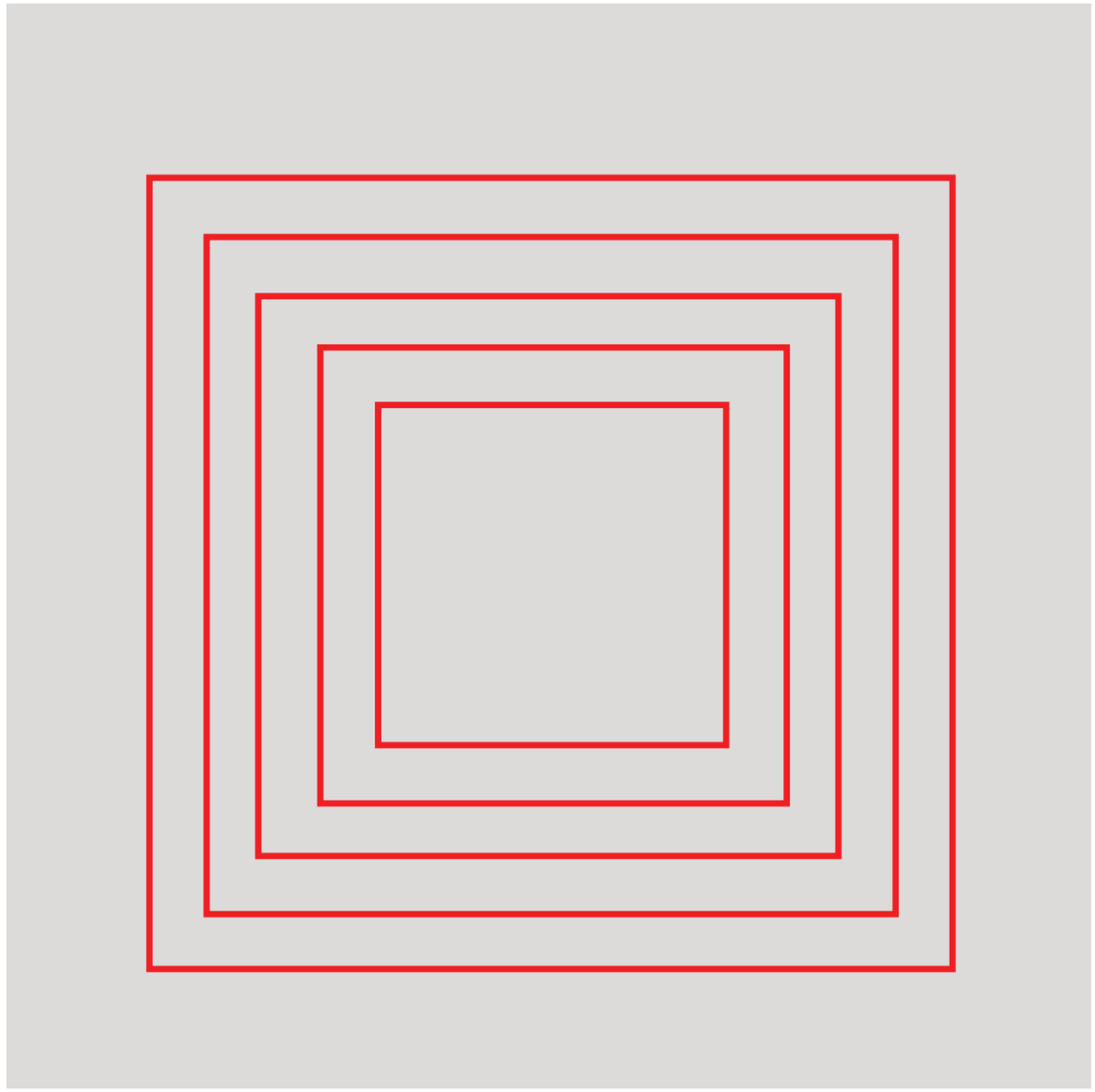


07

In the primary exploration we have seen the illusion created when vertical lines are underlayed by radial lines and her in this one its aimed towards the analyse of straight horizontal lines when placed over the herrinbone linear pattern swatches.

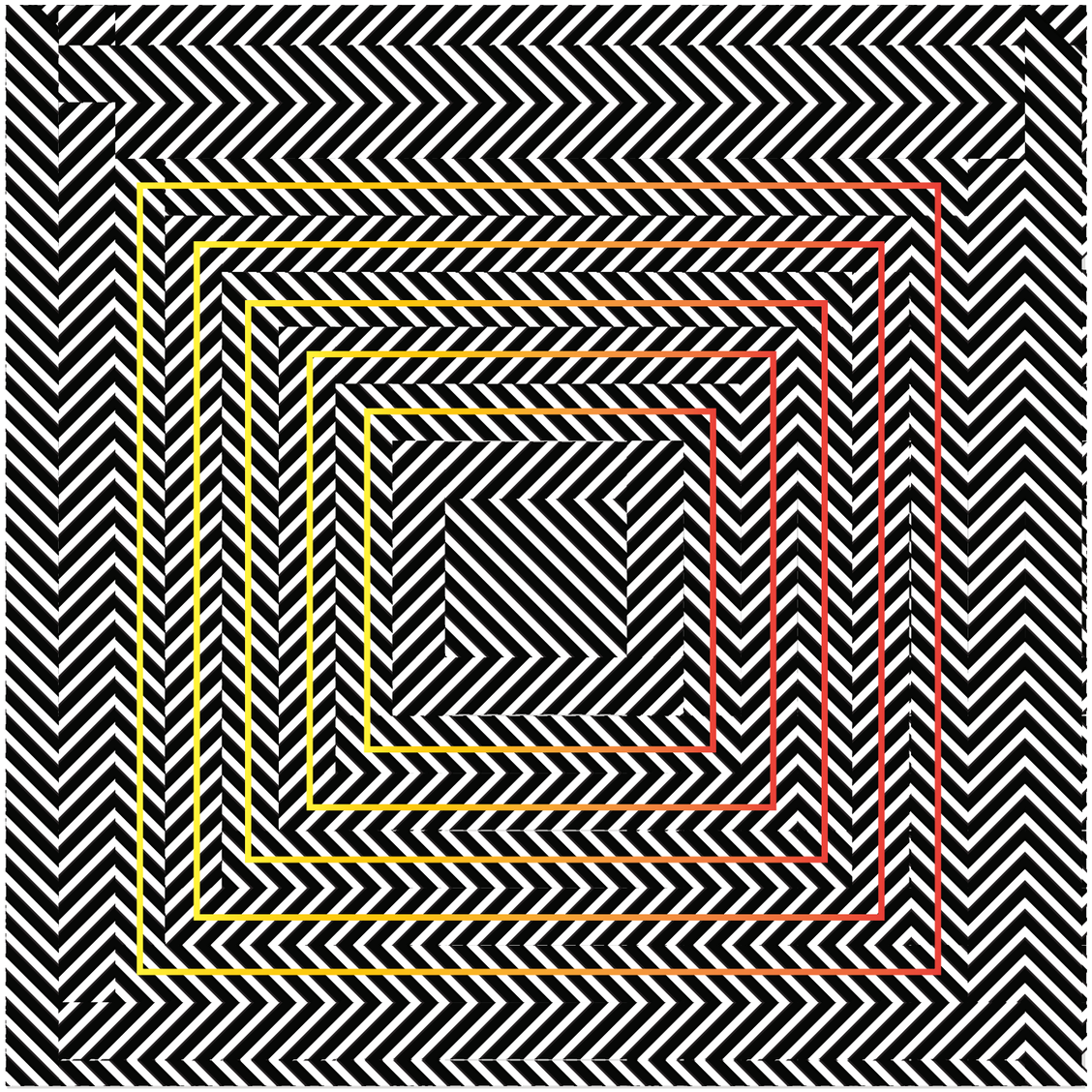


The Herringbone pattern in itself have an illusion of directing the eye to move from one side to the other as per the directional angle of the pattern. And as we overlay with straight horizontal line the line seems to have a wobbly distortion effect and the illusions formed is a combination of Zollingers and Herings illusion.

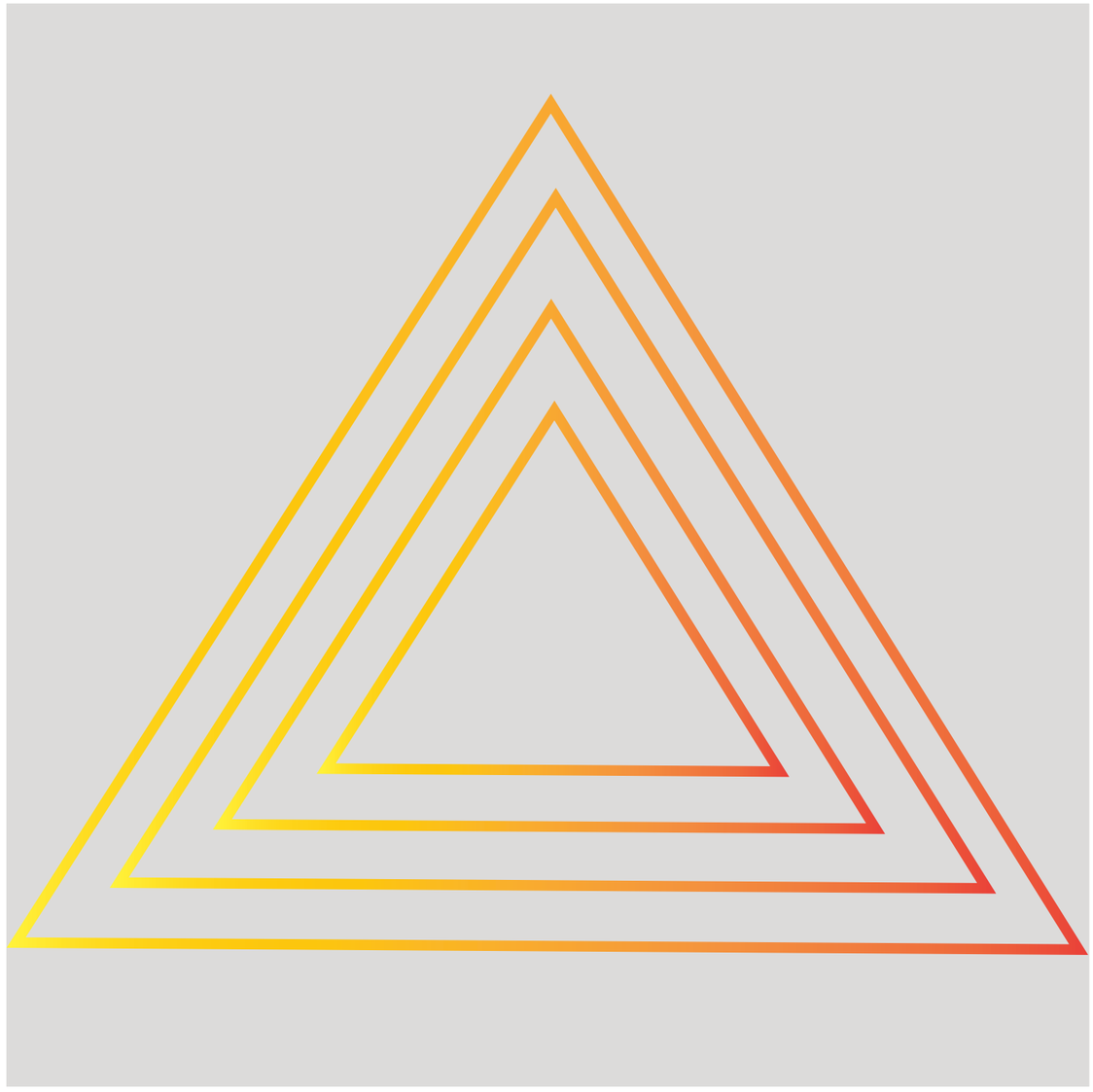


08

The zolleners illusions works in close line with the herings illusion and this exploration aims to see its impact a series of concentric square lines will have when underlyied by a herringbone pattern.

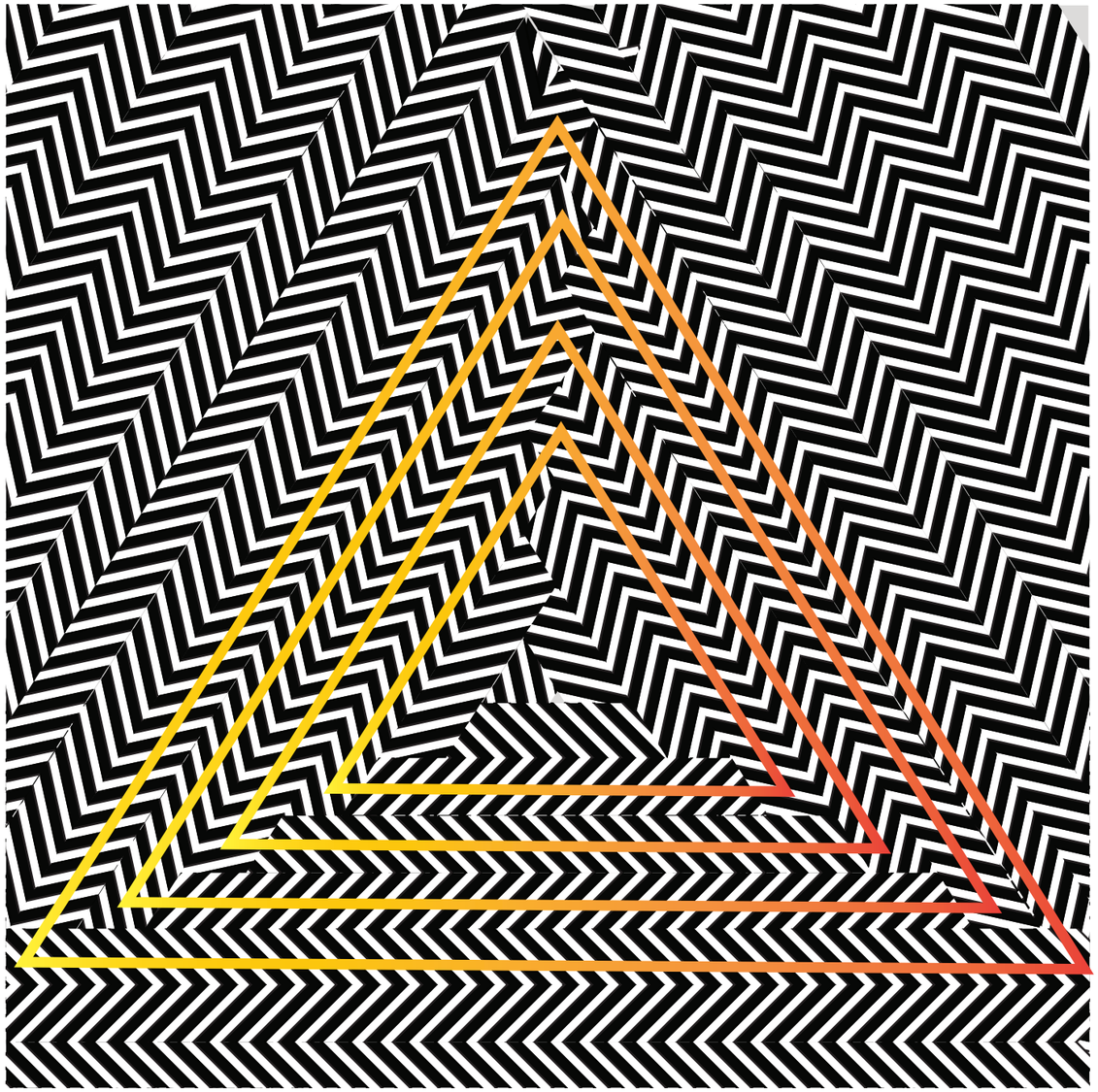


The above exploration is a very clean depiction of distortion of line charaters due to the effect of underlying line or pattern characters. The square seems to look distorted as a due the same angluar expansion and the play of colour adds more insight as colours with more brightness and saturation may have a higher distortion value than the low bright colour tones.



09

This is a comparitive exploration to the previous one whereas to understand the forground line shape impact in the overall line distortion when exposed to the same background properties.



In this scenario also the line distortion takes place and in a macro level percerption the triangluar shaper forground have a lesser distortion to that of a concentric square line distortion.

Conclusion

The Hering's illusion in itself is a very fine illusion but the impact it will have over in combination with other illusions can be drastic. The impact of Herings illusion is not just limited to the design language but it also have an underlying philosopihical link as that can be used to prove that even very basic line can have illusionay property when placed in apt background and other properties.

Through this illustration a set of insights have been analysed as the importance and play of background linepatterns and its usecase in design fields as User experience design, interface back-ground pattern deign and much more aspects.