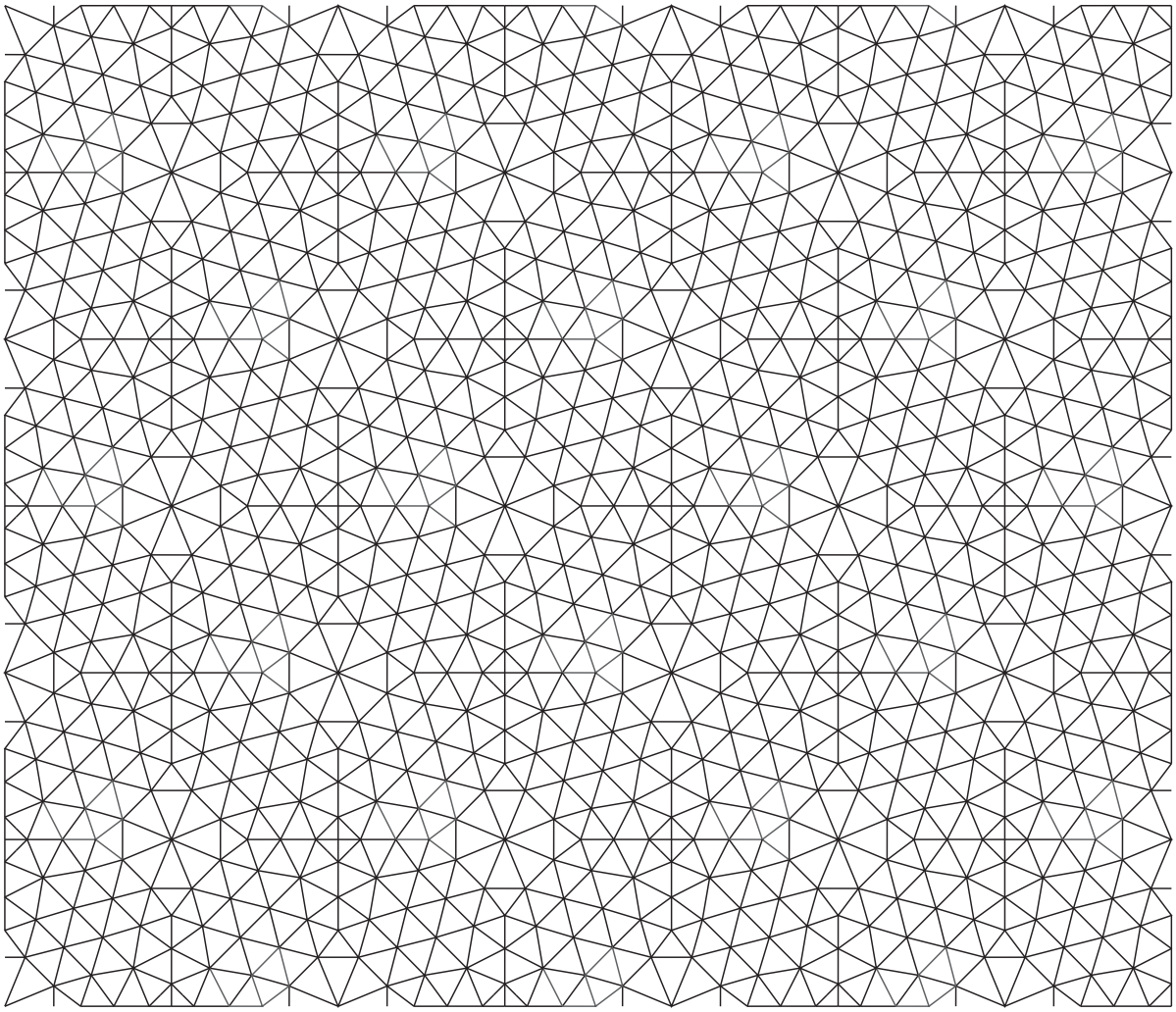
Altair Designs: Cultivating Perceptual and Adaptive Reasoning

The goal of Altair Designs is to strengthen perceptual reasoning and sustained analytic attention at a time when reasoning itself often appears diminished—when complex judgments are increasingly displaced by emotive one-liners and rapid conclusions. Altair Designs engage perceptual reasoning: the capacity to organize visual information, detect structure, and remain open to multiple interpretations. This mode of thinking is inseparable from adaptive reasoning—the form of cognition required for problem-solving, innovation, lateral thinking (as articulated by Edward de Bono), algorithmic design, and real-world decision-making. Perceptual reasoning provides the ground; adaptive reasoning extends it. Altair Designs are conceived as a visual practice in which these complementary forms of reasoning develop together through sustained attention, exploration, and imaginative participation.

Altair Designs are not images to be read; they are visual systems to be explored. Built from tightly organized geometric linework, each composition forms a coherent field rather than a centered picture—one that continually redistributes attention through symmetry, repetition, and controlled variation.



This is one example from the broader body of Altair Designs* (four more are at the end of this document). Take time to look slowly. Allow your eyes to move freely across the lines and notice how your attention gathers and shifts—how shapes, pathways, and pictographic forms begin to emerge. Some viewers perceive

complete scenes—birds, hills, trees, animals—while others experience abstract patterns or rhythmic structures. Whatever you perceive is both valid and personal. There is no correct reading and no fixed image to uncover. Altair Designs are not about recognition, but about perception itself—an open visual experience shaped by the interaction between structure and imagination.

Viewers often experience these fields as generators of emergent imagery. Faces, animals, pathways, flowers, and landscape-like scenes appear—not because they are depicted, but because the structure invites perceptual completion and imaginative projection. A common and telling response is that viewers feel compelled to *color what they see*. Coloring becomes a way of capturing a fleeting perceptual insight—marking a form that has momentarily emerged from the geometry before it dissolves and reappears elsewhere in the field.

The familiar analogy is cloud-watching, with one crucial difference. While clouds are amorphous and transient, Altair Designs are governed by underlying symmetries. Any perceived form can be rediscovered repeatedly across the design—rotated, reflected, or translated—recognizable yet continuously transformed. Coloring allows viewers to trace and stabilize these perceptions, turning subjective discovery into a visible record of attention and interpretation.

Formally, the designs arise from close-packing arrangements of circles and networks of inscribed and escribed polygons—regular and irregular, spanning multiple radii and side counts—organized within square and hexagonal tilings. This structure produces a multi-directional visual logic: junctions at polygon centers and vertices create competing pathways for the eye, generating scan patterns of continual redirection rather than rapid visual closure. Coloring does not resolve this ambiguity; instead, it heightens awareness of alternative pathways and competing organizations within the same field.

In this sense, Altair Designs function as perceptual catalysts, and coloring functions as perceptual participation. The act of coloring externalizes attention, transforming internal pattern recognition into a deliberate, embodied response. Many viewers report the process as calming, absorbing, and therapeutic—not because the designs simplify perception, but because they sustain it. Coloring becomes a structured yet open practice that rewards focus, slows cognitive tempo, and allows multiple interpretations to coexist without the pressure of resolution.

** Altair Design books: Available in bookstores and Amazon.com as Altair Design Pattern Pads: Bks 1 and 2. Also, the Roger Burrows 5-book serie: "Visual Thinking, Seeing Through Time." For Roger Burrows, "Mind Doodles," go to parkcitypublishing.com. For supplements and other works: rogerburrowsimages.com.*

Underlying Cognitive-Aesthetic Concepts

In a sense, Altair Designs function as perceptual environments—structured visual systems that engage attention, pattern recognition, and interpretive cognition without prescribing imagery or narrative.

1. Attention Distribution

The absence of a privileged focal point leads to distributed attention rather than focal fixation. Visual salience is locally generated and repeatedly redistributed. The designs promote distributed attentional engagement rather than focal resolution.

2. Eye-Movement Dynamics

Junction density and directional ambiguity encourage nonlinear scan paths. Eye movements alternate between short saccades and broader exploratory sweeps. The geometry induces continual redirection of eye movement through competing directional affordances.

3. Emergent Imagery (Without Illusionism)

Imagery arises through perceptual completion and projection, not representation. This aligns with research on pareidolia, but within a constrained system. Recognizable forms emerge as perceptual interpretations rather than representational content.

4. Symmetry as Cognitive Anchor

Symmetry provides predictability and recurrence, stabilizing perception. Variation prevents habituation or rapid closure. Symmetry functions as a cognitive anchor, enabling recurrence without redundancy.

5. Delayed Visual Closure

The image resists rapid interpretation or exhaustion. Meaning remains provisional and revisable. The designs resist perceptual closure, sustaining engagement through recursive discovery.

Summary

Altair Designs operate at the boundary between bottom-up visual processing and top-down interpretive projection, using geometric constraint to sustain perceptual openness. Meaning arises not from depiction but from the interaction between structural affordances and the viewer's cognitive participation.

Perception and Neuroaesthetics

The work is relevant to cognitive science and aesthetics insofar as it presents systematically constrained visual stimuli that exercise imaginative perception through symmetry, ambiguity, and sustained exploratory viewing, directly engaging current questions in perceptual organization and neuroaesthetic process models.

Recent research in visual perception and neuroaesthetics increasingly emphasizes the role of structured ambiguity in sustaining perceptual engagement and eliciting imaginative interpretation. Studies of pareidolia and emergent imagery demonstrate that minimally specified yet constrained visual stimuli can reliably recruit top-down perceptual completion, functioning as externally scaffolded mental imagery rather than as perceptual error. At the same time, empirical aesthetics and eye-tracking research show that visual fields characterized by distributed salience, high junction density, and the absence of a dominant focal point promote exploratory scan paths and delayed perceptual closure.

Altair Design geometric line patterns contribute to this research landscape by offering rigorously constructed, nonrepresentational visual systems based on close-packed polygonal arrangements and symmetry-preserving transformations. Unlike amorphous, ambiguous stimuli such as clouds or noise textures, these designs combine interpretive openness with strong geometric constraints, enabling perceived forms to recur through rotation, reflection, and translation. This balance of constraint and openness aligns with Gestalt field theories of perception and with contemporary neuroaesthetic accounts that frame aesthetic experience as a temporally extended process involving attention, exploration, and meaning formation rather than immediate evaluative judgment.

As such, these designs provide a controlled yet perceptually rich class of stimuli suitable for investigating distributed attention, emergent imagery, and the interaction between bottom-up visual structure and top-down interpretive processes.

Coloring as Perceptual Exploration

Coloring Altair Designs extends the perceptual experience beyond observation into active exploration. As color is applied, attention naturally shifts between local details and global structure, encouraging the viewer to notice alternative pathways, symmetries, and emergent forms that may not appear at first glance.

Because the geometry supports multiple competing visual directions, coloring does not resolve the image into a single interpretation. Instead, it reinforces perceptual flexibility—inviting the eye and mind to continually reframe relationships between shapes, colors, and patterns. Forms that emerge in one moment may dissolve and reappear elsewhere through rotation, reflection, or repetition.

In this way, coloring an Altair Design can be understood as a practice in visual imagination and perceptual versatility: a structured activity that rewards sustained attention, pattern discovery, and the ability to hold multiple interpretations simultaneously.