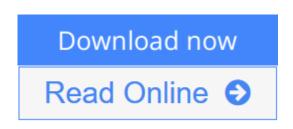


Visual Intelligence: How We Create What We See

By Donald D. Hoffman



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"Don Hoffman . . . combines a deep understanding of the logic of perception, a gift for explaining it with simple displays that anyone can-quite literallysee, and a refreshing sense of wonder at the miracle of it all."--Steven Pinker, author of *How the Mind Works*

Cognitive scientist Donald Hoffman's exploration of the extraordinary creative genius of the mind's eye "has many virtues, of which sheer intellectual excitement is the foremost" (*Nature*). Hoffman explains that far from being a passive recorder of a preexisting world, the eye actively constructs every aspect of our visual experience. In an informal style replete with illustrations, Hoffman presents the compelling scientific evidence for vision's constructive powers, unveiling a grammar of vision - a set of rules that govern our perception of line, color, form, depth, and motion. Hoffman also describes the loss of these constructive powers in patients such as an artist who can no longer see or dream in color and a man who sees his father as an impostor. Finally, Hoffman explores the spinoffs of visual intelligence in the arts and technology, from film special effects to virtual reality. This is, in sum, "an outstanding example of creative popular science" (*Publishers Weekly*). 20 full-color and 130 black-and-white illustrations

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Editorial Review

Amazon.com Review

Visual intelligence, cognitive scientist Donald Hoffman writes, is the power that people use to "construct an experience of objects out of colors, lines, and motions." And what an underappreciated ability it is, too; despite the fact that the visual process uses up a considerable chunk of our brainpower, we're only just learning how it works. Hoffman aptly demonstrates the mysterious constructive powers of our eye-brain machines using lots of simple drawings and diagrams to illustrate basic rules of the visual road. Many of the examples are familiar optical illusions--perspective-confounding cubes, a few lines that add up to a more complex shape than seems right. Hoffman also takes a cue from Oliver Sacks, employing anecdotes about people with various specific visual malfunctions to both further his mechanical explanation of visual intelligence and drive home how important this little-understood aspect of cognition can be in our lives. An especially intriguing example involves a boy, blind from birth, who is surgically given the power to see. At first, he is completely unable to visually distinguish objects familiar by touch, such as the cat and the dog. Other poignant examples show clearly how image construction is normally linked to our emotional well-being and sense of place. *Visual Intelligence* is a fascinating, confounding look (as it were) at an aspect of human physiology and psychology that very few of us think about much at all. --*Therese Littleton*

From Publishers Weekly

With wit, insight and charm, Hoffman, University of California, Irvine professor of computer science, cognitive science and philosophy, explains in this spectacular volume how we use vision to construct the world around us. Hoffman does a masterful job of demonstrating that vision encompasses so much more than merely what we see, and of illustrating that much of what we see may not, in fact, exist. Presenting the 35 rules of vision that scientists claim we use to piece together our environment ("Rule 1. Always interpret a straight line in an image as a straight line in 3D"), he analyzes many common optical illusions, explains how we perceive motion, color and depth, and philosophizes about the nature of reality and perception. Throughout, Hoffman makes wonderful use of myriad photographs to demonstrate the points he is making. The photos in the chapter on motion fail, necessarily, to catch the imagination the way the others do, but an ancillary Web site allows observation of the full motion of his examples. Not only is this book an outstanding example of creative popular science but, given the many optical illusions it presents, it's also the rare book that, in line with its subject, can be thoroughly enjoyed both right side up and upside down. Twenty color and 130 b&w illustrations. Agents: Katinka Matson and John Brockman. Copyright 1998 Reed Business Information, Inc.

From Library Journal

Stuffing his book full of illusions and visual tricks, cognitive science professor Hoffman solidly details how humans construct what they perceive with their eyes into an understandable reality. The many illustrations propel the curious reader through the book, and a website offers additional illustrations that require motion. Writing in an informal style that occasionally strays into pithiness, the author details the "grammar" of vision, or the rules that govern what you see. His text includes heavy philosophy and cognitive theory, but the casual reader is served entertaining examples from pop culture. Some might quibble with defining the ability to see, nearly universal among humans, as an intelligence, but the book will convince everyone that the human brain is an amazing thing. For larger science collections.?Kelly Hensley, East Tennessee State Univ. Lib., Johnson City

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Users Review

From reader reviews:

Heidi Odom:

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Karena Figueroa:

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