

Reluctantly subversive and at the same time pleasingly fresh, this succinct and extremely readable excursion into the human aspects of geospatial interpretation comes at a time when spectacular results from AI-driven, automated sensor data capture, and analysis appear to be an everyday expectation.

The quality of this compilation is affirmed by the glowing reviews on its back cover. The book is slightly over 175 pages, including a preface and eight chapters. This work provides an insight into the psychological, philosophical, and sometimes anatomic/physiologic, aspects of human perception and understanding of images as rendered by geospatial software and hardware.

“*Remote Sensing and Cognition*” makes its opportune appearance now that technological advances thrust us into a “must-be-3 (or more)-D-or-else” geospatial data visualization paradigm. As “mixed reality” or XR, as it is known, i.e., Virtual Reality plus Augmented Reality plus, based experiences are quickly disrupting and forcefully extending the capabilities of everyday analytical workflows. This volume provides an opportunity to explore what still makes image interpretation a uniquely human endeavor.

In assembling a group of experts from diverse fields, the editors try to elucidate how geocognition and cognitive GIScience works, focusing on the most basic aspect associated with remote sensing; i.e. the interpretation of images (“e.g. photographs, digital images, and sensor data rendered on a display”).

Chapter 1—Cognitive and Perceptual Processes in Remote Sensing Image Interpretation by Robert R. Hoffman, sets the stage for subsequent chapters by examining the core issues of what constitutes expert interpretation and how knowledge and reasoning serve the expert.

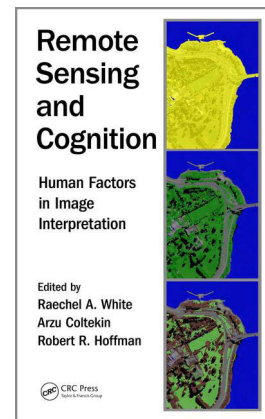
What constitutes “human spatial knowledge?” That is the question addressed in Chapter 2—Characteristics of Geospatial Photographs in Constructing Human Spatial Knowledge by Pyry Kettunen.

The influence of perspective on both art and military reconnaissance are explored in the context of cognitive GIScience in Chapter 3—Intersectional Perspectives on the Landscape Concept: Art, Cognition and Military Perspectives by Raechel A. White.

The dichotomy in the perceptual framework in analyzing terrestrial and “from above” scenes is presented in Chapter 4—Head in the Clouds, Feet on the Ground: Applying Our Terrestrial Minds to Satellite Perspectives by Ryan V. Ringer and Lester C. Loschky.

Chapter 5—Eye-Tracking Evaluation of Non-Photorealistic Maps of Cities and Photo-Realistic Visualization of an Extinct Village by Stanislav Popelka examines the results of geovisualization modalities by exposing participants in a study to 2D and 3D stimuli from map portals.

Chapter 6—Designing Geographic Information for Moun-



## Remote Sensing and Cognition – Human Factors in Image Interpretation

Raechel A. White, Arzu Coltekin, and Robert R. Hoffman, Editors

CRC Press, Taylor and Francis Group, LLC 2018, xiv and 175 pp., black and white and color figures, tables, index. ISBN-13 978-1-4987-8156-5. Hardback: \$141.98; Kindle: \$33.86.

Reviewed by Demetrio P. Zourarakis, Ph.D., GISP, CMS, CGP-GIS.

tains: Mixed Methods Research by Raffaella Balzarini and Nadine Mandran, presents results from exposing human subjects to different mountain area views and diverse cartographic products in order to detect differences in geocognition patterns and the quality and quantity of extracted information.

The essence of what constitutes geointelligence is analyzed in Chapter 7—The Human Factors of Geospatial Intelligence by Laura D. Strater, Susan P. Coster, Dennis Bellafiore, Stephen P. Handwerk, Gregory Thomas, and Todd S. Bacastow; the constraints and possibilities posed by Goal-Directed Task Analysis are presented.

The potential for true encapsulation of expert knowledge involved in the process of image classification via geo-semantics and geo-ontologies is postulated in Chapter 8—Employing Ontology to Capture Expert Intelligence within GEOBIA: Automation of the Interpretation Process by Sachit Rajbhandari, Jagannath Aryal, Jon Osborn, Arko Lucieer, and Robert Musk.

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The message one could extract from reading this book is that regardless of how complex the ecosystem of hardware and software arrays used to render geospatial images may be, at the end of the day, the only meaningful understanding of remotely sensed data is that one performed by a human being.

As the golden era of machine learning and computer vision is being ushered in, works like this one reminds us that human intelligence usually resides on this side of the screen, and ultimately requires human perception and brain for it to work. This book is a welcome addition to our remote sensing body of knowledge and essential for anybody who seeks an understanding of the “wetware”-based mechanisms and architecture that allow for this to happen.

**ASPRS is proud to partner with CRC Press, Taylor & Francis Group.** We are excited to feature *Remote Sensing and Cognition – Human Factors in Image Interpretation* and other essential books in GIS and Mapping for a discount price to ASPRS members. Visit the ASPRS Bookstore at [www.asprs.org](http://www.asprs.org). Don't forget to apply code **ASP25 to SAVE 25% on entire purchase\* + FREE Shipping**. Can't find what you're looking for? Visit [crcpress.com](http://crcpress.com) to shop and save on all of their books.

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