Handbook of Research on Maximizing Cognitive Learning through Knowledge Visualization

Part of the Advances in Knowledge Acquisition, Transfer, and Management (AKATM) Book Series

Anna Ursyn (University of Northern Colorado, USA)

Description:

The representation of abstract data and ideas can be a difficult and tedious task to handle when learning new concepts; however, the advances of emerging technology have allowed for new methods of representing such conceptual data.

The Handbook of Research on Maximizing Cognitive Learning through Knowledge Visualization focuses on the use of visualization technologies to assist in the process of better comprehending scientific concepts, data, and applications. This book highlights the utilization of visual power and the roles of sensory perceptions, computer graphics, animation, and digital storytelling.

Readers:

This book is an essential reference source for instructors, engineers, programmers, and software developers interested in the exchange of information through the visual depiction of data.


Topics Covered:

- Electronic Media
- Mathematical Thinking
- Multisensory Applications
- Sensory Extension
- Social Networking
- Stochastic Art
- Visual Plan Construct Language

Hardcover + Free E-Access: $325.00
E-Access Only: $305.00
1 Year Online Subscription: $150.00
2 Year Online Subscription: $255.00
Part I. Perception and Cognition

Chapter 1. Cognitive Learning with Electronic Media and Social Networking
Anna Ursyn (University of Northern Colorado, USA)

Chapter 2. Sensory Extension as a Tool for Cognitive Learning
Michael Eisenberg (University of Colorado at Boulder, USA)
Ann Eisenberg (University of Colorado at Boulder, USA)

Chapter 3. Simultaneous Perception of Parallel Streams of Visual Data
Marcin Brzezicki (Wroclaw University of Technology, Poland)

Part II. Art – Math – Science Connection

Chapter 4. Visualization and Mathematical Thinking
Hervé Lehning (ACIH, France)

Chapter 5. Duality of Natural and Technological Explanations
Anna Ursyn (University of Northern Colorado, USA)

Jean Constant (Hermay.org, USA)

Chapter 7. Science of the Archives: Visual Learning about Plants
Maura Flannery (St. John’s University, USA)

Part III. Cognitive Computing and Programming

Chapter 8. Visualization by Coding: Drawing Simple Shapes and Forms in Various Programming Languages
Anna Ursyn (University of Northern Colorado, USA)
Mehrgan Mostowfi (University of Northern Colorado, USA)

Chapter 9. Building a Compiler
Andrew Liccardo (University of Northern Colorado, USA)
Cameron Grimes (University of Northern Colorado, USA, student)

Alireza Ebrahimi (State University of New York, USA)

Part IV. Visual Interpretations

Chapter 11. Connecting the Dots: Art, Culture, Science, and Technology
Jing Zhou (Monmouth University, USA)

Chapter 12. Re-Visualizing Giotto’s 14th-Century Assisi Fresco: Exorcism of the Demons at Arezzo
Theodor G. Wyeld (Flinders University, Australia)

Chapter 13. Visualization in Learning: Perception, Aesthetics and Pragmatism
Veslava Osinska (Institute of Information Science and Book Studies, Nicolaus Copernicus University, Poland)
Grzegorz Osinski (Institute of Computer Science, College of Social and Media Culture, Poland)
Anna Beata Kwiatkowska (Inst. of Mathematics and Computer Science, Nicolaus Copernicus University, Poland)

Chapter 14. Analyzing Disney’s Early Exhibits as Installation Artwork
Jonathan Lillie (Loyola University, USA)
Michelle Jones-Lillie (Lillie Pad Studios, LLC, USA)

Part V. Cognitive Creativity

Chapter 15. Digitally Mediated Art Inspired by Scientific Research: A Personal Journey
John Antoine Labadie (University of North Carolina Pembroke, USA)

Chapter 16. On Creativity of Asian and American Asian Students
Joohyun Pyune (Essex County College, USA)

Chapter 17. AiryLight: Ambient Environmental Data
Annelie Berner (Columbia University’s School of Architecture, USA)

Part VI. Visualizing Teaching and Learning

Chapter 18. What does Learning look Like? Data Visualization of Art Teaching and Learning
Pamela G. Taylor (Virginia Commonwealth University, USA)

Chapter 19. Bringing the Arts as Data to Visualize How Knowledge Works
Lihua Xu (University of Central Florida, USA)
Read Diket (William Carey University, USA)
Thomas Brewer (University of Central Florida, USA)

Anna Ursyn, PhD, is a Professor and Computer Graphics Area Head at the School of Art and Design, University of Northern Colorado. She combines programming with software and printmaking media, to unify computer generated and painted images, and mixed-media sculptures. Ursyn had over 30 single juried and invitational art shows, participated in over 100 fine art exhibitions, and published articles and artwork in books and journals. Research and pedagogy interests include integrated instruction in art, science, and computer art graphics. Since 1987 she serves as a Liaison, Organizing and Program Committee member of International IEEE Conferences on Information Visualization (IV) London, UK, and Computer Graphics, Imaging and Visualization Conferences (CGIV). She serves as Chair of the Symposium and Digital Art Gallery D-ART IV, 1997-2011.