Foreword

In meeting Anna Ursyn the first time, I was struck by the fire of curiosity burning in her eyes, wide open to a universe of inquiry and suspense most don’t even know exists. Her persistent sense of underlying connection – a kind of faith in the orderly mystery of the universe – and her relentless effort to seek out and grapple with new information is contagious, which continues to inspire new generations of artists, scientists, and generally philosophical millennia alike. That’s the mark of a charismatic teacher!

It seems to me our first discussion embraced the grand paradigm of the last century, that light can be identified as both a point and a wave, existing in more than one place at a time, depending on the expectations of the Observer. Activating that concept as a visual metaphor in the connectivity of knowledge itself is as paradoxical as understanding the Nature of Life, Time, and Meaning altogether. And that is exactly what artists and scientists continue to do. This book, Anna Ursyn’s fifth in a series of exciting research compendiums, explores the intriguingly diverse connections between knowledge, language, and visualization. The lambent flame of education is an energizing yet quixotic force, demanding update and renewal at every turn. Thanks to a shift in current curricular research, renewed educational insight will be afforded not by S.T.E.M., but by S.T.E.A.M., the integration of Science, Technology, Art, and Mathematics. Clearly, this work has already begun.

Anna Ursyn’s book provides a glittering summary of the key elements in teaching the nature of cognition and visual literacy, while at the same time its very structure illuminates overarching paradoxes in generality vs. specificity, connection vs. disconnection — what Dennis Summers so artfully addresses as the GAPS and SEAMS in grappling with both congruent and dissonant visual information. His erudite treatise on this subject is a resourceful reiteration of the polemics of the 20th century art history of collage, used as a method for sharing analogous information, as well as “creating realities that might not otherwise exist.” His discussion serves as an evolving model for the language of visual inquiry and synthesis, in a Digital Age where ingenious tools and enterprising systems are becoming ever more powerful in conveying scientific ideas.

In contrast, Hervé Lehning uses mathematical diagrams and SANGAKU to elicit a parallel conclusion, “That popularization at the levels of teaching and research, visualization is not only a simple illustration. It can help the understanding of some concepts, but can also bring new ideas.” The geometric figures and calculations Hervé Lehning chose for his Chapter were eloquent, although within the overall context of this book, the urge to read them in 3D and 5D rather than 2D would not be surprising. Each of the authors in this book explores ideas about knowledge, synthetic relevance, logic, and imagination from within a series of unique esthetic perspectives directed towards an augmentation of visual learning enhancement.

Greg Garvey’s surrealistic audio-acoustic art installation… which the reader is not privileged to witness or experience… questions the nature of “noise” vs. congruent meaning in art, gender discrimination,
Foreword

and politics. The artwork itself is primarily left to the imagination, yet provokes the cogent platform for a fascinating, in depth, bio-technical discussion of right and left brain hemisphere inter-functionality. Amazing! And profound! Greg is nothing short of an agent provocateur, not alone in this artful role when assessing and assimilating the diversity of info-authorship represented in this sometimes infuriatingly contrary yet inspired book.

Curious in a book on information visualization, Maura Flannery chose to forego using illustrations. In her aquatic case study, Victorian women are lauded for creating illustrational masterpieces of fungus and seaweed, drawings that reveal truth and beauty as a consequence of pristine line, shape, form and design – elementary esthetic descriptors that serve to separate them from the muck and ooze in which the plants themselves exist. The art collections served as a precedent for establishing scientifically comprehensive taxonomic archives, and at the same time exemplified a sotto voce feminist commentary on the leisure expectations of privileged 19th century women who chose to work as pioneering visionary biologists rather than dabblers in the arts. Wouldn’t they be surprised to know that a century later, the infamous Southern California taxonomist John Ljubenkov knew for a fact that, “In a healthy inter-tidal zone, more than 20,000 animals live in every cubic foot of sea mud… so many, that scientists are forced to assign numbers rather than names to new species!” Thanks to macro lenses, Bio-Chemistry has not yet preempted old school biological research.

I cannot pretend to summarize the oft times overwhelmingly fascinating ideas packed into the many provocative Chapters of this book, much less the myriad associations, puzzles, and lesson plans inspired by it. Reading and rereading it is a bit like digesting one of Rudyard Kipling’s Just So Stories, wherein “You might discover, my dearest and most beloved reader, that the spots on the leopard are better studied if you peek behind that rock in the picture.” Contrarian that he was, Kipling himself might ask Mohammad Majid al-Rifaie of Goldsmiths, University of London, UK, or Md Fahimul Islam of Queens College CUNY, NY, USA, “How can one reduce the turbulent Tango to a fascinating, abstract map of footwork in motion, without the pulse of improvisational eroticism, press of flesh, and sudden sweat of sweet temptation?” What will you yourself sense while looking at the Josh Solomon’s fascinating dance diagrams? Can the Reader appreciate the stunning mathematical genius and logistical self control required to dance passionately without reading more about the history of Tango itself? So much for The Butterfly That Stamped! Not to mention the curious Reader’s need to pair such disparate concepts with perhaps a complete investigation and analysis of Mondrian’s Broadway Boogie Woogie! Or fast forward to more existential questions concerning pattern and movement, perhaps in reference to killer whales and penguins in Antarctica caught in a state of global warming? Further, how might the movement of these creatures be documented IF diagramed as 2D, 3D, 4D or 5D informatics models strung together as mathematical constructs? And, what impact might their extinction have on the Web of Life? Will jellyfish someday rule the Earth? And how would Stephen Hawking’s Theory of Everything impact that assessment? Say what!

Readers should be advised to have an open laptop anchored nearby while reading this book in whole or part – for grounding – as much to ‘see’ what IS and IS NOT there! As Theodor Wyeld would agree, framing the unfamiliar with the familiar reduces cognitive overload, while enhancing the joy of learning. But what is not present and not discussed can be as inspiring as that which is! In reading Anna’s awesome first Chapter, I found myself continually distracted by questions like “What else?” and “Is there more?” Quick Wikipedia and GOOGLE searches punctuated my enjoyment of the book. Anna’s aggregate research is mind bending – the more so for those less up to date. Humble enough, even the
'restless genius', futurist Ray Kurzweiler cannot keep pace with the exponential rate of invention today. How can we? What inventions and leaps of faith will have been made by the time Readers finish the Introduction, much less this book in its entirety? What essential expertise might be added? Near-Infrared Spectroscopy (NIRS)? Event Related Optical Signals (EROS)? KEOPS beyond Kepler? Alien vs. inalienable existential rights?

Educators might well be advised to require Readers (of any age) to prepare Computer Bookmark/Browsing Histories to share with one another while reading this book — not only to achieve consonance in agreed meaning associated with Key Words, Vocabulary, Expositions, and Conclusions, but to more fully investigate and appreciate tools, concepts, strategies, conditions, applications, and other intriguing data presented for discussion! Information cannot exist without interpretation. Knowledge cannot exist without perception. Creating an educational framework that respects existing language and expertise, yet at the same time inspires mastery, creative growth, and innovation across disciplines is a worthy enterprise, as amply evidenced by this book — and can be fun.

Please look forward to reading the empty pages between the Chapters as much as the Chapters themselves, resting points affording reflection on what has just been said, or what might happen next, a grand opportunity to exercise humility in assessing expression, congruency, and contradiction. The self-avowed Minimalist might find respite in attributes afforded by the emptiness of interleaving pages — flatness, surface, form, shape, scale, mass, texture, reflectivity, absorbency, or other aspects of ‘it-ness’ devoid of metaphor or suggestion. The Taoist, however, might consider the mystery of emptiness, a space for qi (chi), a cosmological term, which is formless, but bestows life. Mysticism associated with the sacred geometry of numbers and proportions is ancient, reflected in Cabalistic as well as Sanskrit, Classical Chinese, and Greek texts. For centuries, artists were trained in the esoteric mysteries of existence, the mystical and metaphysical, hand in spirit with mathematics, geometry, composition, and design.

Despite our desire to assign particularity in meaning based on materiality, there is the immateriality of meaning itself, its ephemeral nature within the elusive matrix of time, sequence, and duration. The paradox of the moment compels us to wonder about the nature of existence and experience, its measurable reality, its consequence, its place in the continuum. Changes in consciousness provoked by new connections afforded by readers and authors in aggregate are inevitable. Appropriate to those who create something out of nothing, we need to recognize how to recognize and teach these principals. Naivety is one thing, stupidity another. Knowing the difference is fundamental to Perception, Inception, and Deception. The Identity, Ethos, Ethics, and Mind of a new generation depend on it.

Jennifer Grey
California State University, Long Beach, USA

Jennifer Grey is an Art Professor, awarded Emerita status after working at California State University Long Beach since 1975, a premiere urban campus in the USA. Over time, her career focused on Drawing and Painting in any media, from works of art on rock, paper, canvas, public buildings, intertidal zones, desert salt flats, computer screens, time-based projections, and 5D immersive C.A.V.E. painting – an old school artist bridging curricular reform in studio and electronic art. She is a professional artist, freelance writer, curator, producer, and Native American flute musician working under a variety of more or less secret avatars and pseudonyms in Real Life (RL) and in Virtual Reality (VR), as needed to maintain a certain degree of contemplative privacy. Since 1999, however, JEN ZEN® became the principal identity exhibiting internationally, including a series of
groundbreaking exhibitions with ACM SIGGRAPH and D'Art Conferences; a one-person show at The Museum of Modern Art in Dalian, China; and, a less auspicious yet more experimental solo show on Museum Island in Second Life. She has received many art grants, awards and public commissions including the National Endowment for the Arts Award to Individual Artists, the Fulbright Teacher Exchange, and Creative Services Grants, California State Legislative Grants, and the Professional Artists Fellowship sponsored by Public Corporation for the Arts of the City of Long Beach. Education: 1969-71 James Scholar, Graphic Design, University of Illinois, Urbana, USA 1971-73 BFA Summa Cum Laude, Bradley University, Peoria, Illinois, USA 1973-75 MFA, Hoffberger School of Painting, Maryland Institute College of Art, Baltimore, USA.