

**Guest Editor's Introduction****EXPLORING AESTHETICS, DESIGN, AND EXPERIENCE  
IN THE AGE OF SEMIOTIC TECHNOLOGY**

Rebekah Rousi

*Faculty of Information Technology  
University of Jyväskylä  
Finland*

Where there is technology, there is semiotics. Semiotics refers to the science of signs; the study of symbols, markings, and their meanings in the way people interpret them. The human and, arguably, animal worlds are literally littered in signs, both natural (Eco, 1976; Peirce, 1958, p. 172) and artificial (i.e., intentional; de Saussure, 1916/1983). How these are understood and studied depends on the context, purpose, and individual. The built and designed human world can be equated to a massive sign system, in which every form, color, quantity, material, and logic has a communicative function. Architecture, for example, is a classic realm of technology in which form, style, material, and scale have been systematically used to impose societal hierarchy and order upon those who encounter it (Crouch, 1999). Architecture, as with any form of art, design, or technological form, communicates the logic, the values, and the actions of the times. In other words, from a technological perspective, designs are only available at certain periods of time if they serve a purpose, whether functionally through operation or from the perspective of societal ideologies and systems, through style. What is more, the physical nature in which they are realized is also instrumentally linked to public, political, and historical discourses that reinforce their meaning and significance in relation to the public that receives them (Crouch, 2010). When considering contemporary consumption, and that of information technology, this is particularly evidenced in regard to brand value, for instance. That is, bountiful significance and meaning can be obtained from design form through analyzing the technological items' forms, materials, scale, style, and functions as compositions. The meaning derived from these elements, in connection to brand recognition, act in a very similar way to that of architecture over the centuries. That is, messages inherent in the technology shape people's lives through molding their behaviors and exposing them to aesthetic compositions that contribute to formulating peoples' worldviews and norms.



Signs and their comprehension have always played an important role in survival across the animal kingdom (Morris, 1946; Nöth, 1995), many of which humans have had to decipher for their own survival. However, it can be said that through the infiltration and dispersion of digital technology across myriad aspects of daily life, the relationship between humans and more abstract, symbolic, or intangible (i.e., nonrelated to the physical world) signs has become ever more interdependent (Saariluoma & Rousi, 2015). Already in the basic models of semiotics developed by mathematician and philosopher Charles Sanders Peirce in the late 1800s, reference was made to differing types of signs (see Peirce, 1982/2009). Symbols, for instance, were described as signs not bearing any direct relationship to physical phenomena, yet were understood through social and cultural consensus. Indices were seen to be causal signs for phenomena that could not directly graphically be represented (such as speed, temperature, time, etc.). Icons were indeed the signs that directly bore a relationship to the phenomena they were representing.

Nearly a century and a half on, with rapid developments of information technology in contemporary society, semioticians find the need to rethink the field and its terminology. The challenge, readily foreseeable for the future, is that people's imaginations and a variety of commonplace phenomena do not have bodies (i.e., cannot be physically represented), yet have emerged through discourse, language, and fantasy. For instance, if a person living in the year 2018 were to travel back to the year 1958, how would he/she describe to the residents of that time something used every day and everywhere called the Internet? Even these days the Internet represents many different things to many people. It certainly is about information streams and masses of information. But the nature of the information—how it works, what it delivers, and what it can do, and the kinds of connectivity that enables hackers, for example, to take over and drive the family car remotely from a mobile phone (and, incidentally, how would smartphones be perceived in the 1950s?)—would not likely have entered the consciousness of most people back then, if at all.

It is through this realization that information technology is rendering the impossible possible, that an awareness is developing toward the fact that it is not enough to understand how people use and behave in relation to technology. Rather, semiotics undergirds understanding how people experience life (in general and in specific contexts) in light of technology and its design. Semiotics, through these sign systems, can explain how the information provided in designs (form, color, scale, logic, etc.) is understood on the basis of people's already accumulated lived experience. As demonstrated in the articles of this special issue, titled SADE: Semiotics + Art and Design = Experience, understanding of human–technology interaction can be enriched by analyzing the aesthetic and semantic levels of the designs in question. This is achieved through not only drawing on knowledge from the past decades of scholarship in human–technology or computer interaction, but also from centuries worth of philosophy, practices, and theories in aesthetics, embodiment, and art experience, to name a few.

It is therefore a pleasure to introduce the articles of this special issue. The articles are, to varying degrees, essayistic and explorative in style in making their contributions. The issue opens with a philosophical discussion on challenging popular notions of aesthetics in human–computer interaction design. **Mads Nygaard Folkmann's** article, "Exploring Aesthetics in Design: Implications for Human–Computer Interaction," focuses on expanding readers' understanding of aesthetics by drawing on theory and observations from humanist disciplines

including design and art. Folkmann addresses the user interface by shifting its context from the screen to other design areas. This is necessary to illustrate how the aesthetic experience exists in relation to how people approach the world, and subsequently, it is this logic, particularly the logic instilled by culture, that informs the factors, values, and qualities that combine to compose the experience. For example, Folkmann uses the design company HAY to exemplify the ways in which not simply the design, but also its presentation or mediation (remediation), encourages reflectivity in the way designs are experienced. That is, through both multi- and transmodality of the ways in which the designs are presented (and thus exist), other entities or cultural products (e.g., image compositions) are formed. Through the framing of design and their contexts as design or aesthetic pieces in their own right—as well as the interaction between the designs themselves and their alter egos seen in the advertising compositions—aesthetics represents the interface between the world within the person and external to the person. Thus, Folkmann’s article discusses the need for deconstructing designs and their cultural framing to understand that the aesthetic experience of technological products that do not lie within the designs themselves, but rather how they are culturally related to the public and private perceptions.

From a slightly different perspective, yet observing the influence of overall emotional sentiments as reflected in culture or cultural products such as architecture, **Lewis Urquhart and Andrew Wodehouse** propose a novel way of measuring emotion through lines and time. The authors also delve into the realms of ancient philosophy to argue that the term *form* has numerous meanings and that the ways in which forms are perceived comprise both material, or matter, and the shape of the matter. Urquhart and Wodehouse propose that emotions and cultural sentiments of specific periods in history are framed and represented through the structures formed by artistic and architectural practice. Thus, thought, intention, and emotion can be witnessed through technology (i.e., anything intentionally created by human beings for differing purposes; e.g., architecture and design objects) and its form. In other words, the form reflects a nonverbal account of the narratives, associations and, traditions of particular societal eras. The authors draw from decades of psychological research regarding the relationships between form (specifically form being constructed through lines) and emotions—and specifically how lines communicate emotions. Urquhart and Wodehouse utilize examples from text font to optical illusions, and from classical artistic landscapes to architecture, to demonstrate how the line or form inherent in products are communicative in terms of an interaction between ideologies embedded in cultural and political movements and overall underlying societal sentiments. Based on the authors’ scholarship of the past, they have constructed a model for applying their observations of the emotional qualities of line expression to the analysis of any kind of technological artifact. Thus, this article presents the line model of form and emotion that typifies major movements and their styles in one concise diagram. Furthermore, what the authors emphasize in this article is that not only are the cultural and technological structures a reflection of intention and emotion, but they indeed change the mental and emotional state of those who encounter them. Thus, human–technology interaction is not simply an interaction between people and objects or machines, but an interaction between thoughts and emotions from differing states and contexts.

In the article, “Simplicity and the Art of Something More: A Cognitive–Semiotic Approach to Simplicity and Complexity in Human–Technology Interaction and Design Experience,” **Rebekah Rousi and Johanna Silvenoinen** examine the dynamic and intertwined nature of the relationship between simplicity and complexity. Their article applies a

cognitive–semiotic model (Rousi, 2013) of technology design experience to explain the relationship between the sign or symbol (as seen in the design), what it refers to (the object, e.g., function or values), how it is interpreted or mentally represented, and how, in the end, researchers and/or designers access these mental interpretations of users through qualitative, often verbal, representations of their experiences. Rousi and Silvennoinen additionally problematize common perceptions of simplicity as reductionism and instead argue that simplicity is complex, yet is afforded through the careful ordering of and design for the multiple senses. In other words, the creation of seemingly simple-to-comprehend designs often entails complex systems of information directed toward the multiple senses of the user, thus allowing for greater understanding of the forms and products that are encountered. From Rousi and Silvennoinen’s cognitive–scientific perspective of the technological design experience, deliberate orchestration of sensory components (i.e., visual, tactile, olfactory, audio, and even taste-related elements) increases the “chunkable” (i.e., easily processed) information about the designs, and thus revealing more about their nature without overloading any one sense.

Finally, **Tore Gulden**’s article, “Engagement by Lamination of Autopoietic Concentric Interaction Systems in Games: A Study of Football and Pokémon GO,” compares two popular games and forms of play. Gulden applies Niklas Luhmann’s (1990) notion of autopoiesis—a theory of self-producing systems—to analyze how play, engagement, and experience are elicited through differing game types, as evidenced in the traditional physical team sport of soccer and the relatively recent, single-player augmented reality (AR) game Pokémon Go. Gulden’s argument is that autopoiesis, or the phenomenon in which social systems are constantly interacting with themselves (Luhmann, 1995; Maturana & Guilloff, 1980), can be applied to the study of games in which an explanatory framework of social lay experience can be extracted through paying attention to the structures, constraints (e.g., boundaries and rules), and contexts in which they are played. Gulden’s novel approach to comparing two distinctly differing games gives way to larger questions in modern game design and contemporary social systems through allowing the reader to reflect on why it is that single-player AR games with seemingly no physical boundaries or team interaction are so popular among both the public and game developers themselves. He proposes five concentric interaction systems that can help game designers analyze current and develop future games that improve the players’ engagement in games across the spectrum from real-world to AR to the virtual and for multiple purposes: entertainment, learning, or service.

Overall, while all of the articles in this current special issue are about semiotics, design, and experience in human–technology interaction, they also represent a diverse scope on both the interpretation of technology and how these concepts may be understood through the implementation of semiotic approaches. The diversity of papers sets the stage for readers to form a deeper and expanded insight into not simply the nature of experience relating to particular designs, but also the extent and complexity of these matters in relation to decades, if not centuries-worth, of theorization of and scholarship into aesthetics and experience.

Finally, I would like to dedicate this special issue, SADE: Semiotics + Art and Design = Experience, to the memory of Viktor Hjort af Ortnäs of Chalmers University of Technology, Sweden. This issue specifically grew out of the 2015 Nordcode seminar of the same name that Viktor so insistently encouraged to be held at the University of Jyväskylä, Finland. The seminar, as with this thematic issue, concentrated on exploring the relationship between art, design, and experience through applying semiotics to explain and to develop the connection

between form, application, context, and cognitive–emotional experience. As these papers testify, such research is essential for the ongoing advancement in understanding myriad aspects of human–technology interaction. Viktor’s legacy embodies not only that Nordcode seminar and this special issue but the foundation he helped establish in bridging art and semiotics disciplines with ongoing research on the intersection of humans and technology. I am grateful for his encouragement of this specific topic.

## REFERENCES

- Crouch, C. (1999). *Modernism in art, design and architecture*. London, England: Macmillan.
- Crouch, C. (2010). Architecture, design, and modern living. In P. Osborne, P. Brooker, A. Gasiorek, D. Longworth, & A. J. Thacker (Eds.). *The Oxford handbook of modernisms* (pp. 618–637). Oxford, England: Oxford University Press.
- Eco, U. 1976. *A theory of semiotics*. Bloomington, IN, USA: Indiana University Press.
- Luhmann, N. (1990). *Essays on self-reference*: New York, NY, USA: Columbia University Press.
- Luhmann, N. (1995). *Social systems*: Redwood City, CA, USA: Stanford University Press.
- Maturana, H., & Guiloff, G. (1980). The quest for the intelligence of intelligence. *Journal of Social and Biological Structures*, 3(2), 135–148. doi: 10.1016/0140-1750(80)90006-8
- Morris, C. W. (1946). *Signs, language and behavior*. New York, NY, USA: Prentice-Hall.
- Nöth, W. (1995). *Handbook of semiotics*. Bloomington, IN, USA: Indiana University Press.
- Peirce, C.S. (1958). *Collected papers of Charles Sanders Peirce, 1931-1936* (Vol. 8; C. Hartshorne, P. Weiss & A.W. Burks, Eds.). Cambridge, MA, USA: Harvard University Press.
- Rousi, R. (2013). From cute to content: A cognitive semiotic approach to user experience. *Jyväskylä Studies in Computing 171*. Jyväskylä: University of Jyväskylä.
- Saariluoma, P., & Rousi, R. (2015). Symbolic interactions: Towards a cognitive scientific theory of meaning in human–technology interaction. *Journal of Advances in Humanities*, 3(3), 310–323.
- Saussure, F. de. (1983). *Course in general linguistics*. (R. Harris, Trans.). London, England: Duckworth. (Original work published 1916)

---

### Author’s Note

All correspondence should be addressed to  
Rebekah Rousi  
Faculty of Information Technology  
University of Jyväskylä  
PO Box 25  
40014 University of Jyväskylä, Finland  
rebekah.rous@jyu.fi

---

*Human Technology*  
ISSN 1795-6889  
www.humantechnology.jyu.fi