Chapter 9

# Cinema Author's Embodied Simulatorium – a Systems Intelligence Approach

*Pia Tikka*

*The essay relates the cinema author's creative processes to the systems intelligence approach. The underpinning assumption is that cinema stands forth as an intersubjective frame of sensemaking. This idea is reflected against the early systemic views of the Russian filmmaker and theoretician Sergei M. Eisenstein. In its unfolding, the cinema author's creative processes are described from a particular point of view, that is, that of the enactive mind point by means of introducing the neuroscientific concept of embodied simulation as the bodily basis of these processes. This is applied in the hypothetical model of cinema author's mental workspace, the embodied simulatorium as it is termed. In this paper it will be discussed how embodied processes constitute what in this volume is referred to as systems intelligence.*

## Introduction

In the first half of 20th century, the Russian film director Sergei M. Eisenstein was engaged in the challenging process of describing the organizational principles of the unified systemic whole of an artistic process, in particular, that of authoring cinema.[53] He held that the status of film director (later 'author') should not be like that of a dictator but rather one of a holistic agent, whose creative work synthesizes the socio-emotional needs of his audience, that was to say, the interest of the Soviet citizens. This was so not only in theoretical terms but also in practice. Eisenstein was situated right in the eye of the storm of radical social changes, doing his best to *make things work* in the Soviet system. Loosely related to the present context of this volume, Eisenstein was making his best out of the conditions of his life-environment in terms of what may be called *systems intelligence*.

My focus will be on reflecting the embodied aspects of cinema authoring process, as I've conceived of them in my book *Enactive Cinema: Simulatorium Eisensteinense* (2008),

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[53] I argue elsewhere (Tikka 2008, 2009) that an important framework of Eisenstein's systemic thinking was Alexander Bogdanov's scientific Marxism formulated in *Essays in Tektology: The General Science of Organization* (1913-1922). Tektology formed the underground force of the Soviet 'psychoengineering' and may retrospectively be acknowledged as pioneering Cybernetics and General Systems Theory in Europe and in the United States. (see Susiluoto 1982, Biggart el al. 1998).

against the holistic framework of systems intelligence. To meet this challenge, I will highlight what may be called author's *embodied simulatorium* (Ibid., p. 243). The notion refers to a kind of mental workspace that enables the author to imagine, create, and manage cinematic processes that are assumed emotionally coupled to those of the spectators (Ibid., p. 230). Apparently conflicting with the first impression, this assumes that the processes within embodied simulatorium are assumed to be, to a great extent, sharable, intersubjective, and socially conditioned. Eisenstein seems to talk about the intersubjective core of what is now described as embodied simulatorium when he writes: "It is obvious that a work of this type has a very particular effect on the perceiver, not only because it is raised to the same level as natural phenomena but also because the law of its structuring is also the law governing those who perceive the work, for they too are part of organic nature (…) the secret consists of the fact that in each case both *us and the work* are governed by *one and the same canon of law*" (Eisenstein 1987, p. 12).

Intuitively seen, considering the multiple agents involved in creating cinematic systems (e.g., actors, other artistic and technological collaborators, and ultimately, the spectators), the authoring process seemingly calls for socio-emotionally sensitive authorship that performs *in a systems intelligent manner*. Referring to Saarinen and Hämäläinen (2004, p. 3), a systems intelligent author, employs the pragmatic and collaborative attitude of an individual in her efforts of *making things work* within "feedback intensive" social environments. At its best, a systems intelligent effort may empower an upward-spiraling movement of "cumulative enrichment and improvement" (Saarinen and Hämäläinen 2007, p. 64). In his times, Eisenstein exemplified such a positive attitude, when he dreamed of '*psycho-engineering*' the Soviet working masses

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towards social well-being with the help of his *emotion-driven* machinery of cinema.[54] Highlighted as "a key form of human intelligence and a fundamental element in the adaptive human toolbox" (Hämäläinen and Saarinen 2004, p. 3), which fundamentally involves also human sensitivity (Saarinen and Hämäläinen 2004, p. 9), systems intelligent approach may be argued to involve similar aspects of socially oriented psycho-engineering that were elaborated in Eisenstein's times.

The early Russian systems scientist Alexander Bogdanov's *Tektology: The General Science of Organization* (1913–28) and the contemporary German holism in the field of biology seemed to converge in Eisenstein's approach to human cognition as a "multisensuous" emotion-based system (Tikka 2008). While many later systemic approaches aimed at a similar kind of universal explanation framework, they seemed to overlook the emotional aspects of human nature in favor of the rational engineering aspects. In 1948, the year of Eisenstein's death, Norbert Wiener introduced *cybernetics* mainly as a theory of *governing* complexities, followed by Ludvig van Bertalanffy's influential *General Systems Theory* (1968). Today's systems theories tend to emphasize rather the *self-*

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[54] The idea of artists as 'psycho-engineers' and art as a method for organizing "the human psyche through the emotions" was also advocated in the writings of Sergei Tretiakov, a close friend and collaborator of Eisenstein. (In Tretiakov 1923, p. 202 in Manovich 1993, p. 22; Bordwell 1993, pp. 5, 116, 136; Tikka 2009, p. 222)

*organizing* characteristics than 'steering', with regard to human technological, biological, cognitive, and social systems (e.g., Varela et al. 1991). However, only recently the unconscious emotional aspects of human cognition, which Eisenstein emphasized, have been legitimated as the fundamental basis of the 'higher-level' cognitive systems, for example, in neurosciences (e.g., Damasio 1999, 2003), or in cinema studies (e.g., Tan 1996, Grodal 1997, Smith 2003, Tikka 2008). Instead, outside of the earlier, what one may call 'emotion-hostile' scientific discourse, the cinema practice has for over the last hundred years relied on the author's intuitive abilities to harness the embodied emotional systems into the service of practical cinematic systems.

In this essay systems intelligence is viewed as an omnipresent defining characteristic cognition, or mind. It will mainly draw from the enactive cognitive sciences and neurosciences, thus deliberately deviating from the psychological or philosophical views on learning organizations, team dynamics, or artificial intelligent systems, which so far have dominated the discussion on systems intelligence. Cinema author's creative process is tackled in terms of today's scientific understanding on *enactive mind* (Varela *et al.* 1991) and *embodied simulation* (Gallese 2003, p. 2005). The article is concluded with a case study, applying the conceptual model of *embodied simulatorium* (Tikka 2008) in practice.

## Enactive Mind

Many contemporary cognitive scientists would consider mind as an emergent feature of a psychophysiological brain or brain–body system, while the most radical group goes as far as to argue that the mind transgresses from the traditional brain–body system to the world. As representatives of the latter view, the proponents of *enactive* cognitive sciences, Francisco J. Varela, Evan Thompson, and Eleanor Rosch (1991), assume that mind is *embodied* and *emerges* in the holistic first-person experience of being and playing a part in the intersubjective world. In this essay the notions of mind, body, and world are considered as interrelated, interdependent, and to constitute parallel conceptual perspectives on the subject's *enactive situatedness.* In agreement with the dynamist view, I presume that a systems intelligent cinema author not only observes and manipulates the system 'from outside', but herself exists and acts 'within' the system, i.e. the system embeds the author as well as is embodied in the author's *enactment*. A guiding metaphor for the enactive cognitive scientists features "a path exists only in walking" (Varela et al. 1991, p. 239), i.e., an enactive mind comes into being through its continuously changing situatedness in the world.

According to other contributions systems intelligence seems to be an elementary aspect of what I've come to understand as an enactive cognition, in deviation from traditional cognitivist views. For comparison, consider how Varela et al. (1991) differentiate the '*cognitivist'* and '*enactivist'* answers to the question *what is cognition?* The cognitivist relies on "information processing as […] rule-based manipulation of symbols" (Ibid., 42), while an enactivist relies on "history of structural coupling that brings forth a world" (Ibid., 206). For the second question, *how cognition works*, the cognitivist harnesses "any device that can support and manipulate

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discrete functional elements —the symbols. The system interacts only with the form of the symbols (their physical attributes), not their meaning" (Ibid., 42), while for the enactivist the system works "[t]hrough a network consisting of multiple levels of interconnected, sensorimotor subnetworks" (Ibid., 206). Further, when one wants to know *when a cognitive system is functioning adequately*, the cognitivist would answer: "When the symbols appropriately represent some aspect of the real world, and the information processing leads to a successful solution to the problem given to the system" (Ibid., 42–43). An enactive cognitive system, instead, functions adequately "[w]hen it becomes part of an ongoing existing world (as the young of every species do) or shapes a new one (as happens in evolutionary history)" (Ibid., 207).

Generally, a cognitive entity can be modeled *as a dynamical system* involved in continuous interaction processes with other entities, the underpinning cognitive dynamics of which emerge in a complex self-referring dynamics, as stipulated by Port and van Gelder's dynamical approach to cognitive structures (1995), the developmental dynamics of Thelen and Smith (1996), or the dynamical patterns theory of Kelso (1995), and carrying similarities with, for example, the *Multiple Drafts* model by Dennett and Kinsbourne (1992). The dynamist's basic explanatory toolbox applies also for the system around of the systems intelligent person. Such processes are characterized by 'inputs linked with outputs', intra- and interrelated feedback loops, top-down processes interacting with bottom-up processes, bifurcations and transgression in continuously fluctuating states, to name few of the plausible functions. As Hämäläinen and Saarinen note, the system theoretical concepts "may seem technical but they are directly applicable in the characterization of systems intelligence", and useful tools for, to name an example, analyzing social dynamics of a problem solving situation (2007, p. 72). Also, complex cognitive or social systems typically generate effects beyond the modes and functionalities of their components, have primacy over their components while at the same time these components influence the system, and, in addition, show emergent features, not reducible to the features of its elements (Saarinen and Hämäläinen 2004, pp. 11–12).

Inspired by the dynamical systems view to mind, I posit that cinema can be seen to reflect the underlying psycho-dynamics of human experience by applying the bio-cybernetic concepts of Humberto Maturana and Francisco Varela (1980). In this light, cinema can be seen to stand, on one hand, for (1) an emergent embodiment of an author's creative expressiveness built on both conscious and unconscious dimensions of mind (*autopoietic* system), and, on the other, for (2) an *authored simulation model* of the experiential world, which in the cinema composition becomes partially framed according to the author's subjective selective decisions (*allopoietic* system). The latter kind of system carries features of an autonomous, self-referential simulation system, which, when once produced and set into movement, goes on playing out the fictional world independently of its author.

The human body could be viewed as an organic framework, the psychophysiological principles of which define the framework of any cinematic system, but also, in reciprocal manner, the dynamics of cinematic work could be understood as modeling human thought. This suggests that a complex system authored by a cognitive entity would constitute a model for aspects of its author's proper mind, such as attitudes, interests, aesthetic

preferences, and ethics, embedded in the cinematic work as a particular kind of expressive worldview.

The two hypothetical domains of 'external' and 'internal' are often modeled as separate domains of mind, this for the sake of conceptual clarity. Yet, the reader is reminded that the holistic view to cognition allows converging both the unconscious and conscious conceptualizations of human mind into one notion of embodied, or enactive cognition. In Damasio's terms, on the one hand, this perspective reveals one's conscious, cognitive act of perceiving oneself in interaction with the world (exteroception), and, on the other, it involves simultaneous unconscious perceptual activities (interoception), which are oriented to controlling the wellbeing of the subject (2003, p. 107). Consequently, adopting the first-person perspective and subjectivity may lead to a distorted understanding of mind, if *only* the conscious aspects of mind are taken into consideration. Alas, cinema can be regarded to represent simultaneously a kind of *miniature model of phenomenal world* (an exteroceptive model 'outwards') and a model of the emotion dynamics of the embodied simulatorium (an interoceptive model 'inwards') (Tikka 2008).

Although cinema can be seen as a model of human experience, the practical implementation is at any rate complicated, particularly if modeling complexity of the scale of mind is set as the starting point. Consider, for example, the *recursive character of cognition* that suggests a subject's earlier experience (e.g. memories, habits, and bodily routines) modifies all new experiences (e.g. perception, imagination, and anticipation), as implied by Neisser (1976). Such cognitive processes are understood to emerge in what have been characterized as 'inner' and 'outer' loops of cognition, the first "deeply rooted in its physical implementation as its most immediate environment (inner loops of mind-environmental participation)" and the latter "extensively involved in the surrounding environment in terms of culture, society, economy, etc. (outer loops)" (Kaipainen 1996, 266). Although cinema may be claimed to "externalize" its creator's mental processes, the traditional linear structure of cinema is typically 'fixed' and lacks the dynamics of reorganization "on the fly". From the dynamical systems point of view, if cinematic systems are assumed to model (even partially) the recursive character of cognition, they should also meet the recursive character of such systems. To create a model of such a system, the author may introduce *a feedback loop* into the cinematic framework. In fact, elsewhere I have sketched a new genre of *enactive cinema* (Tikka 2008, 2006), which constitutes a direct systemic coupling between the spectator's psychophysiology and the cinematic system.

While the attribute of 'enactive' carries the explicit sense of meaningful, read here, systems intelligent, acting in the world, it is the *embodied simulation of the world and the other people* that will provide the environment for creative enactment of the cinema author.

## Embodied Simulation

In contrast to the common view to cinema as a private subjective experience, Gallese's concept of *embodied simulation* (2005) allows a description of cinema as an *intersubjective* experience. Elsewhere I have argued that *embodied simulation* constitutes the cinema author's neuronal basis of understanding and imagining the *behavior and feelings of other people* (Tikka 2008). Furthermore, the concept of embodied simulation allows framing the

creative process of filmmaking and the related spectator experience into *one intersubjectively shared complex system.*

My understanding of this draws also from the discovery of the mirror neuron system, first in monkey brain (di Pellegrino et al. 1992, Rizzolatti et al. 1996, among others) and in human brain (e.g., Fadiga et al. 1995, Hari et al. 1998). Their findings suggest that merely observing someone to grasp an object actually activates in the pre-motor regions of the brain the same neural networks that would be activated if the observer were actually grasping the object herself. This discovery has been celebrated amongst the neuroscientists as a plausible neuronal explanation for intersubjectivity and socio-emotional behavior, such as empathy.[55] As Gallese argues, embodied simulation involves "mediating between the multi level personal background experience we entertain of our lived body, and the implicit certainties we simultaneously hold about others. Such personal body-related experience enables us to understand the actions performed by others, and to directly decode the emotions and sensations they experience" (2005, p. 42). Embodied simulation may be assumed to be in work when the art gallery visitor 'feels' the movements of the artist's hand working on an art object only by looking at the brush traces on its surface (Freedberg and Gallese 2007, pp. 200). In a similar manner, in her "embodied simulatorium" the cinema author may 'imagine' or 'feel' how her characters experience the events of their fictive lives, or even how the future cinema viewer, elsewhere referred to as 'simulated spectator' (Tikka 2008), experience these events.

Emerging form the author's embodied simulatorium, the allopoietic product of her cognitive processes (cinema montage) is understood to equip cinema with *an intersubjective frame of sensemaking*. Neuroimaging experiments of intersubjective correlation (ISC) by Uri Hasson and others (2004) support the assumption that if several people are watching the same cinema scene, their individual cortical activities have the tendency to synchronize with others. However, in another experiment they have also shown that the intersubject correlations differ in terms of the film genre and the level of aesthetic control of the films, a higher aesthetic control relating to higher intersubject correlation, and vice versa (Hasson et al. 2008). This implies that creating shared emotional experience within groups of people is not for granted but it relies greatly on the cinema author's systems intelligent performance, the capability to simulate other people's emotional dynamics. This not only includes understanding the emotional imagination of individual spectators, but also, at the same, elaborating cinematic material so as to make different spectators' emotional systems pulse together.

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At conscious levels of cognition individual differences often become more apparent than the *dominating* similarities driven by the emotional system, which indisputably constitutes the basis of complex social behavior and social organizations. However, at the biological, physiological level the behavior of individuals seems much more similar. This is

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[55] For further reading on the neuronal basis of social interaction, see Hari and Kujala (2009).

not only due to physiological similarities, but *also* due to environmental and cultural conditions, for example, natural living environments, education, religion, gender views, and historical situatedness.

When Eisenstein argued in his time that the dynamical structures of the author's creative mind surrender themselves to further scrutiny in the functional structures of artistic productions, he believed that psychology would provide the instruments for describing "*in exactly the same way*" both "*the complex compositional elements of form*" and "*the content of the work for itself*" (Eisenstein 1987, p. 10). Today, if accepting the holistic enactive approach to mind, such activities as intuition, association, metaphoric thinking, conceptual blending, or imagination, which are typically related to creative aspects of cognition, involve a continuous retrieval, recycling, and reconstruction of the complex total of embodied (unconscious or conscious) memory traces of ones whole life. The theory of *embodied metaphors* (Lakoff and Johnson 1980, 1999) suggests that our languages, conceptualizations, and symbol systems are actually based on bodily being-in-the-world, such as "walking a path" or "falling like a stone", but even in expressions like "under-stand". In their framework lived experiences constitute so-called *image-schemas* that become projected to more abstract conceptualizations. Relying on recent neuroscientific views on human concept formation (Rizzolatti and Arbib 1998, Lakoff and Gallese 2005, Hari and Kujala 2009), I consider the role of embodied metaphors as constituting the conceptual-bio-cultural simulation interface between the domains of subjectivity and intersubjectivity, thereby forming the basis of shared understanding, and what is here discussed as systems intelligence in general.

But it is worth noting that already Eisenstein recognized the significance of body-based metaphors as the means of sharing subjective emotional experiences with the others (Smith 2004, p. 314). He often compared the process of filmmaking to basketweaving or orchestral composition, in which carefully selected threads of 'being-in-the-world' folded in such a way that they support the construction of complex spatio-temporal rhythms of the cinema experience. On one hand, the cinema author's embodied simulation determines the *emotional* basis for all 'forms' of enactive cognition. On the other, the author's *embodied simulatorium* harnesses these emotive-cognitive activities to serve the creation of culturally shared end products.

## Case Study: Embodied Simulatorium Applied

In order to focus on the idea of *embodied simulatorium as a mental workspace enabling any agent's systems intelligent performance*, an imaginary case study is discussed. As the reader is encouraged to imagine herself in a creative process of filmmaking, the complex bio-cultural aspects related to the embodied simulatorium can be highlighted.

Our imaginary cinema author might be elaborating a fiction film based on a script by a professional screenwriter. Imagine, that the socio-emotional treatment of the film she is developing seems to demand showing the acts of torture experienced by the main characters in the hands of the superior political agents. The scene may feature an interrogation of a woman and her young daughter, during which the child is sexually violated. Taken the fact that a major part of our daily information flow cultivates scenes of violence (e.g., everyday life, news, entertainment, etc.), this short scene description may

already have caused the reader's imagination to involuntarily start off on fly, images automatically emerging in the reader's embodied simulatorium without calling them.

Though the scene, which describes the painful and shameful experiences of the characters, could be constructed through non-showing, our filmmaker may decide to rely on the realistic construction instead. In order to be able actually to *show* the scene, one has to *imagine* how the characters behave and what they actually experience.

In the light of professional filmmaking practice, producing a realistic torture scene seems a relatively easy task as one may rely on a group of actors, set-designers, special effect designers and cinematographers, perhaps even experts working with the issues related to the practice of torture (e.g., prisoners, physicians, military officers, etc).

The systems intelligent embodied performance of the filmmaker embraces social world defined by general conventions, norms, education, religion, and so on. When considering the obvious injustice executed by superior powers, it may be interesting to refer to the neuroscientific findings (Singer *et al.* 2006), which suggest that the intensity of empathic activation in brain is directly related to the subject's judgment of right or wrong acts of another person. This altruistic punishment (e.g., 'She got what she deserved') embedded in our brain may explain the popularity of action or thriller films, where suffered unfairness is revenged. However, in our imaginary scene no revenge takes place, only humiliation.

Our question is, how the filmmaker in her creative mind simulates the pain, humiliation, and fear of death on behalf of the tortured, on the one hand, and the pleasure of power, routine work, or self-disgust on the part of the torturer, on the other. Despite the cultural conventions and professional instruments, the final scene will eventually arise from the filmmaker's own socio-emotional experiences and *her attitude* towards what is described, converging in the enactment of her *embodied simulatorium.* As was also emphasized in Eisenstein's thinking, the filmmaker's attitude towards what is represented frames the (socio-emotional) *system* of the systems intelligent performance into the focus.

For further elaboration of the embodied simulatorium in general, consider the differences between the following experiences in particular: (1) observing a violent event (a rape) only a few steps away from herself, which demands immediate reaction (a 'real' world context), (2) observing the same event on the screen reinforced by a dramatic sound environment (a spectator context) or, (3) imagining a violent event happening just a few steps away from herself 'as-if' the violation would take place 'in reality' (cinema author context). Although events (1), (2), and (3) differ in terms of the socio-cultural context of 'real' and 'not-real', however, in the embodied simulation context they are assumed to represent *variations of the same neural activation in someone's brain.*

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The first case (1) without doubt calls for a particularly systems-intelligent enactment and may carry severe consequences also for the observer herself. However, I deliberately ignore this first case for the favor of the cases (2) and (3), which directly relate to the filmmaking process. For some spectators of screen event (2) living through the violence on screen is too disturbing and they simply have to block their eyes and ears. Yet, the embodied mind continues simulating the scene based on the awareness that the event is

going on. The effort invested in voluntary rejection, on the one hand, and the involuntary emergence of the events on the spectators' mental screen, on the other, enforces the fact that she cannot escape the scene. Embodied simulation allows assuming that the spectator 'feels' the fear and the pain of the violated through the involuntary simulation of her own experiences of pain and humiliation. But according to my claim, this is assumed to hold for the authoring process. Imagine that the imaginary cinema author may not be *psychophysiologically capable* to simulate the scene (3), because it is just too painful. If unwilling to modify the original scene by rescuing the woman and the child in the last minute, the filmmaker can always return more associative treatment of the scene. As many skillful filmmakers, with Eisenstein in the frontline, have emphasized that meaningfulness is not embedded in one-to-one depiction of what is happening. Meanings emerge in the mind's simulatorium in the process of making sense of what is happening in 'between the lines' against one's experiential background.

One enacts inseparable manner with the phenomenal world. The convergence of observation, motor enactment, and imagination of the same type of act in the cortical simulation processes has also consequences for the conceptual treatment of what is typically understood as 'real' and 'not-real'. Generalizing a bit, but keeping the particular torture scene in mind, it is obvious that a *systems intelligent* cinema author should be capable of compensating the limits of her practical experiments with the all-embracing possibilities of her embodied simulatorium. In the embodied sensemaking, as exemplified above, the real and fiction mix. Enactive perception-action theory argues that conducting so called 'pure' reduction of the phenomenal world into non-embodied or 'objective' aspects is irrelevant (and implausible) (Noë 2007). This holds also for what is typically conceived of as 'pure' fiction or 'pure' fact. In a similar manner, applying only 'pure' professional methods does not make our imaginary scene come alive, but the holistic socio-emotionally meaningful complexity created by an embodied, systems intelligent agent. The meaning dynamics of cinematic art, paradoxically, is all about "the hidden" in imagery but "the exposed" in embodied simulatorium.

## Conclusion

The essay has related a cinema author's creative processes to the systems intelligence approach. The underpinning assumption was that cinema stands forth as an intersubjective frame of sensemaking. In its unfolding, the cinema author's creative processes were described from the *enactive mind* point of view, through introducing the neuroscientific concept of *embodied simulation* as the bodily basis of these processes. This was followed with a related hypothetical model of cinema author's mental workspace, the *embodied simulatorium*.

Eisenstein was the one who recognized that *unconscious* dynamics dominate not only the spectator's behavior but also the author's own cognition. From his own experiential resources of embodiment Eisenstein found his emotional themes, to discover "whole new tracts of utterly unexpected territory whose existence [he] never dreamed of" (Eisenstein 1995, p. 14). Today, to study oneself, to analyze the emotional 'feelings' and the author's own attitude towards different themes, remains as fuzzy an effort as it was in Eisenstein's time. However, two distinct Eisensteinian kinds of method exist to tackle the problem at

hand. On one hand, the cinema author may gain control over the underpinning dynamics of her own embodied resources by widening her life-experience, for example, through professional practice and personal education. This accumulated experience then, in a reciprocal manner, feeds back and shapes the author's autobiographic self. On the other, the recent neuroscientific methods may help to understand the underpinning neural dynamics of the authoring process, as well as those of the spectator experience. By acknowledging the prevailing modes of socio-emotional interaction and gaining more understanding on the psychological aspects of cinematic arts one may for her part contribute to wellbeing, thus empowering in positive manner what Eisenstein's contemporary discourse described as 'life-building', and which could be referred to as 'systems intelligent performance' today.

So far, direct correlation between neural activities and the mental imagery of the filmmaker's creative mind still remains inaccessible. While the future may hold the keys for gaining access to inner neural activities of the mind's creative systems, understanding the implications of the embodied dynamics to the systems intelligent authoring process already frames one of the most interesting research questions. How does our biological similarity support intersubjectivity and cultural sharing? Put in other words, to what extent can we claim to share (embodied) experiences with the others? Above, the embodied simulatorium has been described as being fundamentally conditioned by life-long socio–emotional situatedness. The case study has helped to discuss how these embodied processes constitute what in this volume is referred to as *systems intelligence.* The assumed cinema author studying her embodied 'feelings' and 'thoughts' has been shown to perform within the socially conditioned domain of systems intelligence. To conclude, I wish the essay will open some paths for theoretical and practical elaboration of the embodied simulatorium and the related systemic approach.

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## Author

Pia Tikka, PhD, is cinematographer and film director, has developed Enactive Cinema project *Obsession* (2005) awarded with Möbius Prix Nordic on interactive storytelling (2006) and published a book *Enactive Cinema: Simulatorium Eisensteinense* (2008). Founding member of project *Enactive Media* funded by Academy of Finland (2009-2011) and visiting research fellow in the Institute of Creative Technology, De Montfort University UK, in the Aalto University research project aivoAALTO (2009-2012) Tikka focuses on "neurocinematics".