

Pre-Gatherings Seminar

Day 1, 25 June (KC-2.05 Křížkovského 14)

Human and Machine Interaction in the Age of AI

Elize Bisanz is Charles Peirce Interdisciplinary Chair at the Institute for Studies in Pragmaticism, Texas Tech University. She has organized several international congresses dedicated to Peirce and interdisciplinary research, and she is author of many books, including *The Logic of Interdisciplinarity: Charles S. Peirce, The Monist Series* (2009), and *Overcoming the Iconic Turn: Cultural Concepts of Images* (2010)

Additional invited presenters include:

Stephanie Schneider, M.A., PhD candidate, Leuphana University/ Institute for Studies in Pragmaticism.

Shadi Nejat, PhD candidate, NIOR Lab-Department of Nutritional Sciences, Texas Tech University.

David Hammer, Honors College, IT Cyber Security Major, Texas Tech University.

The overall question of the course is: how do we study human and machine interaction?

From the first stone tools to computational machines, humans have invested enormous resources to develop intelligences to survive and thrive for ages. The tools and instruments we use reflect our needs and determine our lifestyles, habits, and social interaction; most importantly, they exploit natural resources. Today, technological advancement such as artificial intelligence has opened unprecedented opportunities for the ultimate tool, the human and machine emergence, a *humachine*. Still, technology also has become an imminent tool that infiltrates every aspect of human existence. The workshop examines concepts of Reality, Experience, and Intelligence that define changes. Its goal is to understand how AI-driven tools impact our environment and affect us biologically, socially, and culturally. The workshop also aims to establish a cross-disciplinary understanding of "Digital Humanities" as the fusion and a metaverse of bio-, semio-, and technosphere.

9:00-10:00 – **Coffee**

10:00-13:00 – **Study topics**

- * The paradox of scientific observation
- * Concepts of reality
- * Concepts of experience
- * Interdependencies between natural-, human-, and artificial intelligences.

13:00-15:00 – **Lunch**

15:00-17:00 – **Study models**

- * Existential graphs and fNIR study.
- * Visualizing cognitive activity by digital systems.
- * Obesity research and gene technology.
- * Tracing metabolic dysfunctions.
- * Discussion



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Day 2, June 26 (KC-2.05 Křížkovského 14)

Life as a semiotic category

Anton Markoš is docent in the Department of Philosophy and History of Natural Sciences Charles University in Prague, and author of numerous books in theoretical biology and beyond, including the most recent *Epigenetic Processes and the Evolution of Life* (2019)

Jana Švorcová is assistant professor in the Department of Philosophy and History of Natural Sciences at Charles University in Prague, and co-author *Epigenetic Processes and the Evolution of Life* (2019)

The aim of the course is to pinpoint basic characteristics of the living on the basis of the book we recently wrote together. The first lecture will give basic ideas about cells as the basic units of all life, before all closure: how do they delimit the interface with the external environment and at the same time maintain their structure, organization, memory and experience? How does this contribute to evolutionary processes? Characteristics of cellular closure (labeled “closure 1”) are a principal presupposition for biosemiosis. The second lecture will focus on mutual communication within cell ensembles (here labeled as “closure 2”). Closure 2 is much looser, and is based on mutual “understanding” of the communities in question. It can even be established *de novo*, or suddenly cease to exist. Examples will be given. The third lecture will be devoted to the heritage of John Deely, and his possible application in biosemiotic studies.

9:00-10:00 – **Coffee**

10:00-11:30 – **Innerness: closure 1**

Anton Markoš

- * Memory, experience: genes and structures
- * Cellular closure: the innerness of the cell
- * Interpretative activity of incoming signal and sign – construction of objects
- * Sensing and perceiving – examples
- * Molecular and structural bases of cellular objective reality

11:30-13:00 – **Mutual understanding: closure 2**

Jana Švorcová

- * Transgenerational epigenetic inheritance
- * Conservative genes and their interpretation during ontogeny and evolution
- * Evolution by cooperation: holobionts in the biosphere (closure 2)

13:00-15:00 – **Lunch**

15:00-16:00 – **Biosemiotics as inspired by John Deely**

Anton Markoš

- * The sign and its suprasubjective nature
- * The object and construction of objective reality
- * Inner and external cues (extension of the discourse on closure)
- * Meaning attribution

16:00-16:30 – **Coffee break**

16.30-18:00 – **Round-table**

- * Commentary and questions from **Fatima Cvrčková** and **Vít Gvoždiak**
- * Open discussion



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