

【BioMedia】

【EN】

I am life that wants to live, in the midst of life that wants to live.

Albert Schweitzer, ca. 1918

In his book *What is Life?* (2020), 2001 Nobel laureate Paul Nurse lists five revolutionary ideas that form the basis of biology: Apart from cells, genes, evolution, and life as chemical phenomena, he emphasizes the significance of life as information. This is exactly where the exhibition *BioMedia. The Age of Media with Life-like Behavior* takes off, using an inherently medial perspective in its attempt to demonstrate the gradual evolution from kinetic media to biomimetic media.

1. Motion Machines

The 19th century was the age of moving machines. Movement in all its variety is synonymous with life, and anything that does not move is regarded as dead matter. Those wheel-based motion machines, from automobiles to trains, from bicycles to factory machines, paved the way for the Industrial Revolution. James Watt already equipped his steam engine (1788) with a valve for mechanical self-regulation in order for it to run at a stable speed. Mechanical functions like this bear a striking similarity to the life-giving biological principle of homeostasis, which enables organisms to keep parameters such as temperature or blood sugar at a constant level. This forms the first analogy between technology and biology, between machines and organisms.

2. Motion Media

The 20th century was the age of moving picture media. Around 1890, the spinning wheels of locomotion gave rise to cinematography: film cameras and projectors using the same rotational mechanics to create elaborate illusions of movement. These moving images, or motion pictures, succeeded the moving machines. Motion picture machines replaced motion machines as the new way of simulating life after pictures had been motionless all the way from paintings to photographs. The addition of color and sound made motion picture media even better at imitating life. The illusion of movement in cinematography prepared the field for the art of real movement – kinetics – which also happens to rely heavily on wheels.

3. BioMedia

The 21st century will be the era of *BioMedia*. After the wheel-based motion machines and media, digital media technology, relying on algorithms and AI, opened up a new spectrum of possibilities for the simulation of life. The virtual nature of digital information storage makes it possible to manipulate every element of an image based on input from the viewers. Digital images are fields of variables, which makes the content of these images variable as well. The possibility of viewers altering the content of an image in real time, that interactive relationship between the image system and the audience, also changed the image's behavior. Images have become dynamic systems which show life-like behavior: viability.

Over the past seven decades, the technomimesis of life – its imitation through technology – has continuously improved through advances in cybernetics, information theory, molecular biology, and the exchange of ideas between life and computer sciences. The concept of life as genetic code bridges the gap between biology and information theory. Life as chemistry becomes life as information. This paradigm shift marks the birth of biomimetic media.

The goal of *BioMedia* is not the creation of biological art (BioArt) from biological, natural, organic materials, but the creation of art that uses technological, artificial, inorganic materials to create life-like behavior. We use the term *BioMedia* to refer to media systems that show behavior similar to that of natural organisms.

In the 21st century, the simulation of life using digital media, complex, dynamic systems, adaptive robots, artificial intelligence, and algorithms will give rise to new forms of biomimetic behavior. Technical systems will show autonomous reactions to internal and external changes, as well as generating improbable and unforeseen results thanks to vastly accelerated input-output relations. *BioMedia* resemble living organisms with autonomous reactions to their environment and other beings.