

PROBLEMS OF SAFETY IN THE EVOLVING INDUSTRIAL ENVIRONMENT AND THE DEVELOPMENT OF INFORMATION TECHNOLOGY: THE HUMAN FACTOR

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Abstract

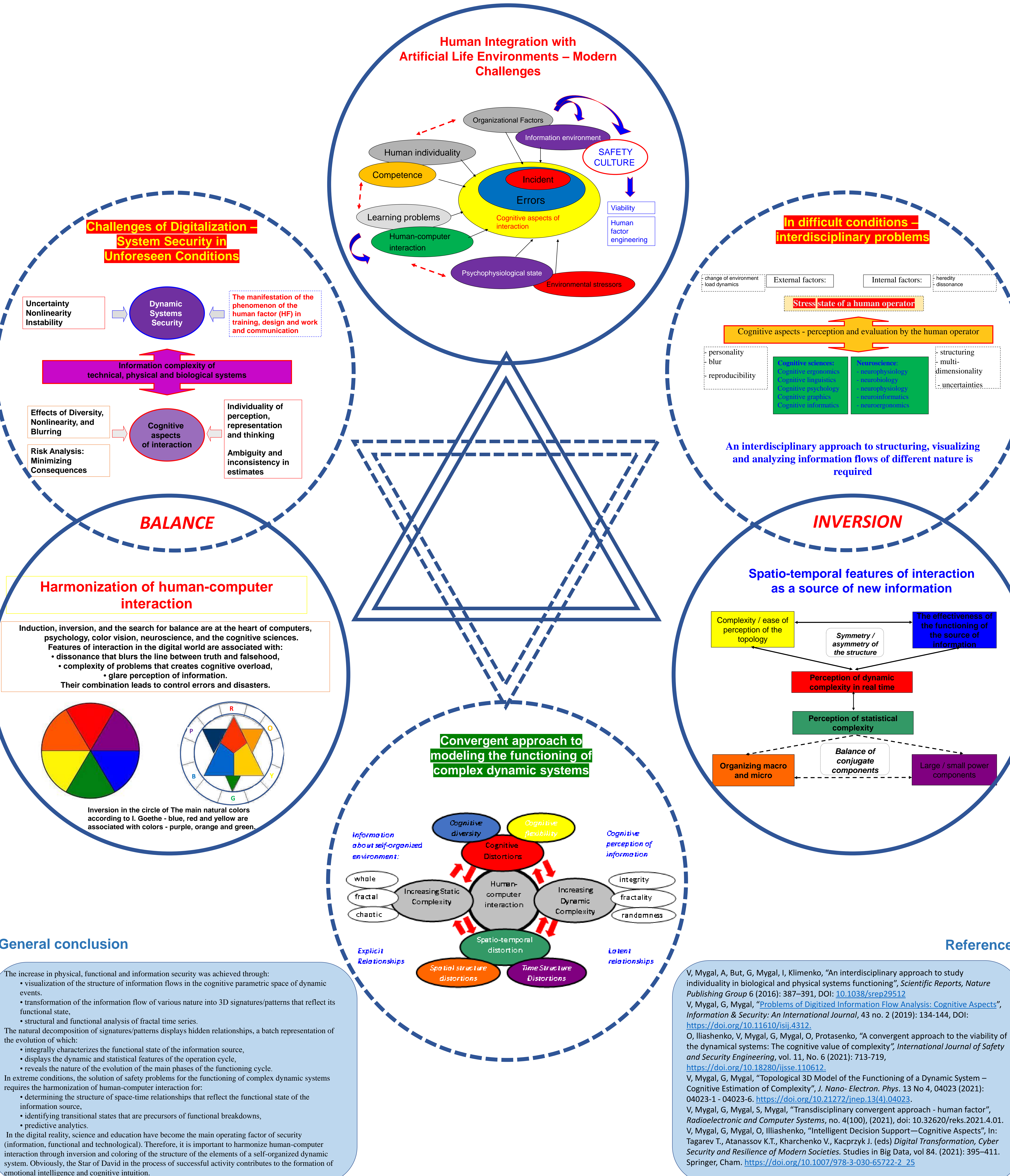
The problems of the human factor in science, education and technology require the harmonization of human-computer interaction through inversion and the identification of the hidden structure of relationships, which manifests itself when coloring. The contours of the three key problems are highlighted in natural colors (according to I. Goethe): • hidden cognitive distortions – yellow; • modern challenges – red; • hidden spatio-temporal relationships - blue. Therefore, systemic problems at the intersection of sciences are highlighted with a dotted line and colors of the second order: • ergonomics – green; • engineering psychology – purple; • neuroscience-orange.

Visualization of the relationships between problems made it possible to establish the influence of hidden cognitive distortions on mental health, which manifests itself in the individual characteristics of interaction in the digital world. They are determined by the choice of primary colors (Luscher test) and the perception of a balance between duality and triplicity. The informativeness of perception is established:

- contrasting colors (red-green, etc.)
- induced states, which are marked with dotted lines,
- conjugated opposite states that have the shape of the Star of David.

Harmonization of human-computer interaction forms individual emotional intelligence and intuition on successful experience.

Keywords: complex dynamic systems, man-machine interaction, spatio-temporal structure, cognitive aspects, transdisciplinarity.



General conclusion

The increase in physical, functional and information security was achieved through:

- visualization of the structure of information flows in the cognitive parametric space of dynamic events.
- transformation of the information flow of various nature into 3D signatures/patterns that reflect its functional state.
- structural and functional analysis of fractal time series.

The natural decomposition of signatures/patterns displays hidden relationships, a batch representation of the evolution of which:

- integrally characterizes the functional state of the information source,
- displays the dynamic and statistical features of the operation cycle,
- reveals the nature of the evolution of the main phases of the functioning cycle.

In extreme conditions, the solution of safety problems for the functioning of complex dynamic systems requires the harmonization of human-computer interaction for:

- determining the structure of space-time relationships that reflect the functional state of the information source,
- identifying transitional states that are precursors of functional breakdowns,
- predictive analytics.

In the digital reality, science and education have become the main operating factor of security (information, functional and technological). Therefore, it is important to harmonize human-computer interaction through inversion and coloring of the structure of the elements of a self-organized dynamic system. Obviously, the Star of David in the process of successful activity contributes to the formation of emotional intelligence and cognitive intuition.

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