ECRONICON OPEN ACCESS

EC NEUROLOGY
Mini Review

Multidimensional Information Scaling: Manifestation of the Mind-Body Connection

Milan Jovovic*

The New York Academy of Sciences, USA

***Corresponding Author:** Milan Jovovic, The New York Academy of Sciences, USA.

Received: September 15, 2021; **Published:** October 27, 2021

Abstract

Data analysis in two behavioral experiments have been derived within the theoretical framework of stochastic resonance synergies. One, that involves outside auditory stimulation of the brain [6], and the other, in the coordination of skilled movements that involves the brain-body connections [2], only.

Functional neuro-cortical mappings have been evaluated at the scale-space frequencies of coupled data clusters. Topology of dynamical cascades of binding synergies have been analyzed.

In this article we reflect on the multidimensional information scaling property in binding data clusters. In particular, on the mind-body connection.

***Keywords**: Multidimensional Information Scaling; Mind-Body Connection*

How does the brain know where things are?

It has been shown that single nerve cells in the motor cortex are excited prior to making a reaching movement in some direction and inhibited to the movements in the others, having therefore a predictive value. In coding the movement trajectories, we have extended the equilibrium points hypothesis with the quantum information carriers [2]. This methodology finds complex synergism in joints' trajectories. Biological systems control movements at different levels of complexity, from accurately planned movements to reflexes.

In the auditory experiment, the BOLD signals have been recorded with the fMRI. Conditions reveal an area specifically sensitive to the auditory distance cues. The point scaling property of the information flow reveals a dynamical map of the cortical feature source localization along with the tonotopic map. Brain wave nucleons from the EEG scans, and a distance measure of synchronicity of the brain wave patterns have been analyzed [6], as well.

The 'least action' principle accounts for the point scaling property and information binding in a multidimensional networked system. We propose the genotype information carriers in neuroimaging and dynamical brain maps source localization. It has shown also a potential in clinical applications.

"Man fears time, time fears the pyramids"

-- Old proverb.

Dynamics of quantum information processing: The emergence of space-time

Elucidating the nature of time and space has been an open research area in physics since the introduction of Quantum Mechanics and General Relativity. An illusion in a common perception of time and space comes from difficulties in perceiving the transformative nature of evolving patterns via coordinate transformations. Missing dynamics of evolution processes in 4D space-time, have been shown to lead to a static description of the Universe. In mathematics, a proof of the Poincare conjecture in 4D supports this view.

In our study, we derive a quantum information theory for multidimensional information scaling. 5D decomposition in bonding information quanta via scale-space tunnelling is proposed. The emergence of an equivocal interpretation of time and space derives from the scaling property of evolving 5D network dynamics, in our view.

Dynamical cascades and the holographic representation of quantum information carriers

The stochastic resonance synergistics theory derives a dynamical data modeling methodology for decomposing signals in a coupled structure of binding synergies, in the scale-space. Conserving information in the scale-space tunnelling, and the associated uncertainty relation leads, asymptotically, to its polynomial decomposition. Dynamical cascades propagate information with the scale-waves, and the atomic structure binds data with the stochastic resonance synergies at multiple scales. We have analyzed periodicity, the coding and control composition of this quantization scheme.

Julesz's random dot stereograms illustrate a holographic representation of information bonds in fusing the visual textures in a single perception. We have published a paper on generalized random stereograms [1]. Consequently, the 5D quantization and a holographic coding of motion information have been proposed [3].

Ever present evolution

The mind-body connection depends on the environment one is living in and functioning. Different levels of complexity govern our conscious perception of the environment. Additionally, a good sleeping habit maintains our well being. Despite being perceived as separate, it seems that ever present evolution includes both, the mind and body, synergistically. The 'space-like' and 'time-like' as the emergent properties of the scale-space dynamics.

Conclusion

In this article we have reviewed a multidimensional information scaling theory. Its manifestation of the mind-body connection has been analyzed in two experiments. One, that involves sensing the environment, and the other with learned feedforward connections, only. We have reflected on potential clinical applications.

Bibliography

1. Jovovic M. "A Markov random fields model for describing unhomogeneous textures: generalized random stereograms". IEEE Workshop Proceedings on Visualization and Machine Vision, and IEEE Workshop Proceedings on Biomedical Image Analysis, Seattle (1994).

2. Jovovic M*., et al.* "Automatic synthesis of synergies for control of reaching – hierarchical clustering". *Medical Engineering and Physics* 21/5 (1999): 325-337.

3. Jovovic M. "Hierarchical scale quantization and coding of motion information in image sequences". Informacione Tehnologije VI, Zabljak (2002).

4. Jovovic M., *et al.* "Hierarchical scale decomposition of images – singular features analysis". INRIA (2003).

5. Jovovic M and G Fox. "Multi-dimensional data scaling – dynamical cascade approach". Indiana University (2007).

6. Jovovic M. "Stochastic Resonance Synergetics – Quantum Information Theory for Multidimensional Scaling". *Journal of Quantum Information Science* 5/2 (2015): 47-57.

7. Jovovic M. "Attention, Memories and Behavioral Data-driven Study". *Advances in Neurology and Neuroscience* (2019).

Volume 13 Issue 11 November 2021