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Short Communication

The Light and Sound Triplet Codes in Human Perception -- Making Sense of the World in 5D

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The major part of sensing the world we live in comes from the light and sound. In this article, we discuss adaptive filtering and mapping of the light and sound information in the brain. Triplet codes are examined, cross-modally. Visual trichromacy and the tonotopic mapping in the auditory cortex are discussed. We reflect on some similarity and differences in the light and sound perceptions.

The information carriers that catch our attention, bind memories, and drive behaviours have been proposed in the theory of stochastic resonance synergies. Transformative nature of the resonance codes on 5-dimensional manifolds have been described. A genotype information processing, coding and expression is discussed in our reports.

The eyes and the brain

Spectral filtering of light originates in fovea, normally with 3 different, spectrally tuned cone receptors. The information about the wavelength and the intensity of incoming light is interpreted in the brain. Color opponency theory is commonly referred to in explaining how the visual system processes information at the neural level.

The ears and the brain

Spatial separation of frequencies originates in the cochlea of the inner ear. This separation is projected onto the tonotopic maps of the auditory cortex. Different tonotopic organisations in the human auditory cortex have been reported in literature.

The results of our data analysis study suggest a role of 3 spatially separated frequency bands for adaptive filtering of the sound in the brain. The triplet code's tonotopic map of the auditory cortex propagates the information flow for the intensity-independent auditory distance detectors, [1].

The tonotopic mapping underlies, in our view, the representation of complex sounds, as well. The adaptive nature of the perceptual scaling is reflected in the acquisition of a second language, for an example. In the elderly population, this representation can be distorted by hearing loss.

Synergistic binding of information carriers in 5D

The role of a scientific inquiry has led many in developing mathematical theories and expressions to communicate how information is processed in the brain. There are just too many uncertainties in human languages or computer programs to communicate it, otherwise.

Synergistic binding of visual textures in depth perception has been described in our report, [2]. This theoretical framework has been studied also for the acquisition of motor skills. Learning and control of limb movements as a sequence of synergistic joint motions has been described, in [3].

The principle of least action binds clusters of information dynamically in a scale-space resonance, in 5D. The synergistic binding, arranged in an atomic structure, parses the quantum information holographically with the carriers that catch our attention, bind memories, and drive behaviour, [4].

Concluding remarks

The scale-space wave propagation and resonance codes form one of the most characteristic functional principles in understanding information processing in the brain, in our view. Scaling mul-

tidimensional information in 5D, and the maps of synergistically binded information carriers have been described in our reports. We have discussed in this article the visual and auditory information triplet codes.

The emergence of neural correlates, in relation to a myriad of vibrating strings of Nature, describes the state of one's awareness of its surroundings. Most of them are not, although, directly available to our sensory perception.

Bibliography

1. Jovovic M. "Stochastic Resonance Synergetics-Quantum Information Theory for Multidimensional Scaling". *Journal of Quantum Information Science* 5.2 (2015): 47-57.

2. 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).

3. Jovovic M., *et al*. "Automatic synthesis of synergies for control of reaching - hierarchical clustering". *Medical Engineering and Physics* 21.5 (1999): 325-337.

4. Jovovic M. "Attention, memories, and behavioural data-driven study". *6th International Conference on Neuroscience and Neurological Disorders, Prague* (2019): 4-5.

5. Jovovic M. "Space-Color Quantization of Multispectral Images in Hierarchy of Scales". *International Conference on Image Processing, Thessaloniki* (2001): 914-917.