

Poster presentation

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Functional approach of the central nervous system (CNS) based on technological advances: from computers to nanotechnology

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Background

Numerous scientists over the years have dealt with the capabilities of the human brain. Nowadays, with the available technological aids, we are able to investigate the biochemistry of the CNS and provide answers to several posed questions. These recent revelations however raised new questions, a constant reminder of how little is actually known regarding this extraordinary neuronal network.

Materials and methods

Four main theories have been developed so far in an effort to simulate the function of the human brain. Namely: 1. The human brain is compared to a single computer, 2. is represented as a computer network, 3. is thought of as a large group of nanomachines, 4. is governed by the laws of quantum mechanics.

Results

The first theory cannot provide insights to even the simplest of the brain functions, since the latter cannot be represented by a single algorithm. In the second case, the human brain can be considered as a computer network, but it exceeds it by far in complexity and nature of capabilities. The third theory offers an analysis at a microscopic level and is quite promising. Finally, the fourth

theory provides a novel point of view, revealing a new dimension in the exploration of brain function.

Conclusions

The four theories do not provide finite answers regarding the function of the human brain. It still remains unclear whether one theory approaches the truth to a greater extent or whether in reality a combination of them is observed. In either case, several questions can still be posed: what provides the functional rhythm to the human brain? Is there a central control timer and if yes, where is it located?

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