Computational Neuroscience : Revisiting with Gentle Compiler Construction System + CooL w.r.t HOC involving Smart Devices [SD] + IoT + HPC Heterogeneous Systems -> A Simple Analysis.

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Abstract :

"Computational neuroscience (also known as **theoretical neuroscience** or **mathematical neuroscience**) is a branch of neuroscience which employs mathematical models, computer simulations, theoretical analysis and abstractions of the brain to understand the principles that govern the development, structure, physiology and cognitive abilities of the nervous system.[1][2][3][4]
Computational neuroscience employs computational simulations to validate and solve mathematical models, and so can be seen as a sub-field of theoretical neuroscience; however, the two fields are often synonymous.[5] The term mathematical neuroscience is also used sometimes, to stress the quantitative nature of the field.[6]

Computational neuroscience focuses on the description of biologically plausible neurons (and neural systems) and their physiology and dynamics, and it is therefore not directly concerned with biologically unrealistic models used in connectionism, control theory, cybernetics, quantitative psychology, machine learning, artificial neural networks, artificial intelligence and computational learning theory;[7][8][9][*self-published source?*][10] although mutual inspiration exists and sometimes there is no strict limit between fields,[11][12][13][14] with model abstraction in computational neuroscience depending on research scope and the granularity at which biological entities are analyzed.

Models in theoretical neuroscience are aimed at capturing the essential features of the biological system at multiple spatial-temporal scales, from membrane currents, and chemical coupling via network oscillations,columnar and topographic architecture, nuclei, all the way up to psychological faculties like memory, learning and behavior. These computational models frame hypotheses that can be directly tested by biological or psychological experiments."

"**hoc**, an acronym for **High Order Calculator**, is an interpreted programming language that was used in the 1984 book The Unix Programming Environment to demonstrate how to build interpreters using Yacc.

hoc was developed by Brian Kernighan and Rob Pike as a glorified interactive calculator. Its basic functionality is to evaluate floating-point numerical expressions, e.g., 1+2*sin(0.7). Then, variables were added, conditionals, loops, user-defined functions, simple IO, and more, using a syntax resembling C.

An improved hoc interpreter was included in Eighth Edition Research Unix in 1985, but it has not been generally adopted by commercial Unix systems or by Linux distributions. Instead, the earlier calculator languages dc and bc have become widespread on those systems. hoc survived and continued to evolve as part of the Plan 9 operating system. Several improved versions of Hoc were released as free software by Bell Labs and other individuals (see list below). hoc is used as the primary scripting language for the Neuron simulator."

[Source -> Wiki -> https://en.wikipedia.org/wiki/Hoc_(programming_language)]

[Source -> https://en.wikipedia.org/wiki/Computational_neuroscience]

[Source -> https://publikationen.bibliothek.kit.edu/370296/776486]

index words/keywords : Keep guessing.....

We are trying our BEST to TEST this Framework.

Thanks from Dr.Nirmal.