Musings on Memory, a Synaptic Symphony*

A few molecules of glutamate
conspire to congregate
at synaptic vesicles
to manipulate some ion channels
and play a cellular cadence of evoked potentials.

The triggered cascade of impulses neuronal
course through a myriad of fibers axonal,
and reach in milliseconds
many deep folds cortical
achieving a cognitive crescendo.
Is this ceaseless endocranial orchestra
the cognitive anchor to our conscious self?

We shall
explore these cerebral labyrinths
with allegories and metaphors,
paradigms and models,
and simulate and experiment
in many formal dialects
mathematical and statistical,
linguistic and neurobiological.

Do spike trains
ignite the sparks of thought?
Do fleeting thoughts
gel into amorphous concepts?
Do ephemeral concepts
weave the web of knowledge?
There lies the mystery of mind-scape,
unravel which we shall
by traversals top-down and bottom-up.

We draw the parallels between
cogits, cogiton and cogitron with
bio-amines, neuron and cortex.

We ponder about qualia and meme
and the essence of many a dream.
We build models using
equations differential and components principal,
architectures neural and algorithms computational.
Are memories made of
multi-sensory perceptual fusions,
captured as invariant representations,
of nested sequences
of spatio-temporal patterns?

We speak
of bugs and slugs and chicks and bonobos
of mice and men and phantoms and daemons.
We choreograph the trilogy
of brain, memory and mind,
the hardware, software and know-ware.

Is homeotrophy
the answer to creativity?
Does a grammar of thought co-exist
with a grammar of randomness?
And thus shall we reason about,
the ensemble of neuro-transmitters
that excite, inhibit and modulate
and concoct
a heady brew,
the alchemy of thought.
Is thought(ness)^k, $k = 0, \ldots, \infty$
the transcendence between
thoughtlessness and thoughtfulness?

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