

Timing and Graded Signals in the Inferior Olive

Propositions

1. For learning, a quantitative signal is efficient, but a well-timed qualitative one suffices. (this thesis)
2. The inferior olive may use ensemble subthreshold oscillation synchrony to drive motor learning. (this thesis)
3. Olivary neurons operate as ensembles rather than on an individual basis. (this thesis)
4. Connexin36 gap junctions in the central nervous system are used to ensure high-fidelity signal transmission in the temporal domain. (this thesis)
5. Connexin36 gap junctions in the olivo-cerebellar system serve to enable the network to correctly represent short-term temporal relationships required for conditioning. (this thesis)
6. In some ways, working with animals is like working with weapons; the day you don't think twice about picking up a sword, is the day you ought to put it down.
7. "A human being should be able to change a diaper, plan an invasion, butcher a hog, conn a ship, design a building, write a sonnet, balance accounts, build a wall, set a bone, comfort the dying, take orders, give orders, cooperate, act alone, solve equations, analyze a new problem, pitch manure, program a computer, cook a tasty meal, fight efficiently, die gallantly. Specialization is for insects." – Robert A. Heinlein
8. Contrary to popular belief, being the first to write about something does not make what is written true.
9. Science should be practiced religiously, not revered mindlessly.
10. To get a computational model that is one hundred percent accurate, an infinite number of experiments is required; animal rights activists should also realize this.
11. "Do... or do not. There is no try." – Master Yoda (Star Wars)