

Analysis of studies

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1 Week 1

I have barely been able to do anything this first week. It's been hard to find any time to do any studies. Therefore, because I do find it very important to study, and to see where this path can lead me, I will start doing one hour in the morning. This will change my morning routine to the following: meditate, write, study. It would be good to wake up at 6, in order to manage this, but it would be even better if I can do it more naturally.

Furthermore, I think I'll make the pace half as fast as before. This will make the whole endeavor take roughly 26 weeks, or half a year. Which frightens me, but it's also a much more sensible pace, considering the length I've gotten my first week.

1.1 Gerstner

Leaky-integrate and fire model of the neuron, as well as it's triad of representation (neuron, circuit and mathematical formula). Solved some simple first-order linear equations which represent the behavior of the neuron.

$$\tau \frac{d}{dt} u = -(u - u_{rest}) + RI(t)$$

1.2 Strogatz

Quick look at pitchfork bifurcation, both subcritical and supercritical represented by

$$\dot{x} = x + rx^3 \quad \dot{x} = x - rx^3 \quad (\text{I have to return to what this means later})$$

where r is the control parameter. Clearly these are the same in $-\infty < r < \infty$.

So.. I'll look at it again.

One-linear dynamics on a circle. Introduces periodicity, otherwise very simple. $\dot{x} = x$ is not a vector field on this topology, because $x|_{2\pi} = x|_0$, but $\dot{x}|_{2\pi} \neq \dot{x}|_0$.

2 Week 2