

# Architectures of Intelligence

## Assignment 5: Part 1

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### Tuning Curves

The tuning and response curves of neuron ensemble  $a$  are depicted in Figure 2. These curves provide insights into the activation patterns and response properties of the neuron ensemble. The spread of these curves allows the ensemble to 'catch' all incoming signals.

### Model with Set Stimulus

Figure 3 shows the model with a set stimulus of 0. Key observations include:

- **Ensemble a:** Value remains 0 as the signal is not modified between the stimulus and the ensemble.
- **Ensemble b:** Value is constant at -0.5, calculated as  $0 \times 0 - 0.5 = -0.5$ .
- **Ensemble c:** Value stabilizes at -1.1 due to the transformation of the signal from ensemble b by scaling it to -0.25. This, as well as the 'memory' of the ensemble, accumulates over time.

# Figures

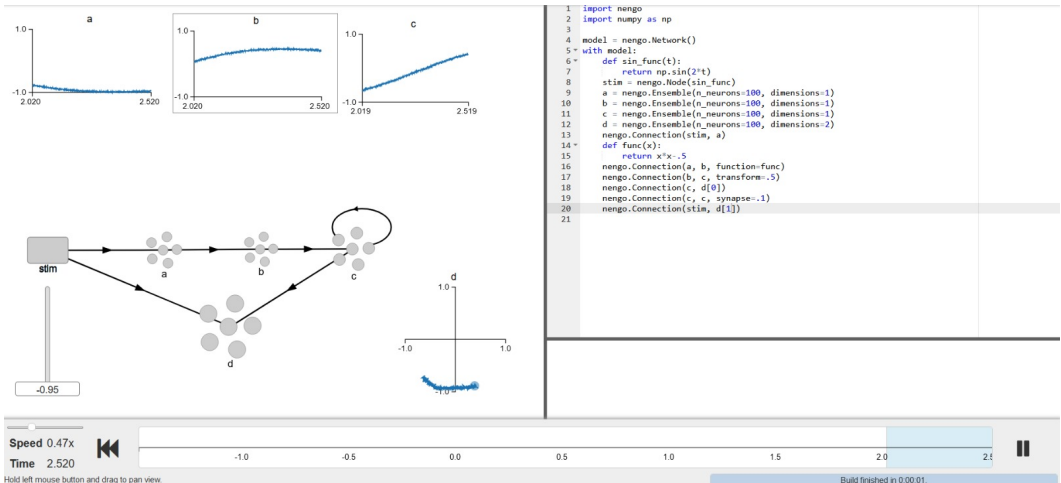


Figure 1: The model running during simulation.

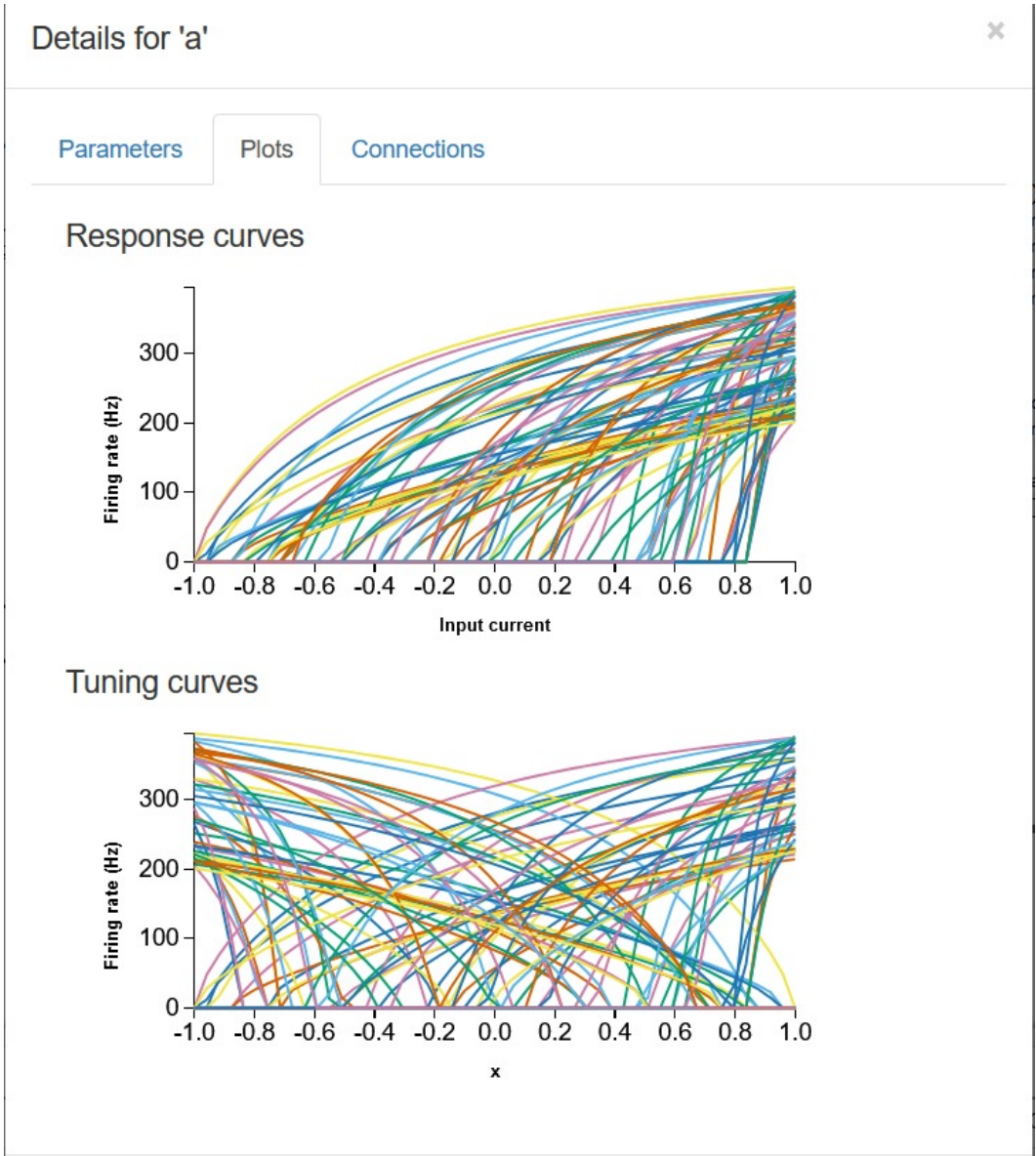


Figure 2: Tuning and response curves of neuron ensemble *a*.

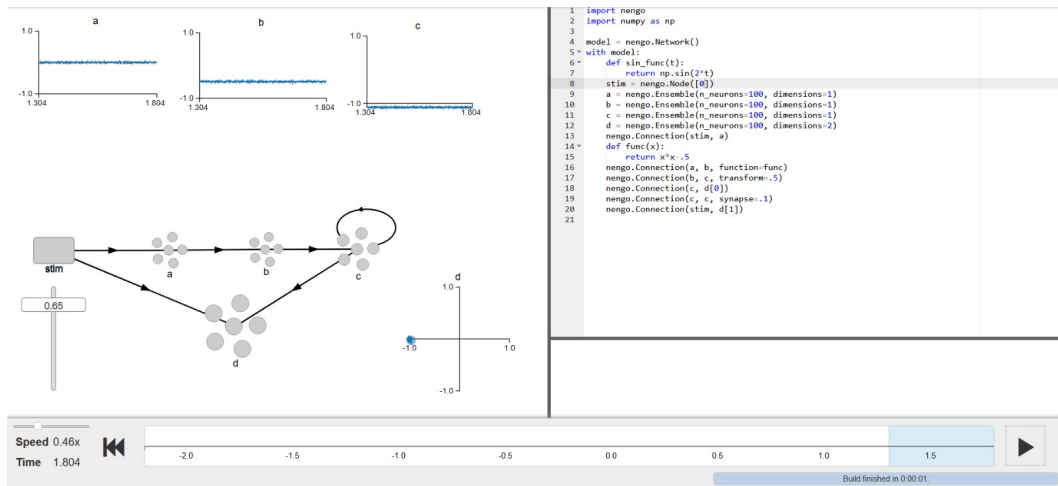


Figure 3: Model performance with a set stimulus of 0.