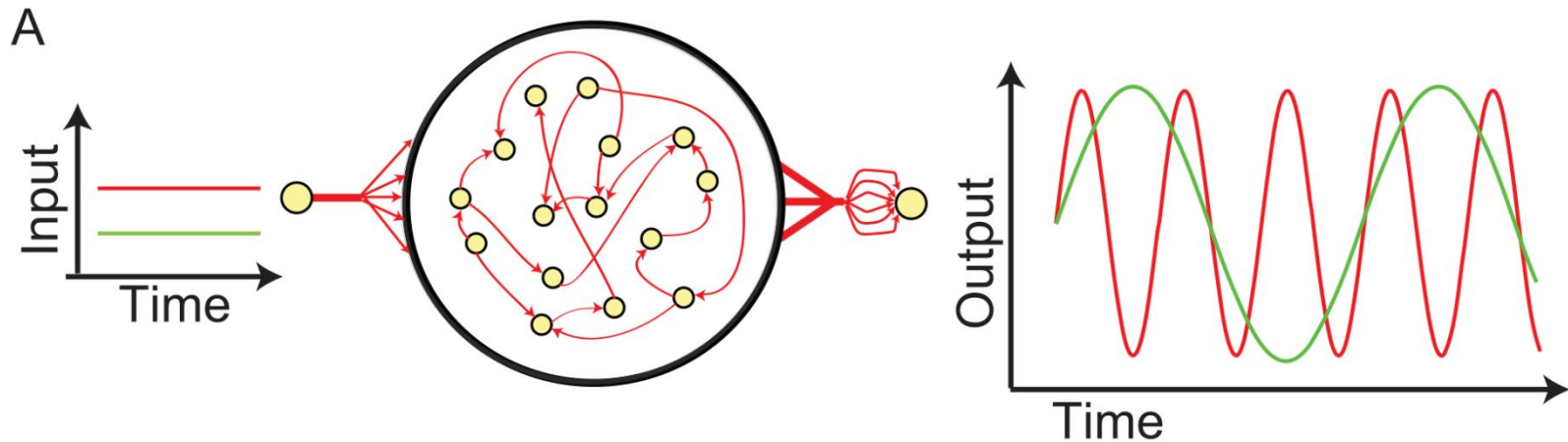# Task

- I trained a recurrent neural network (RNN) on the sine wave generator task.

    - Sussillo & Barak, *Neural Computation* (2013)

- This task involves giving the RNN a static input and transforming that input into a frequency. The RNN then outputs a sine wave with that frequency.

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Results

- We choose to analyze the trained RNN with the dynamical view.
  - The network learned a limit cycle.

- However, we would like to note that the manifold view could apply.
  - The network learned a manifold of limit cycles.
  - In order to readout different sine waves, the input would drive the RNN to a new point on the manifold.

RNN 2D Vector Field in PCA Space

PCA of the hidden neuron activations   Frequency