CANN implementation in BrainPy

This project is focused on implementing and simulating Continuous Attractor Neural Networks (CANN) and Adaptive Continuous Attractor Neural Networks (A-CANN) using the BrainPy framework. The key aspects covered in this project are:

1. Continuous Attractor Neural Network (CANN):
    - Implementation of a 1D ring CANN model.
    - Simulation of persistent activity in the CANN after removal of external input.
    - Simulation of smooth tracking behavior of the CANN when presented with a moving input.
2. Adaptive Continuous Attractor Neural Network (A-CANN):
    - Implementation of a 1D ring A-CANN model with Spike Frequency Adaptation (SFA).
    - Simulation of spontaneous traveling waves in the A-CANN when presented with random noise input.
    - Simulation of anticipative tracking behavior in the A-CANN when presented with a moving input.

The project involves understanding the theoretical background of CANN and A-CANN models, implementing their dynamics using differential equations, and simulating various phenomena such as persistent activity, smooth tracking, traveling waves, and anticipative tracking. The simulations are visualized using the BrainPy visualization tools, and the project code provides a hands-on experience in working with neural network models and dynamical systems.