This simulation code set includes the following files:

- Main_Loop_Computation.m
- assemblyComputation2.m
- assemblyComputation3.m
- assemblyComputation4.m
- assemblyComputation5.m
- assemblyComputation6.m
- assemblyComputation7.m
- learningHebbian2.m
- learningHebbian3.m
- learningHebbian4.m
- learningHebbian5.m
- learningHebbian6.m
- learningHebbian7.m
- patternMatching.m
- SNN_initiation0.m
- SNN_stimulation.m
- SNN_simulation.m
- SNN_simulation_GPU.m

"**Main_Loop_Computation.m**" is the main script that runs the simulation. All simulations were performed by this script.

"**assemblyComputation*N*.m**", "**learningHebbian*N*.m**", and "**patternMatching.m**", with N = 2, 3, 4, 5, 6, and 7 (the size of loop structures), are auxiliary codes to confirm theoretical predictions, in the basic neural activity model, running in "**Main_Loop_Computation.m**".

"**SNN_initiation0.m**", "**SNN_stimulation.m**", "**SNN_simulation.m**" , "**SNN_simulation_GPU** and "**patternMatching.m**" are auxiliary codes to confirm theoretical predictions, in spiking neural

networks, running in "**Main_Loop_Computation.m**".