Simulations:

1. "Simulations_Gated_Multichannel.m" is the main script for the simulations.

2. "GM_initiation.m" is the hierarchical-type rate-based neuronal network initiation code (See, Fig. 2 and 3).

3. "GM_define_interaction.m" is needed to define interactions between channels in the hierarchical-type rate-based neuronal network (See, Fig 2 and 3).

4. "GM_define_interaction_c1.m" is needed to define specific-type interactions between channels in the hierarchical-type rate-based neuronal network (See, Fig 3D left).

5. "GM_define_interaction_c2.m" is needed to define specific-type interactions between channels in the hierarchical-type rate-based neuronal network (See, Fig 3D right).

6. "GM_stimulation.m" generates stimulation inputs used in the hierarchical-type rate-based neuronal network simulation (See, Fig. 2 and 3).

7. "GM_stimulation_distProj.m" is used to obtain orthogonality of neuronal activity in the in the hierarchical-type rate-based neuronal network simulation (See, Fig. 2 and 3).

8. "GM_stimulation_distProj_stims.m" is used to obtain orthogonality of input stimulations in the in the hierarchical-type rate-based neuronal network simulation (See, Fig. 2 and 3).

9. "GM_simulation_Hebb.m" generates neuronal activities for the stimulation inputs used in the hierarchical-type rate-based neuronal network simulation (See, Fig. 2 and 3).

10. "GM_simulation_Hebb_GPU.m" generates neuronal activities for the stimulation inputs used in the hierarchical-type rate-based neuronal network simulation, through using GPU (See, Fig. 2 and 3).

11. "GM_initiation_MI.m" is the convergence-type rate-based neuronal network initiation code (See, Fig. 4 and 5).

12. "GM_stimulation_MI.m" generates stimulation inputs used in the convergence-type rate-based neuronal network simulation (See, Fig. 4 and 5).

13. "GM_simulation_Hebb_MI.m" generates neuronal activities for the stimulation inputs used in the convergence -type rate-based neuronal network simulation (See, Fig. 4 and 5).

14. "GM_simulation_Hebb_MI_GPU.m" generates neuronal activities for the stimulation inputs used in the convergence -type rate-based neuronal network simulation, through using GPU (See, Fig. 4 and 5).

Analysis:

1. "Analysis_Gated_Multichannel.m" is the main script for the simulation data analysis.

2. "GM_stimulation_instant.m" generates instance stimulation inputs used in the hierarchical-type rate-based neuronal network simulation (See, Fig. 2E and 2F).

3. "fct_extractBox.m" is needed to draw box plots (See, Fig. 3B).

4. "fct_boxplot.m" draws box plots (See, Fig. 3B).

Simulations (supplementary; SNN):

1. "Simulations_Gated_Multichannel_SNN.m" is the main script for the supplementary simulations of spiking neuronal networks.

2. "GM_SNN_initiation.m" is the hierarchical-type spiking neuronal network initiation code (See, Fig. S1).

3. "GM_SNN_define_interaction.m" is needed to define interactions between channels in the hierarchical-type spiking neuronal network (See, Fig S1).

4. "GM_SNN_stimulation.m" generates stimulation inputs used in the hierarchical-type spiking neuronal network simulation (See, Fig. S1).

5. "GM_SNN_stimulation_distProj.m" is used to obtain orthogonality of neuronal activity in the in the hierarchical-type spiking neuronal network simulation (See, Fig. S1).

6. "GM_SNN_simulation.m" generates neuronal activities for the stimulation inputs used in the hierarchical-type spiking neuronal network simulation (See, Fig. S1 and S3).

7. "GM_SNN_simulation_GPU.m" generates neuronal activities for the stimulation inputs used in the hierarchical-type spiking neuronal network simulation, through using GPU (See, Fig. S1 and S3).

8. "GM_SNN_initiation_MI.m" is the convergence-type spiking neuronal network initiation code (See, Fig. S3).

9. "GM_SNN_stimulation_MI.m" generates stimulation inputs used in the convergence-type spiking neuronal network simulation (See, Fig. S3).

Analysis (supplementary; SNN):

1. "Analysis_Gated_Multichannel_SNN.m" is the main script for the supplementary simulation data analysis.

Other (Needed in "Analysis_Gated_Multichannel.m" and "Analysis_Gated_Multichannel_SNN.m" scripts):

"kde.m" is avaliable at "https://kr.mathworks.com/matlabcentral/fileexchange/14034-kernel-density-estimator".

Zdravko Botev (2023). Kernel Density Estimator (https://www.mathworks.com/matlabcentral/fileexchange/14034-kernel-density-estimator), MATLAB Central File Exchange.