

Modeling (Re)consolidation using Emergent

Creating Object-Context Inputs

- In MATLAB run *input_creation.m* by typing `input_creation`.
- At the prompt type in the desired overlap percent in the input files you are creating.
- Keep pressing 0 to reroll objective until the object set with the desired overlap is created.
- Once the object input is made, type in 1 and follow prompts to name inputs of sets 1 and 2 and intermediate sets. Inputs must be named with a .dat extension.

Training and Testing in Reconsolidation.proj in Emergent

- Open Emergent 6.3.2 and load Reconsolidation.proj by File -> Open Project.
- Load in created input by LeabraWizard_1 -> **Data** -> Std Input Data and name it.
- When the input appears in the workspace under InputData, click it and select **Load Any Data** without headers.
- Load inputs into training in LeabraAllStd -> LeabraTrain and LeabraAllStd -> vars -> `input_data : object val`.
- Train model in LeabraAll_std -> LeabraTrain by clicking **Init** then **Run**.
 - Monitor progress in **EpochOutputData** and click **Stop** when avg norm err is below 0.15.
- Test model by placing input in LeabraAll_Test -> LeabraEpochTest, Click Init and Run.
- After the test, export results in OutputData -> TrailTestOutputData into a .csv file.

Analyzing Emergent Outputs

- In MATLAB open *metric.m* and place the input file(s) you wish to compare outputs to in lines 6-8 for the variable names file1, file2, and file3.
- In MATLAB run *metric.m* by typing `metric`.
- At the prompt type in the EMERGENT output file.

Creating Noise Input for Sleep Simulations

- In MATLAB run *big_noise_input.m* by typing `big_noise_input`.
- At the prompt select if you would like to add an odor to the noise context input.
- As before, name the file with the .dat extension.

Simulating Sleep in Emergent

- Load sleep input file in Emergent as before by LeabraWizard_1, Data, Std Input Data, Load Any Data.
- After training on a previously made object-context pair, test model on 'sleep' noise input in LeabraEpochTest.
- Save output as before in OutputData -> TrailTestOutputData with .csv extension.

Turning Spontaneous Memory Replays into Inputs

- Compare replay output with original object-context input using *metric.m* as described above.
- To create Emergent input from replay output, run *big_metric.m* in MATLAB by typing `big_metric`.
- At the prompt type on the output filename, and at the next prompt type in a name for the created input file.

Running Sleep Simulations

- Load input file created using *big_metric* in Emergent by LeabraWizard_1, Data, Std Input Data, Load Any Data.
- Load input into training in LeabraAllStd -> LeabraTrain and LeabraAllStd -> vars -> `input_data`.
- In LeabraAll_std -> LeabraTrain, train the previously trained network by clicking Init and Run on the new input.
- Train the network for 3 epochs.
- Save output as before in OutputData -> TrailTestOutputData with .csv extension.