**Layer Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Layer** | **Parameter** | **Schapiro et al. (2017)** | **Current Model** |
| pCA1 | Layer | Does not exist | Added |
| # Units | Does not exist | 50 |
| Inhibition | Does not exist | FFFB (Gi = 3) |
| dCA1 | Layer | Does not exist | Added |
| # Units | Does not exist | 50 |
| Inhibition | Does not exist | FFFB (Gi = 2.2) |
| CA1 | Layer | Exists | Removed |
| # Units | 100 | - |
| Inhibition | kWTA Avg Inhib 0.25 pct/0.7 pt | - |
| DG | Inhibition | kWTA Avg Inhib 0.01 pct/0.9 pt | FFFB Gi = 24 |
| CA3 | Inhibition | kWTA Avg Inhib 0.06 pct/0.7 pt | FFFB Gi = 4.5 |
| EC\_in and EC\_out | # Units | 8/15/9 | 18 |
| Inhibition | kWTA Inhib k = 2/0.5 pt | FFFB Gi = 2.0 |

**Projection Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Projection** | **Parameter** | **Schapiro et al. (2017)** | **Current Model** |
| Input -> EC\_in | Weight range | 0.25-0.75 | 0.8 |
| EC\_in -> DG | Learning rate | 0.2 | 0.4 |
| EC\_in -> CA3 | Learning rate | 0.2 | 0.4 |
| CA3 -> CA3 | Learning rate | 0.2 | 0.4 |
| WtScale.Rel | 1 | 2 |
| CA3 -> pCA1/CA1 | Connectivity | 100% | 0.25 |
| EC\_in -> dCA1/CA1 | WtScale.Abs | 3 | 1 |
| Learning rate | 0.02 | 0.04 |
| dCA1/CA1 -> EC\_out**a** | Learning rate | 0.02 | 0.04 |
| pCA1/CA1 -> EC\_out**a** | Learning rate | 0.02 | 0.04 |
| EC\_out -> dCA1/CA1 | Learning rate | 0.02 | 0.04 |
| EC\_out -> pCA1/CA1 | Learning rate | 0.02 | 0.04 |
| EC\_out -> EC\_in | Weight range | 0.49 - 0.51 | 0.7 |
| WtScale.Abs | 2 | 1 |
| WtScale.Rel | 0.5 | 1 |

**a** See Learning Table for changes in WtScales.

**Train vs. Test WtScale Parameters**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Train** | | | | | | | | | |
| **Schapiro et al. (2017)** | | | | | **Current Model** | | | | |
| **Projection** | **Q1** | **Q2** | **Q3** | **Q4** | **Projection** | **Q1** | **Q2** | **Q3** | **Q4** |
| Ecin -> CA1 | 1 | 0 | 0 | 1 | Ecin -> dCA1 | 1 | 0 | 0 | 2 |
| CA3 -> CA1 | 0 | 1 | 1 | 0 | CA3 -> pCA1 | 0 | 1 | 1 | 1 |
| CA1 -> Ecout | 4 | 4 | 4 | 4 | dCA1 -> Ecout | 1 | 0 | 0 | 1 |
|  |  |  |  |  | pCA1 -> Ecout | 0 | 1 | 1 | 1 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | | | | | | | | | |
| **Schapiro et al. (2017)** | | | | | **Current Model** | | | | |
| **Projection** | **Q1** | **Q2** | **Q3** | **Q4** | **Projection** | **Q1** | **Q2** | **Q3** | **Q4** |
| Ecin -> CA1 | 1 | 0 | 0 | 1 | Ecin -> dCA1 | 1 | 1 | 1 | 1 |
| CA3 -> CA1 | 0 | 1 | 1 | 0 | CA3 -> pCA1 | 1 | 1 | 1 | 1 |
| CA1 -> Ecout | 4 | 4 | 4 | 4 | dCA1 -> Ecout**a** | (4)1 | (4)1 | (4)1 | (4)1 |
|  |  |  |  |  | pCA1 -> Ecout**a** | 1(4) | 1(4) | 1(4) | 1(4) |

**a** Symmetric upregulation of Absolute Weight Scale Values (1 vs 4)