$$\dot{u_i}(t) = \frac{1}{\tau} \begin{bmatrix} \text{HebbianDrive} & \text{MembraneLeak} & \overbrace{M} \\ \widehat{I\phi_i} & - & \widehat{u_i(t)} & -\sum_{m \neq i}^{M} \phi_i \phi_m^T T(u_m(t)) + & \widehat{IT}(u_i(t)) \end{bmatrix}$$