



Figure 1: Overview of the structure of the UPINN method as applied to eq:1, which shows inputs and outputs of all known and unknown components, as well as losses. The surrogate solution U outputted by the UPINN takes time t as input. Both F (the known component of the differential equation) and G (the unknown component, to be fit by the UPINN) take in time and \hat{U} , the prediction of the neural network, as input. F and G , along with U_t (the autodifferentiated derivative of U_{NN} w.r.t. time) and is passed as input to the PINN loss. Then, the PINN loss computes the error between U_t and $F+G$. The MSE loss computes the error between the surrogate solution \hat{U} and the data.