

Application of Physics Informed Neural Networks for Predicting Disease Dynamics

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In this work, we present modeling and simulation of disease dynamics through Physics Informed Neural Networks (PINNS) and its application to real data modeled using non-linear system of differential equations. Specifically, we apply PINNS to predict the behavior of diseases described by modified compartmental models that include parameters and variables associated with the governing system describing the dynamics of the disease. Through benchmark problems, we will show that our model validates real-data and demonstrate how PINNs can predict optimal parameters for a given dataset. We will also show this proposed approach that takes advantage of parallel computing and the power of GPU computation makes it a robust and reliable candidate for predicting infectious diseases.