COVID19 final project proposal

My problem statement is:

How would lifting lockdown and movement restriction measures affect a potential second wave of infection?

I will tackle this as a spatial timeseries regression problem employing graph convolutional networks, where I will model the (continental) United States as a lattice. I will incorporate both epidemiological statistics and a database of per-region lockdown policy decisions over time as inputs into my model, i.e. a mixture of categorical and numerical data. I will attempt piecewise logistic regression for each region in my dataset.

I intend to find parameters for each region in my datasets, at or near the county level of geographical resolution. Once that is complete I will perform Monte Carlo simulations to investigate different potential outcomes of different lockdown scenarios.

Sources:
1. Dataset: COVID19 Government Measures Dataset - "*The #COVID19 Government Measures Dataset puts together all the measures implemented by governments worldwide in response to the Coronavirus pandemic.* "
2. "Modelling Spatial Patterns Using Graph Convolutional Networks"
   https://drops.dagstuhl.de/opus/volltexte/2018/9401/pdf/LIPIcs-GISCIENCE-2018-73.pdf

3. Lattice models: Epidemic models on lattices