1. Review and comparison of existing COVID forecasting models. Compare approaches and prediction accuracy. Global coverage. Result is report/publication

Consider models (+ whatever else find). Do not need to reproduce models (bonus points if do), can use model predictions.

Models:
https://reichlab.io/covid19-forecast-hub/
https://www.nytimes.com/interactive/2020/04/22/upshot/coronavirus-models.html?action=click&module=RelatedLinks&pgtype=Article

2. COVID compartmental modeling, modified SEIR (discuss). Model parameters taken from the most recent literature. Model parameters, for example R0 to change with time to model the infection decay (government measures). Solving using ODE numerical solvers. Should be able to include age structure, possible geographic/mobility etc.

Examples:
To get started: https://github.com/alsnhll/SEIR_COVID19/blob/master/SEIR_COVID19.ipynb (use this modification of SEIR)
https://covid19-scenarios.org/about
https://github.com/neherlab/covid19_scenarios
https://github.com/cfculhane/coronaSEIR

3. COVID agent based simulation. Model parameters taken from the most recent literature. Model parameters, for example R0 to change with time to model the infection decay (government measures). Use the same process as in 2) Simulation should use a) compartmental full mixing b) network structure

4. Using model from 3) investigate infection spread through:
a. Airline transportation network (airports)
b. City streets, subway system etc.
Need to find corresponding networks and average passenger flows

5. Forecasting based methods. Train ML models on all countries, build features, forecast. use traditional ML + sliding window or LSTM type of networks

The main research questions:
- Epidemics spreading forecast with control strategies
- The effectiveness of control strategies
- How to safely remove quarantine and open up cities/countries/travel?

COVID global data (daily updates)
https://github.com/CSSEGISandData/COVID-19

Data for Russia
https://yandex.ru/web-maps/covid19?ll=41.775580%2C54.894027&z=3
https://www.statista.com/statistics/1102935/coronavirus-cases-by-region-in-russia/

Airline routes
https://openflights.org/data.html#route

Moscow subway (or some other source)
https://medium.com/altsoph/moscow-subway-optimal-complete-route-ac98796dd652

Motivation:
These are lots of R-language related resources collected here, can still check what people doing and also data sources
https://towardsdatascience.com/top-5-r-resources-on-covid-19-coronavirus-1d4c8df6d85f

There are major hubs for data resources and models regarding COVID:
https://midasnetwork.us/covid-19/