

Modelling contact network and viral transmission in Singapore

SCSE21-0922

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Project Objectives:

The purpose of this project is to generate a realistic simulation model of virus spread in Singapore to help Singapore deal with any future viruses, epidemics, or pandemics.

There are three main objectives in this project:

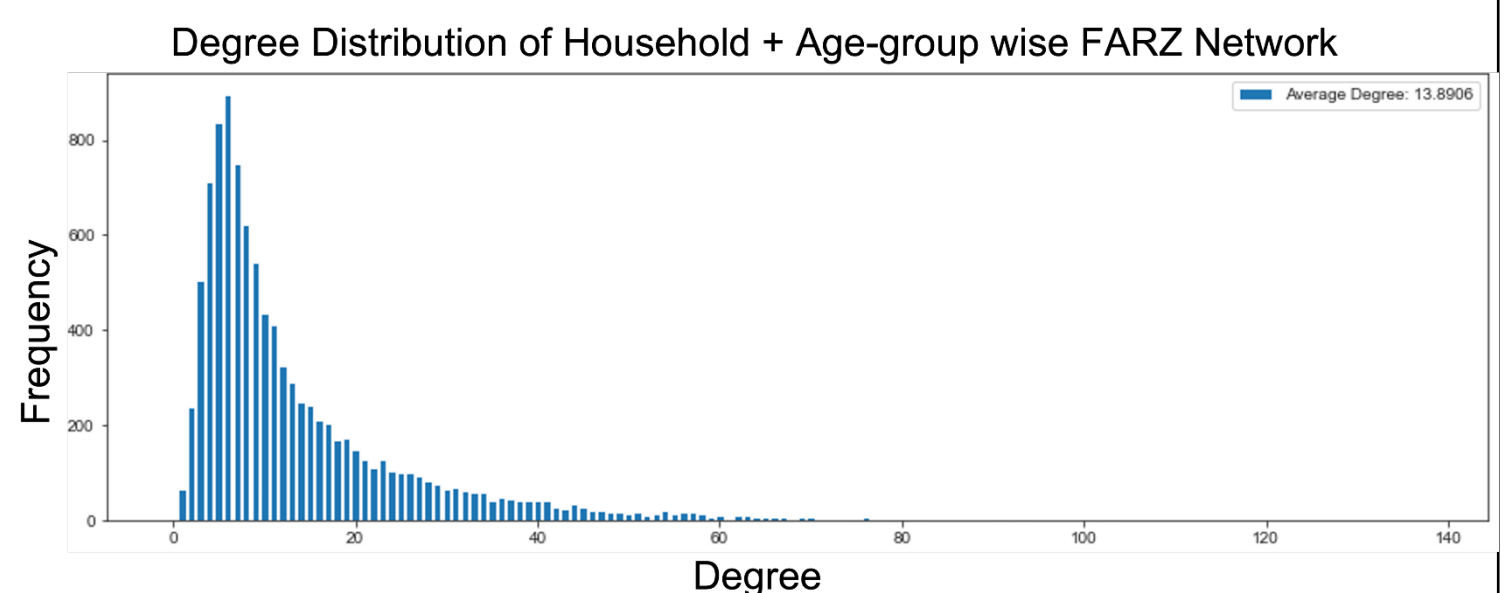
1. Generating a contact network to model Singapore's population and community structure.
2. Creating a simulation model that incorporates the generated contact network and viral transmission model by using SEI3R compartmental model and implementing Singapore government's interventions.
3. Constructing a convenient website to generate the contact network and simulate the government intervention and viral transmission in context of Singapore.

Best Contact Network

Combination of

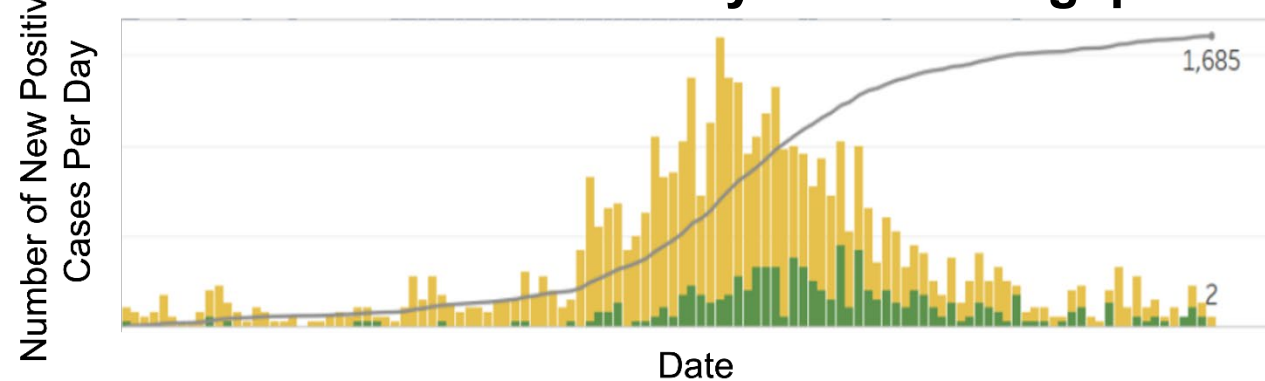
1. **Network of Household Interactions**
2. **Network of Daily Interactions**

Network of Daily Interaction is generated for each age-group using the FARZ generator.

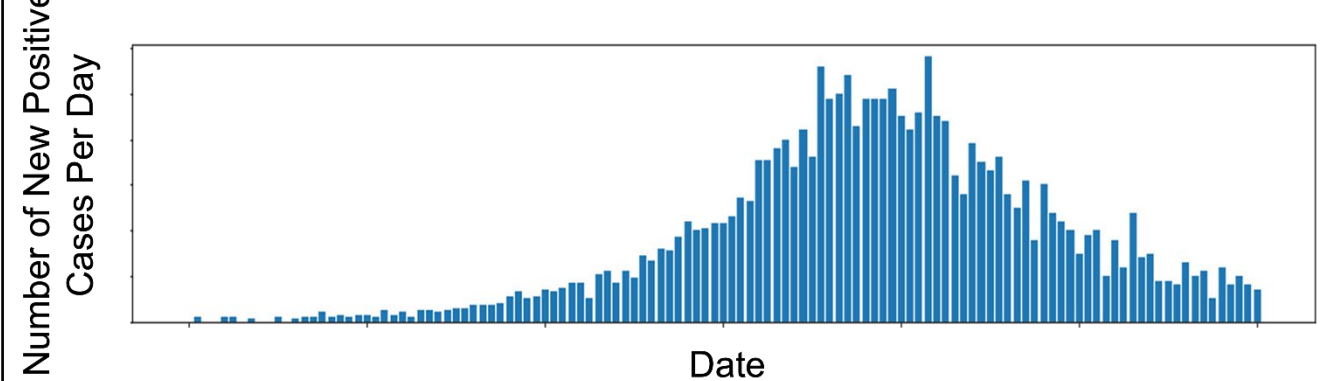


Result of Simulator

Actual Data from Feb-May 2020 in Singapore



Result of the Simulator



Web Application Simulator

- Simulate different scenarios with contact network of Singapore
- Impose multiple government interventions
 1. TraceTogether
 2. Social Distancing
 3. Social Gathering Limit
 4. Circuit Braker
- View visualization of simulation result
 1. Number of New Positive Case Per Day
 2. Infected Cases
 3. SEIR Curve

Choose Restriction Type

Trace Together

Trace Together

Social Distancing

Social Gathering Limit

Circuit Braker

