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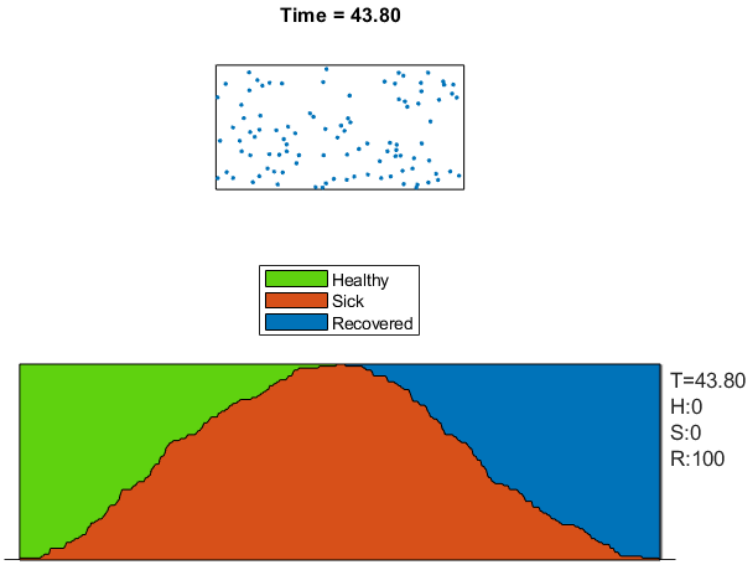
Analyze COVID-19 propagation

1. All people randomly move

Load recorded data and plot result

```
load dataMove.mat
propagationAnimator(data, 'plot');
```



You can see that by day 22, the disease quickly spread from 1 person to the entire population.

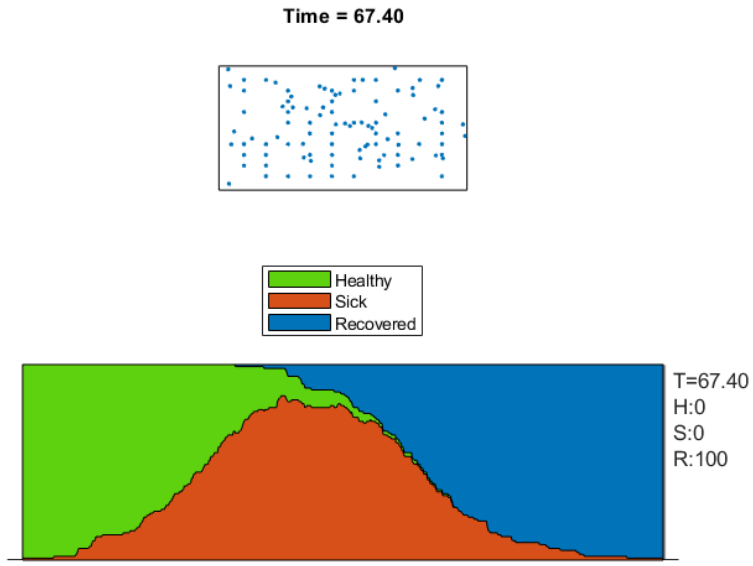
Disease spreading animatoin. Notice the exponential increase in the number of sick people.

```
propagationAnimator(data, 'play', 'ForceNewWindow', true);
```

2. 50% of population stays home

Load recorded data and plot result

```
load dataStay50.mat
propagationAnimator(data, 'plot');
```



You see that 50% quarantine doesn't work because all people got virus. A good result is a 20% reduction in peak.

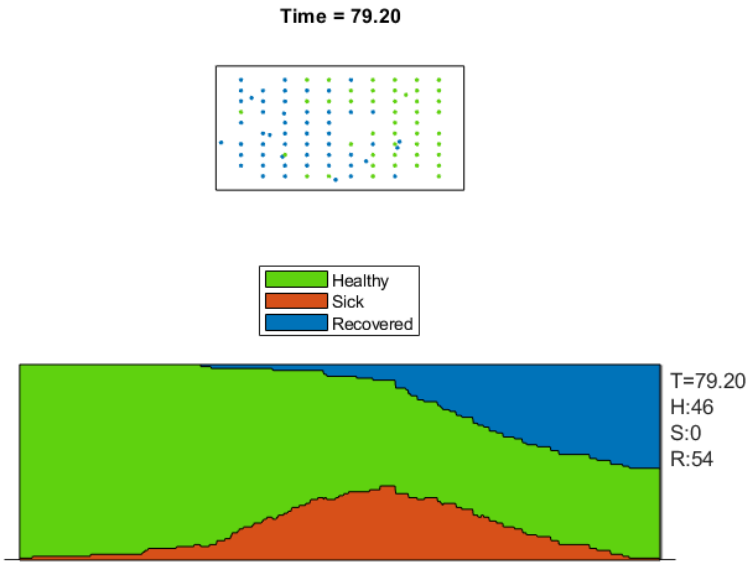
Disease spreading animatoin. Notice the exponential increase in the number of sick people.

```
propagationAnimator(data, 'play', 'ForceNewWindow', true);
```

3. 90% of population stays home

Load recorded data and plot result

```
load dataStay90.mat
propagationAnimator(data, 'plot');
```



In this case virus infects only 54% of population, and at the peak of the disease we have only 35-40% of sick people.

Disease spreading animatoin. Notice the exponential increase in the number of sick people.

```
propagationAnimator(data, 'play', 'Ts', 0.3, 'ForceNewWindow', true);
```

4. Conclusion

Using the simplest simulation, you are convinced that strict quarantine can seriously reduce the number of sick people and the spread of the disease. So #stayhome and learn MATLAB.

by Pavel Roslovets, ETMC Exponenta