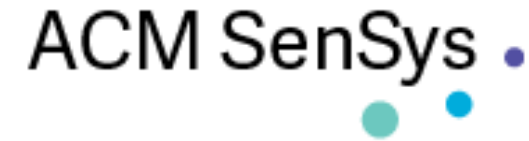# Simulating COVID-19 Containment Measures Using the South Korean Patient Data

Lishan Yang, Anna Schmedding, **Riccardo Pinciroli**, and Evgenia Smirni
William & Mary

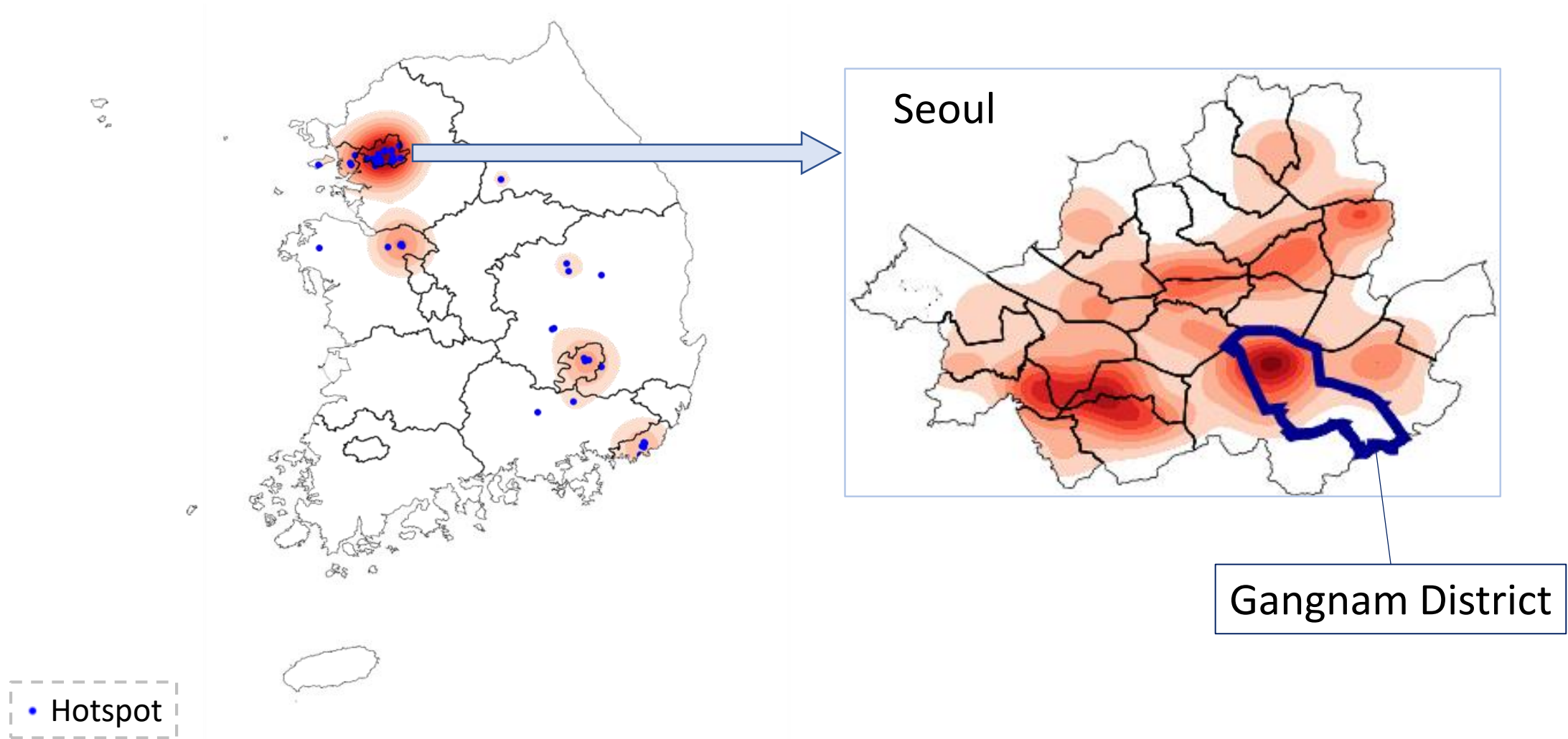lyang11@email.wm.edu

SenSys 2020
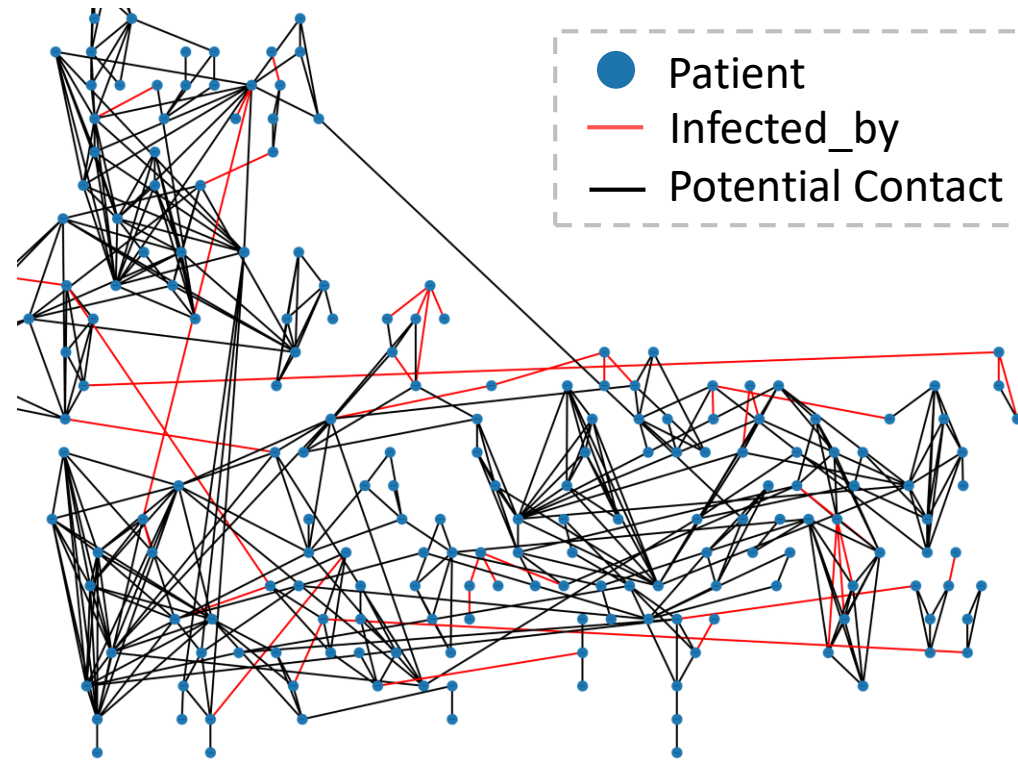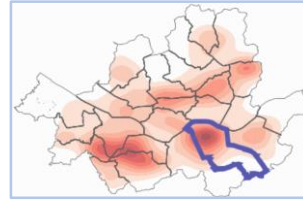COVID-19 Pandemic Research Session
(Poster Abstract)

Data Sets

- Collected by KCDC (**K**orea **C**enters for **D**isease **C**ontrol & Prevention)

- Jan. 20, 2020 – May 31, 2020

- **PatientInfo** data set
  - 4004 patients
  - patient_id, provenance (country, province, city), infected_by, …

- **PatientRoute** data set
  - 8092 entries
  - location, date, patient_id, location_type, …

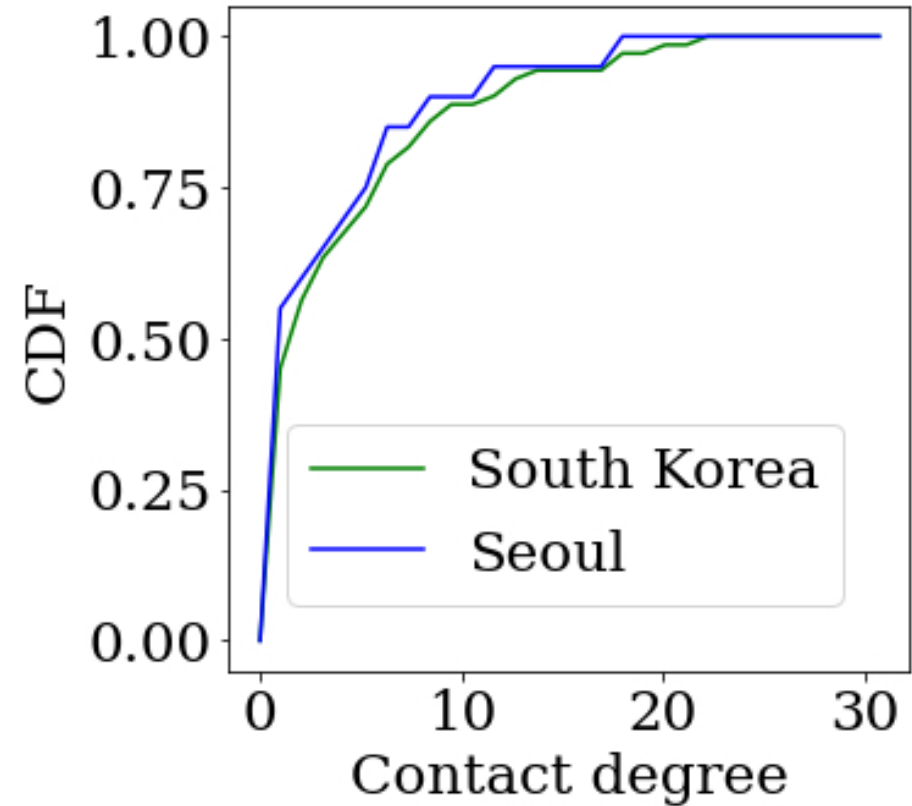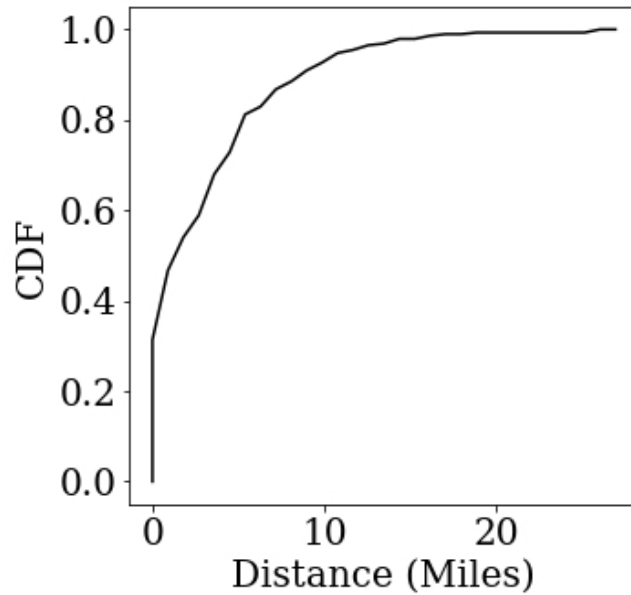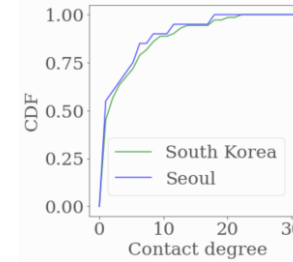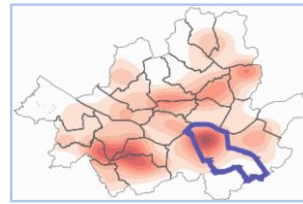- **Most visited locations**

Seoul

Gangnam District

Hotspot

- Most visited locations
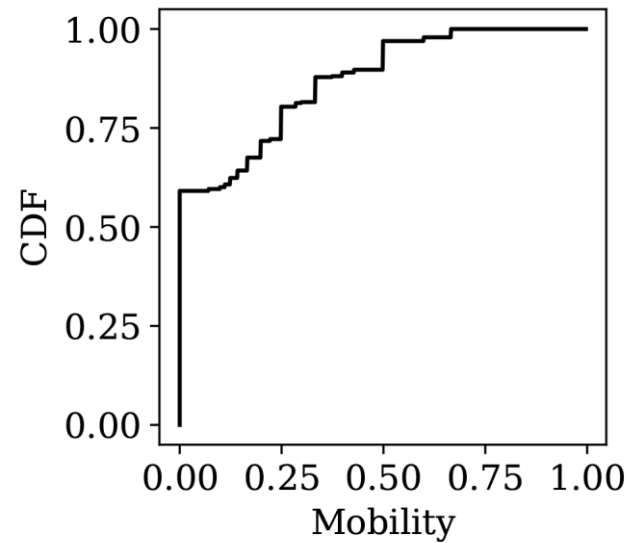
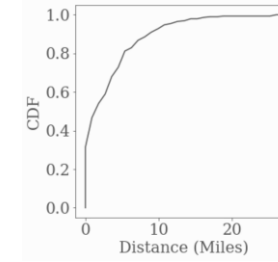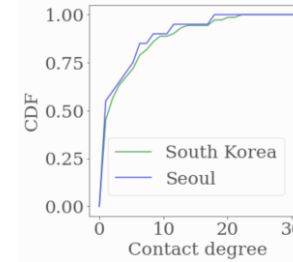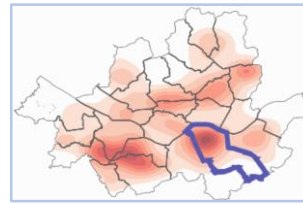- **Patient contacts**

▲Patient connections (Partial)

▲Contact degree CDF

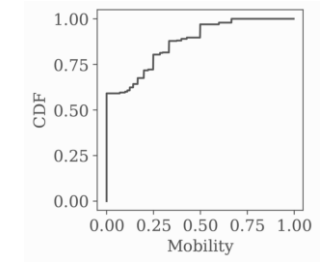- Most visited locations
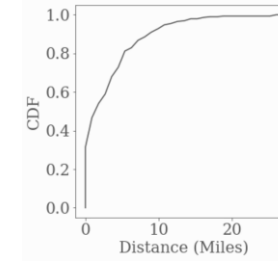
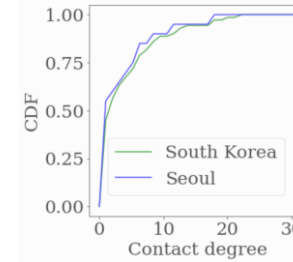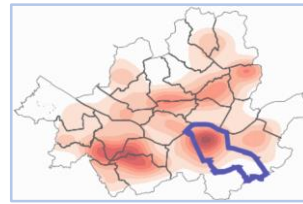- Patient contacts

- **Daily traveled distance**

▲Distance CDF

- Most visited locations

- Patient contacts

- Daily traveled distance
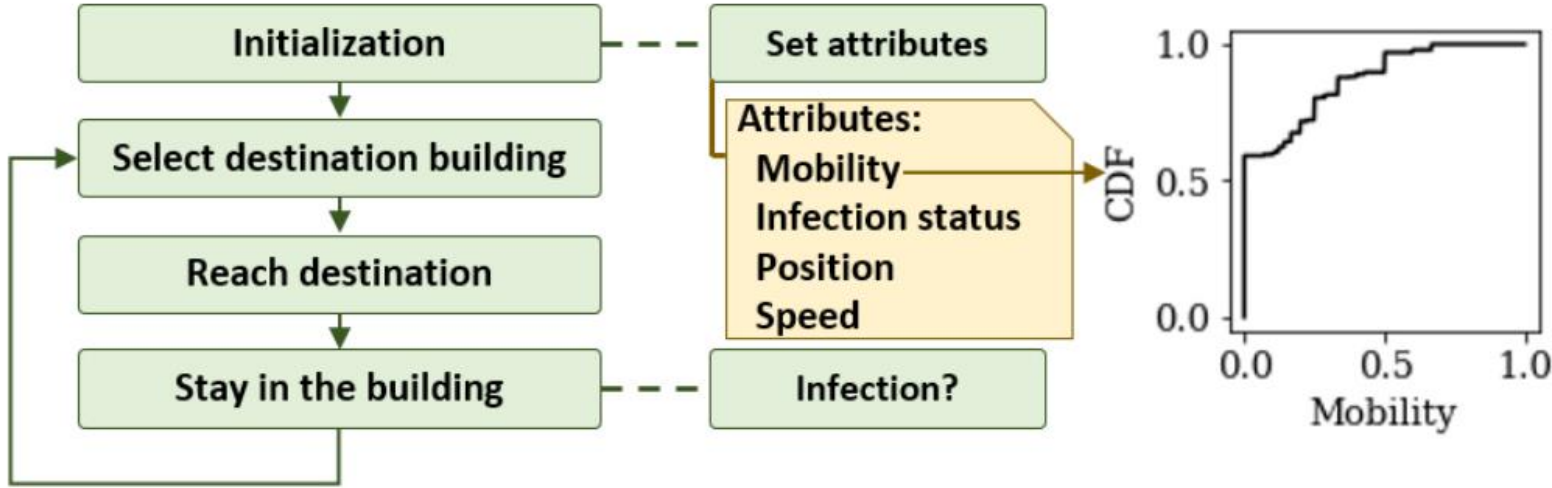
- **Mobility**

▲Mobility CDF

- Most visited locations
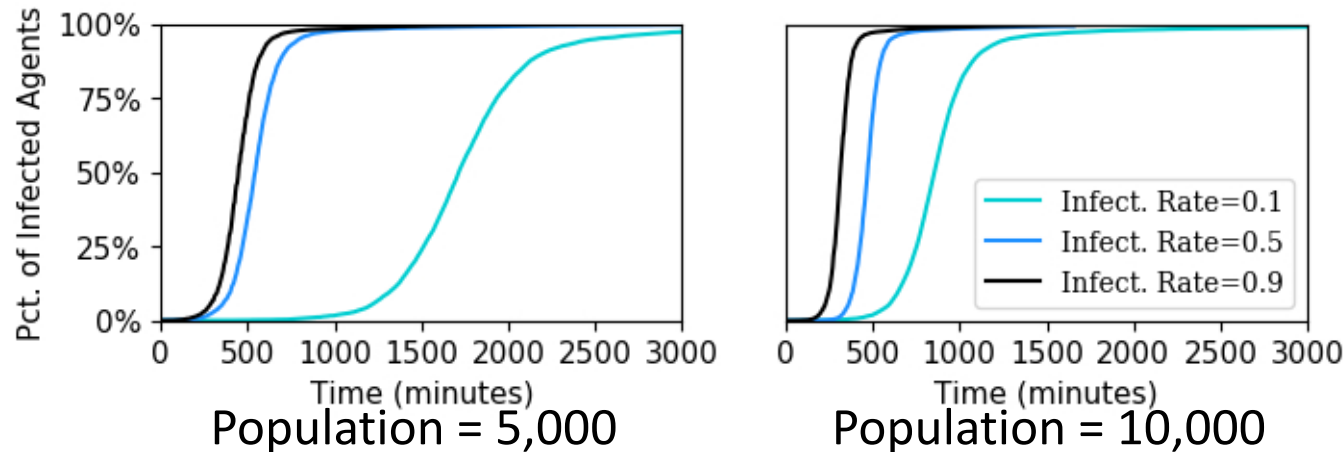
- Patient contacts

- Daily traveled distance

- Mobility

How to parameterize the simulation?
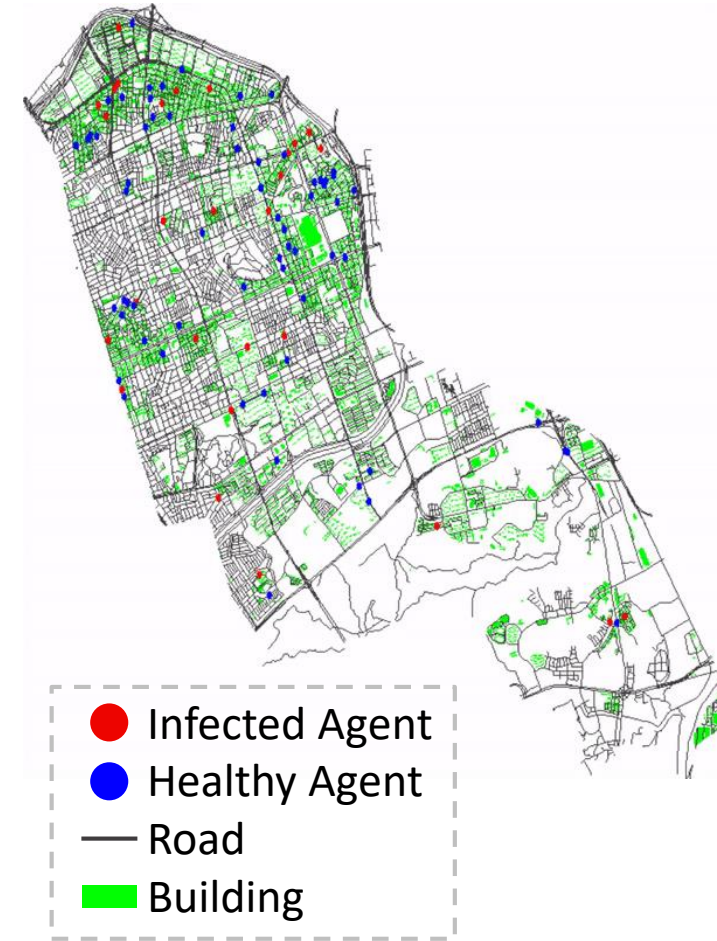
Simulation (GeoMason[1] Tool)

▼Agent life cycle

▼Preliminary results

Population = 5,000

Population = 10,000

▼Simulation
(Gangnam District)

- 🔴 Infected Agent
- 🔵 Healthy Agent
- ── Road
- 🟩 Building