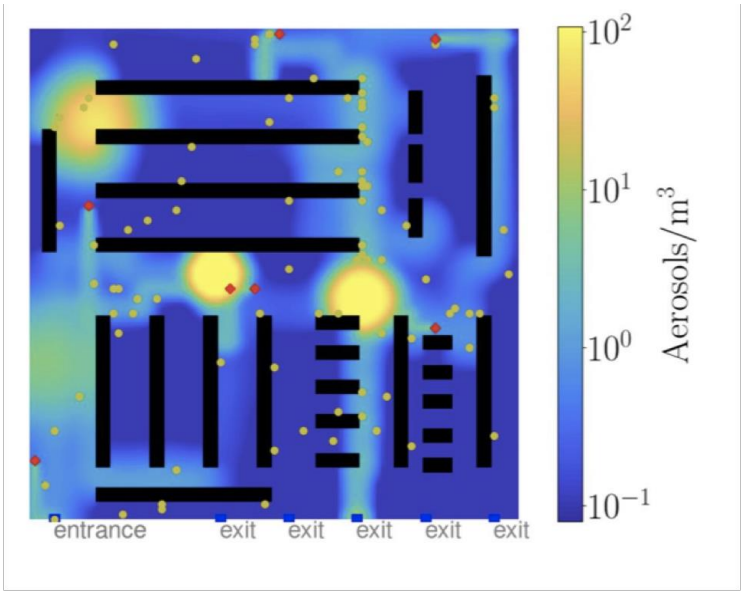
Covid-19 social distancing simulation: supermarket case study

Social distancing has proven a successful measure in slowing down the spread of the Covid-19 virus [1]. Social distancing is defined as keeping a certain minimal distance from other individuals to avoid contact. Measures can include banning of large social gatherings, closures of venues, gyms, bars. Other private and public spaces, such as essential retail stores cannot simply be closed. Here other measures should be taken such as limiting the number the people that are inside the shop simultaneously or adjusting walking routes.

The transmission of the covid-19 is studied in several mechanisms, for example by close contact or via inhalation of virus-containing aerosols. Principles from fluid and crowd dynamics are often used to represent the Covid-19 spread mechanisms in simulations. In this respect, visualizations of different scenarios of these simulations may be informative for policy makers to evaluate the effectiveness of certain social distancing strategies.



Supermarket Case Study - Vuorinen et al. (2020)

Your task in this project is to visualize several different scenarios of social distancing measures in a supermarket. This interactive visualization can serve as a decision support tool for policy makers or in this case the grocery store owner. How can show the factors that are likely to play a crucial role in the virus spread? How many people can be inside at the same time? How does the store layout or floor plan influence the virus spread? What is the minimal distance to keep in the shop? How can we visually compare different scenario's? What is the probability of getting infected?

- Data and model: You can use the supermarket simulation Monte-Carlo model B (in Vuorinen et al. Safety Science Volume 130, October 2020, 104866) as input for your visualization. The code for this model is available on GitHub, as well as other general simulations. Further details about their study and use cases are described in this paper.
- Relevant paper(s): https://www.sciencedirect.com/science/article/pii/S0925753520302630