TA8

Arun Kumar Rajasekaran

Epidemiology

Modeling disease spread, contagion and diffusion processes across social and technical spaces in living systems.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3337680/

SIR model

S: The number of **s**usceptible individuals. When a susceptible and an infectious individual come into "infectious contact", the susceptible individual contracts the disease and transitions to the infectious compartment.

I: The number of **i**nfectious individuals. These are individuals who have been infected and are capable of infecting susceptible individuals.

R for the number of **r**emoved (and immune) or deceased individuals. These are individuals who have been infected and have either recovered from the disease and entered the removed compartment, or died. It is assumed that the number of deaths is negligible with respect to the total population. This compartment may also be called "**r**ecovered" or "**r**esistant".

Other variants

The SIS model

The *Susceptible-Infectious-Recovered-Deceased model*

The *Susceptible-Infectious-Recovered-Vaccinated model*

MSIR model

Amazon co-purchase networks

Prasad, Utpal, et al. "Analysis of the co-purchase network of products to predict amazon sales-rank." *International Conference on Big Data Analytics*. Springer, Cham, 2017.

https://link.springer.com/chapter/10.1007/978-3-319-72413-3_13

Stanford dataset is widely seen

https://s3.amazonaws.com/assets.datacamp.com/production/course_6039/slides/chapter1.pdf

Musics

Park, Doheum, Arram Bae, and Juyong Park. "The network of western classical music composers." *Complex networks V*. Springer, Cham, 2014. 1-12.