The Contagion Sequences of the Epidemic S.I.s.a.R. Model: a Source of Suggestions for Intervention Policies

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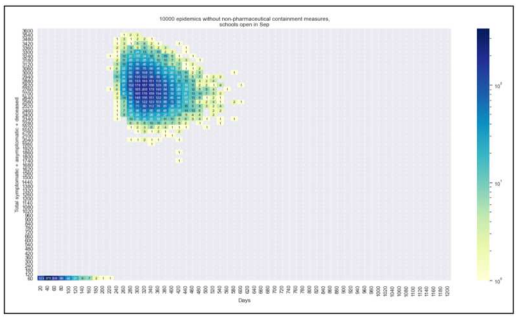
Repository at: https://terna.to.it/simul/SIsaR.html

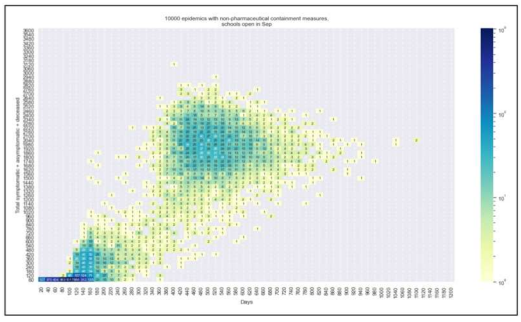
e-print paper at: https://arxiv.org/abs/2108.08885

An agent-based model to simulate the Covid-19 epidemic diffusion, with (i) infected agents categorized as symptomatic and asymptomatic and (ii) the places of contagion specified in a detailed way, thanks to agent-based modeling capabilities. The model, including Piedmont's structural data, can reproduce the events of a realistic calendar (e.g., national or local government decisions), via its script interpreter. It facilitates reasoning about countermeasures and, thus, to develop intervention policies.

Scenario 1

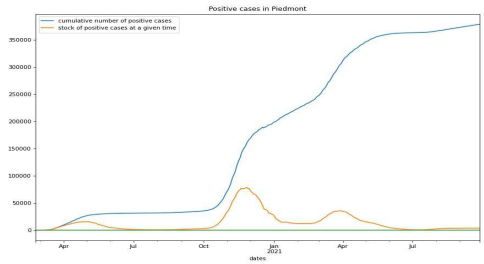


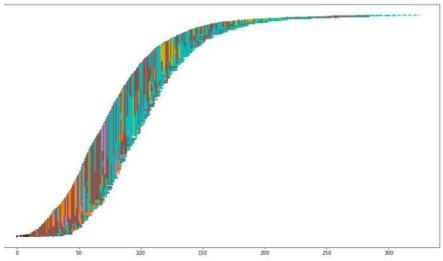
Scenario 2

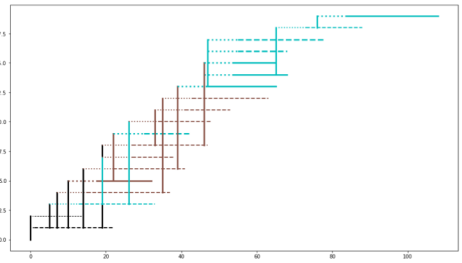


Scenarios		Dec 15, 20 sympt.	Dec 15, 20 totalInf.	Dec 15, 20 to end sympt.	Dec 15, 20 to end totalInf.	days
no containment	count	140.0	140.0	140.0	140.0	140.0
in spontaneous	mean	248.4	648.7	701.1	1757.9	594.2
second wave	std	167.4	424.3	246.4	599.7	118.9
no containment	count	1044.0	1044.0	1044.0	1044.0	1044.0
in forced	mean	180.4	462.1	726.6	1810.9	620.9
second wave	std	134.6	354.6	221.9	544.0	110.8
basic containment	count	874.0	874.0	874.0	874.0	874.0
in forced	mean	*130.0*	*340.6*	252.7	666.4	494.1
second wave	std	83.9	232.6	156.8	416.4	122.7
-20 days cont.	count	769.0	769.0	769.0	769.0	769.0
in forced	mean	**112.2**	**294.2**	248.9	663.4	499.3
second wave	std	66.8	188.4	158.0	417.5	124.1
frag. subj. & workers control	count	886.0	886.0	886.0	886.0	886.0
in forced	mean	**128.1**	**326.3**	301.1	792.3	515.5
second wave	std	89.6	234.2	170.7	450.2	116.9

Report of the key results, with count, mean, and std







Sequences of person to person contagions: **cyan**, at home; **orange**, in nursing homes, **brown** in workplaces, shops, offices; **pink** in hospitals, **yellow** at school.