Cellular automata motivated model of vehicle traffic in contemporary city center

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In this lecture the necessary improvements in Chowdhury–Schadschneider model [1] allowing for modelling bi-directional cars traffic will be presented. The modified model is applied for simulating traffic in real topology of streets in Kraków [2]. Also possible further model modifications [3] allowing for taking into account railway vehicles (trams) will be presented.

[1] D. Chowdhury, A. Schadschneider, Self-organization of traffic jams in cities: Effects of stochastic dynamics and signal periods, Phys. Rev. E 59 (1999) R1311
[2] R. Socha, M.Sc. Thesis, AGH University of Science and Technology, Kraków, (2017)
[3] K. Nowak, M.Sc. Thesis, AGH University of Science and Technology, Kraków, (2017)