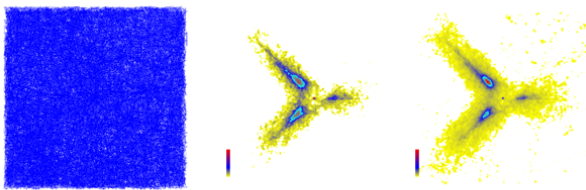


Computing and visualizing popular places

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Data analysis and knowledge discovery in trajectory databases is an emerging

field with a growing number of applications such as managing traffic, planning tourism

infrastructures, analyzing professional sport matches or better understanding wildlife. A

well-known collection of patterns which can occur for a subset of trajectories of moving

objects exists. In this paper, we study the popular places pattern, that is, locations that are

visited by many moving objects. We consider two criteria, strong and weak, to establish either the exact number of times that an object has visited a place during its complete trajectory or whether it has visited the place, or not. To solve the problem of reporting popular places, we introduce the popularity map. The popularity of a point is a measure of how many times the moving objects of a set have visited that point. The popularity map is the subdivision, into regions, of a plane where all the points have the same popularity. We propose different algorithms to efficiently compute and visualize popular places, the so-called popular regions and their schematization, by taking advantage of the parallel computing capabilities of the graphics processing units. Finally, we provide and discuss the experimental results obtained with the implementation of our algorithms.