

Solving multiple bichromatic mutual nearest neighbor queries with the GPU

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In this paper we propose and solve multiple bichromatic mutual nearest neighbor queries in the plane considering multiplicative weighted Euclidean distances. These multiple queries are related to the mutual influence of two sets of facilities of different type, in which facilities of the first type cooperates with facilities of the second type in order to obtain reciprocal benefits. The studied problems find applications, for example, in collaborative marketing. We present a parallel algorithm, to be run on a Graphics Processing Unit, for solving multiple bichromatic mutual nearest neighbor queries. We also present the complexity

analysis of the algorithm, and provide and discuss experimental results that show the scalability of our approach.