Girona, July 24th 2018

Dear editorial board of Knowledge based system

Please find enclosed the manuscript: “*Nearest and farthest spatial skyline queries under multiplicative weighted Euclidean distances*”, by Marta Fort, J.Antoni Sellarès and Nacho Valladares to be submitted in Knowledge Based Systems. We certify that the submission is not under review at any other publication.

The manuscript presents, studies and provides algorithms to solve a generalization of the nearest and farthest spatial skylines problem, which considers weighted distances. Skyline problems, as well as their spatial version, have been widely studied in the literature as it is shown in the paper. But the Euclidean distance not always reflects the real factors that make the users choose one facility in front of another. The importance of the facilities differ and their influence is taken into account, by the user, when he/she makes the election. Thus, we decided to assign a weight to each facility according to its importance and generalize the nearest and farthest problems when considering the weighted Euclidean distance. Moreover, we also allow the user to obtain only the top-k skyline points, if desired.

In the manuscript, we first provide a summary of the properties and existent algorithms for the unweighted case from both near, far spatial skylines, and from the top-k version as well. Then, we theoretically analyze the problem under the weighted Euclidean distance and study its geometric properties. We continue by providing a sequential and a parallel algorithm, to be run in the GPU, to solve the problem. The algorithms are theoretically analyzed, implemented and theoretically and experimentally compared. Finally, the obtained results can be visualized or stored in a file.

We believe that our finding could be of interest to the readers of this journal because the problem we solve has important applications and the experimental results show that the presented algorithms can be used in practice.

We hope that the editorial board will agree on the interest of this study.

Sincerely yours,

Marta Fort, J.Antoni Sellarès and Nacho Valladares

C**orresponding author:** Marta Fort at Departament d’IMAE of Universitat de Girona, Campus Montilivi, Edifici P4, 17003 Girona, Spain, [mfort@imae.udg.edu](mailto:mfort@imae.udg.edu), phone number +34972418252 / +34972418400, fax number +34972418792.