Review Report for Group G3

Title of Paper: SAS: Spatial Activity Summarization: A Geometric & Network based approach

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Reviewer Team (Name, Student Ids): Usha Kumar & Lydia Manikonda

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SUMMARY:

The main aim of the paper is to provide a spatial activity summarization (SAS) report either geometric based or network based, depending upon the spatial network characteristics like density and connectivity. The idea here is to provide automatic detection of either one of the spatial summarization technique, based on the objective functions like density and network connectivity, which in turn dependent upon the special terrain or in spatial parlance spatial neighborhood information. This problem is of significant importance to the society, for example, crime prevention units use it to strategically place patrol cars, aid agencies use the output from SAS techniques to place aid relief operations, in such a way to reach out to the majority of the affected with the optimal use of resources.

FOCUS:

Does the paper clearly identify the problem it is addressing?

Yes, this paper identifies the problem clearly. The main problem is that, there is no single summarization solution which works for all kind of spatial networks and this paper aims at meshing this gap by providing a combined approach, which incorporates both geometric and network based approach into consideration while proposing the solution of spatial summarization.

Does the paper clearly explain related work and their limitations?

Yes, this paper explains the related work very well. Also provides a broader classification of the related work, to show their first degree of novelty in their approach. This paper also articulates the limitations of other related work.

Does the paper identify its key contributions?
Yes, the key contribution is in providing a combinational approach for spatial activity summarization problem.

*Does the paper present any evidence to support the contribution claim?*

The paper has not provided any evidence of their contribution claim so far. However, since this is not the final report, my guess is that the final report will have a set of plots showing their analysis on some real world data and the result of their proposed approach and its usefulness over the traditional geometric based scheme used so far.

**TECHNICAL EVALUATION:**

*Is the literature survey complete?*

From the list of literatures provides, it seems to be sufficient to understand the related work in this area.

*Is the work novel relative to the literature? Explain.*

Though the work is not a totally novel approach, it is an interesting thought to combine existing approaches and provide a set of results which are better suited to the problem. To some extent this helps improve the outcome of SAS results.

*As a reviewer do you agree with the contribution claims? Explain.*

The novel approach of combining two existing approaches to provide a better solution is definitely a main contribution. Apart from that, authors are only using the two different popular approaches as black box for their analysis, so no novelty in the algorithmic techniques are suggested. Also, the thought of using density to eliminate un-needed network based clusters and using coverage to eliminate un-needed geometric based clusters is a clever idea.

**READABILITY AND ORGANIZATION:**

*Is the paper easy to read and understand to students in this course (Csci 8715)?*

Yes, this paper is well written and very easy to understand and follow with relevant diagrams and examples and definitely easy to follow for students in this class.

*Is the paper self-contained?*
yes, it explained all the basics needed to understand the subject well.

*Is the paper length reasonable?*

quite reasonable.

*Does it include sufficient number of figures and tables?*

Yes, though evaluation related slides are missing. I would say it is too early in the project to provide those slides. Hence we could not evaluate the overall usefulness of the techniques suggested.

**STRENGTHS:**

*What are the strengths of this paper?*

* The paper provides a nice approach for combining two existing techniques and provide a solution which will address the short coming of existing SAS approaches and will also improve the usability of the SAS results.

* Also the metrics suggested to prune unwanted results, resulting from the use of two techniques separately is also very useful to eliminate spurious results from the output.

**AREAS FOR IMPROVEMENT:**

*How can this paper be improved? If you were to rewrite this paper, what revisions would you consider?*

* Though this was a well written paper technically, I did find some minor spelling mistakes and a quite a few grammatical mistakes which sometimes interferes with the understanding of the subject.

* It is not clear to me how the authors could predictably eliminate the case where out of the 2k outputs, some of them show equal strength or equal weakness for both metrics like density and coverage. For example, if there is a crime hotspot which is well connected as well has good density function, which one would the method favor, is it geometric, because it is a popular technique?. Not sure how the authors are planning to address this kind of issue.

* Also, the result of their approach need to be evaluated by applying to some well know test spatial network, to study the effectiveness. Though, theoretically their method seems to provide more intuitive results than existing approaches and could prove to be very useful.

* I would suggest that the very first sentence in the article is quite confusing and not clearly stating the idea in the abstract. May be this line could be moved to introduction. It is better to start with
something very easy to understand in the beginning, so that we can slowly introduce the audience into the main concept.

* Also, it is not clear what are the three substructures the paper is referring to in the abstract, from the paper I could only decipher two. May be it is not very clear and need to have been better explained.