October 20, 2014

Dear ICDE 2015 Program Committee Chairs:

Our ICDE15 submission #359 (Crowdsourcing Pareto-Optimal Object Finding by Pairwise Comparisons) was dismissed by unacceptably inattentive reviewing process and incorrect review comments. The details are listed at the end of this letter.

ICDE has been highly regarded for decades by database researchers. It is truly unfortunate our paper was not reviewed in a more professional, competent and objective fashion. We sincerely hope you will correct the mistake.

Best regards,

Chengkai Li

(On behalf of Abolfazl Asudeh, Gensheng Zhang, Naeemul Hassan, and Gergely V. Zaruba)

Details:

(1) We were requested to provide an **author feedback**. (We spent almost a day on it.) But it appears the feedback was not considered at all. There is no meta-review and not even a single word was changed in the reviews. A large discrepancy exists in the reviews.

(2) The comments in **Review 3** are almost completely incorrect and unsubstantiated.

--- The reviewer rated the paper's "Presentation" as "***Sub-standard: would require heavy rewrite***" but provided absolutely no comment on presentation. (We note that Review 2 rated it as "Excellent: careful, logical, elegant".)

--- The rating on "Novelty" is "***Same ideas published before (say where)",*** but the review doesn't say where. Similarly, the review claims "solutions are not novel" without any supporting evidence.

We believe the paper's novelty is clearly discussed in detail in the paragraph and bullets after Example 3, in Sec. II (Related work), and in Table I.

--- "***crowdsourcing-based skyline queries have been studied***"

But we are not studying crowdsourcing-based skyline queries. The only crowdsourcing-based skyline query paper is [8] in the paper's references. Our paper clearly explains its difference from [8] in the aforementioned several places that discusses its novelty.

--- "***The problem of aggregating partial to find the total order is not new***."

But we don't find total orders. Instead, we aggregate pairwise comparison results to derive partial orders on individual criteria and further find pareto-optimal objects based on the multiple partial orders.

If the reviewer meant finding total order by pairwise comparisons, its difference from our work is also discussed in the aforementioned places related to novelty.

--- "***The authors did not prove the hardness of the proposed problem, I mean selecting the minimum number of questions for finding pareto optimal objects.***"

As explained in the 3rd paragraph of Sec. III, the worst number of questions required is r*n*(n-1)/2. So the problem is clearly polynomial. It is not an NP-hard problem.

The proposed problem is not "selecting the minimum number of questions". Instead, it is "finding pareto optimal objects". Number-of-questions is the performance measure and we aim to use as few questions as possible. The input to the problem contains no information about the preference relations. (Hence crowdsourcing is used to figure out such information.) If we set the problem as "finding the minimum number of questions", it would be like finding the shortest path between 2 nodes in a graph without seeing the edges. You can figure out the shortest path, say, by breadth-first traversal. But, without knowing anything about the edges to begin with, you won't be able to avoid exploring edges not on the shortest path (thus won't be able to guarantee minimum questions).

--- "***The proposed heuristic solutions do not have bound to the optimal solutions.***"

As pointed out in the 3rd paragraph of Sec. III, in the worst case, any solution will have to ask all possible r*n*(n-1)/2 questions. It is also worth mentioning that in Theorem 2 we proved a lower bound on the number of required questions.

--- ***"The experimental study is very limited." "the authors only used simulation to study the effectiveness of different parameters."***

The paper actually reports more than simulation. We did experiments using real crowdsourcing platforms and human judges (Sec. V-B "case studies"). We'd like to point out that very large-scale experiments on crowdsourcing platforms is not affordable to most academics. It is not uncommon to find crowdsourcing papers in ICDE-alike venues that collect hundreds/thousands (instead of millions) of inputs from real crowdsourcers or even only use simulations.

--- "***The authors assumed that the workers are 100% correct, which is often not the case.***"

We didn't make the assumption. We derive preference relations from multiple workers (Equation (1), page 5), exactly because they are not 100% correct. That's also why we did quality control in Case study 2 (the last paragraph of Sec. V): "...A crowdsourcer’ s input is discarded if..."

(3) Review 1 considers our preference model inappropriate and mostly comments on that, but the same model has been widely used in the literature. The comments were not crystal clear. But it appears Review 1's weak reject is largely due to the misbelief that there are inconsistency and confusion in the paper and that a different preference model should be used. We find it unsubstantiated and too harsh.

--- The relevant comments include: "***This paper uses the notion of indifference, meaning that two objects are equally preferred. It is different from incomparability, meaning that two objects do not dominate each other." "... confused notions between incomparability and indifference: in page 1, the notion of indifference is that two objects are equally preferred. Meanwhile, in page 5 (intransitivity of object dominance), the meaning of indifference is similar to incomparability.***" Based on these comments, the reviewer said "***Without clear distinction between the two notions, the proposed algorithm does not produce any meaningful results***."

Unfortunately, these comments are invalid, which we explain in detail here:

i) In the literature, some studies use better-than relation (e.g., section 3.2 in reference [2], the end of page 1 in [5], Definitions 1 and 2 in [10]) to model partial-order preferences, others use not-worse-than (i.e., better-than-or-equal-to) relation (e.g., [4][6]). Better-than relation (which is what our paper adopts) doesn't distinguish "equally good" and "incomparable", while not-worse-than relation (perhaps what the reviewer had in mind when providing above comments) can distinguish them. Nevertheless, better-than relation has been widely used in modeling preferences. Hence, we believe this statement is unsubstantiated: "Without clear distinction between the two notions, the proposed algorithm does not produce any meaningful results."

ii) We have never used "indifference" inconsistently. Everywhere when "indifference" is used, the paper always means that two objects are not better than each other with regard to a criterion c. As formally stated in the 1st paragraph of Sec. I, x and y are "indifferent" regarding c, if neither (x,y) nor (y,x) belongs to the preference relation P_c.

When x and y are indifferent regarding c, the reason could be that "x and y are equally good or incomparable with regard to c", as stated in the 1st paragraph. That is only to offer an interpretation of "indifference". However, the paper doesn't define "indifference" as "equally preferred" (by which the reviewer refers to "equally good" used in the paper, we suppose) or "incomparable". In fact, as mention in i), the preference model doesn't distinguish "equally good" and "incomparable".

iii) Note that the above clarification is with regard to the partial order (i.e., preference relation) on a single criterion. Our definition of pareto-optimal objects follows the concept of Pareto composition of preference relations in [2]. It is based on object dominance with regard to multiple partial orders. The object dominance itself is also a partial order, representing the better-than relation between objects.

It is unclear if the reviewer's comments are on the preference relations on individual criteria or the object dominance on multiple criteria (since the comments mention "objects do not dominate each other"). Either way, our points in i) and ii) stand, since object dominance is also a better-than based partial order, as mentioned above.