

September 3, 2024

Dear Sir/Madam,

SIURO submission by Brooke Feinberg and Aiwen Li

Mses. Brooke Feinberg and Aiwen Li participated in an NSF-funded Research Experience for Undergraduates during the summer of 2024. The program included investigations of the efficacy of quasi-Monte Carlo methods for problems beyond multidimensional integration. In the course of the summer, Ms. Feinberg discovered the manuscript [1], and took an interest in it due to her interest in graph theory.

Mses. Feinberg and Li then proceeded to see how they could extend the results in [1] based on their knowledge of quasi-Monte Carlo methods. Their results are presented in the manuscript that they are submitting to SIURO. Although I am familiar with kernel methods and quasi-Monte Carlo, I am not familiar with their applications to graphs. Thus, the work in this manuscript is virtually all theirs.

The arXiv manuscript on which the submitted manuscript is based uses quasi-Monte Carlo in a somewhat different way than what I am familiar with and I do not follow their definition of “antithetic”, which is also unusual. But perhaps these are more familiar usages in the graph theory community.

My recommendations for referees would be

- **Adrian Weller**, who seems to be the senior author on [1],
- **Isaac Reid**, who has communicated with the Mses. Feinberg and Li, and so may be responsive to a request to review, and
- **Krzysztof Choromanski** if the other two authors of [1] are unwilling,
- **Alex Smola**, who is well-known in the field, and if he is unwilling to referee may be able to recommend someone suitable, and
- **Emilio Porcu**.

Unfortunately, I am not personally acquainted with any of these scholars.

Sincerely yours,

A handwritten signature in black ink, reading "Fred J. Hickernell". The signature is written in a cursive style with a large, stylized "F" and "H".

Fred J. Hickernell

References

1. Reid, I., Choromanski, K. & Weller, A. *Quasi-Monte Carlo Graph Random Features* arXiv:2305.12470. 2023.