CSCE 52803: Paper Reading and Discussion

It is time to apply what we have learned in the course to reading research papers! In this part of the course, you will read papers on combinatorial and graph optimization using machine learning techniques. This emerging field has received considerable attention in recent years from both the operations research and machine learning communities. Please refer to [1, 2] for helpful surveys.

Each student will present one selected paper in class and lead a discussion. Presentations will take place from October 26 to December 2, across 16 class sessions. In each session, two students will each present one paper, while the other students participate in the discussions.

1. Review the paper list (October 12–16)

Review the titles, abstracts, publication years, and venues in reading_list.xlsx, and identify your preferred papers for presentation. As a general guideline, earlier papers tend to be easier to understand than more recent papers.

2. Select your paper (October 16, 5:00 p.m.)

The reading_list.xlsx file will become editable at 5:00 p.m. on October 16. Enter your name next to the paper you select. Paper selection will be on a first-come, first-served basis.

3. Present your paper (October 26–December 2)

Presentation order will be determined by the publication years of the selected papers. In the presentation, use slides to explain the combinatorial or graph optimization problem studied in your paper, the proposed methodology, and the experimental results. Prepare questions to initiate and guide the class discussion.

4. Grading

Your grade will be based on both your presentation and your participation in class discussions. To be eligible for full participation credit, you must contribute to the discussions for at least **10** paper presentations.

Reference

[1] Cappart, Quentin, et al. "Combinatorial optimization and reasoning with graph neural networks." *arXiv preprint arXiv:2102.09544* (2021).

[2] Bengio, Yoshua, Andrea Lodi, and Antoine Prouvost. "Machine learning for combinatorial optimization: a methodological tour d'horizon." *European Journal of Operational Research* 290.2 (2021): 405-421.