On order-associated binary decision diagrams: illustrations for "how" and "why"

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Abstract: Recent studies employ collections of binary decision diagrams (BDDs) to solve combinatorial optimization problems. We focus on a building block for this approach, the problem of how to optimally align two BDDs, (i.e., transform them to enforce a common order of variables while keeping the total size of the diagrams as small as possible). To address this NP-hard problem, we introduce and study a simplified problem instead of working with the more complex original diagrams. We design a corresponding heuristic for the original problem, and show empirically that this approach yields good quality alignments while significantly reducing the complexity of intermediate diagram. One of the experiments illustrates an application of the proposed technique to a variant of uncapacitated facility location problem.

Talk will take place on June 16, 2021 from 1:00PM - 2:00PM through Zoom.