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**Blair D Sullivan\*** (sullivan@cs.utah.edu). *Approximation Algorithms for Graphs Near Structured Classes.*

We describe a framework for generalizing approximation algorithms for structural graph classes so that they apply to graphs “close” to a class (a scenario we expect is common when working with real-world networks) while still guaranteeing approximation ratios. The “structural rounding” framework edits graphs into an algorithmically tractable class, applies a class-specific approximation algorithm, then lifts the partial solution to the original graph. We give a general characterization of when an optimization problem is amenable to this approach, and show that it includes many well-studied graph problems, such as Independent Set, Vertex Cover, Feedback Vertex Set, Minimum Maximal Matching, Chromatic Number, ( $\ell$ -)Dominating Set, Edge ( $\ell$ -)Dominating Set, and Connected Dominating Set. Further, we describe recent experimental evaluation of this framework and benchmark it against standard heuristics and approximation techniques. (Received August 31, 2020)