CliSAT, a new exact algorithm for the maximum clique problem

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The maximum clique problem (MCP) is a fundamental deeply studied $\mathcal{NP}$-hard problem in graph theory that finds numerous applications spanning different fields, such as, robotics, biochemistry, computer vision and many others. In the last two decades, the performance of exact algorithms have increased by orders of magnitude and I have had the fortune of participating in the exciting *horse race* for the most efficient algorithm. Along this path, many interesting upper bounds and branching techniques have been described. This talk summarizes the main components of the recent combinatorial branch-and-bound algorithm CliSAT [1] for the MCP.

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References

[1] San Segundo, Pablo and Furini, Fabio and Álvarez, David and Pardalos, Panos M, CliSAT: A new exact algorithm for hard maximum clique problems, European Journal of Operational Research, 307:3, 1008–1025 (2023)