Instance-specific algorithm configuration as a method for non-model-based portfolio generation.


Summary: Instance-specific algorithm configuration generalizes both instance-oblivious algorithm tuning as well as algorithm portfolio generation. ISAC is a recently proposed non-model-based approach for tuning solver parameters dependent on the specific instance that needs to be solved. While ISAC has been compared with instance-oblivious algorithm tuning systems before, to date a comparison with portfolio generators and other instance-specific algorithm configurators is crucially missing. In this paper, among others, we provide a comparison with SATzilla, as well as three other algorithm configurators: Hydra, DCM and ArgoSmart. Our experimental comparison shows that non-model-based ISAC significantly outperforms prior state-of-the-art algorithm selectors and configurators. The following study was the foundation for the best sequential portfolio at the 2011 SAT Competition.

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