

Trimming methods in model checking

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This talk introduces an analysis of similarity of distributions based on measuring some distance between trimmed distributions. Our main innovation is the use of the impartial trimming methodology, already considered in robust statistics, which we adapt to the setup of model checking. By considering trimmed probability measures we introduce a way to test whether the *core* of the random generator underlying the data fits a given pattern. Instead of simply removing mass at non-central zones for providing some robustness to the similarity analysis, we develop a data-driven trimming method aimed at maximizing similarity between distributions. Dissimilarity is then measured in terms of the distance between the optimally trimmed distributions. Our main choice for applications is the Wasserstein metric, but other distances might be of interest for different applications. We provide illustrative examples showing the improvements over previous approaches and give the relevant asymptotic results to justify the use of this methodology in applications.

Keywords. Trimmed distributions, similarity, transportation cost, asymptotics.

References

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