

Scalable Framework for Higher-Order Stochastic Dominance

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Stochastic dominance is essential in decision-making under uncertainty and quantitative finance, providing a rigorous method for comparing random variables through their distribution functions.

Despite its importance in decision-making under uncertainty, (higher-order) stochastic dominance is computationally intractable due to infinitely many constraints.

Our research addresses this by reducing these constraints to a finite number, enabling algorithms that optimize returns while satisfying (higher-order) stochastic dominance conditions.

This contribution introduces *StochasticDominance.jl*, an open-source Julia package.

It is designed for verifying higher-order stochastic dominance between random variables and optimizing under higher-order stochastic dominance constraints.

As a black-box solution, it allows users to input data and obtain results seamlessly, making the analysis of higher-order stochastic dominance accessible with minimal technical expertise.

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