

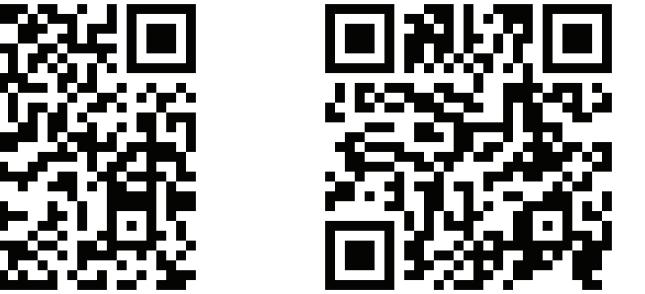
Error-controlled non-additive interaction detection in deep neural networks



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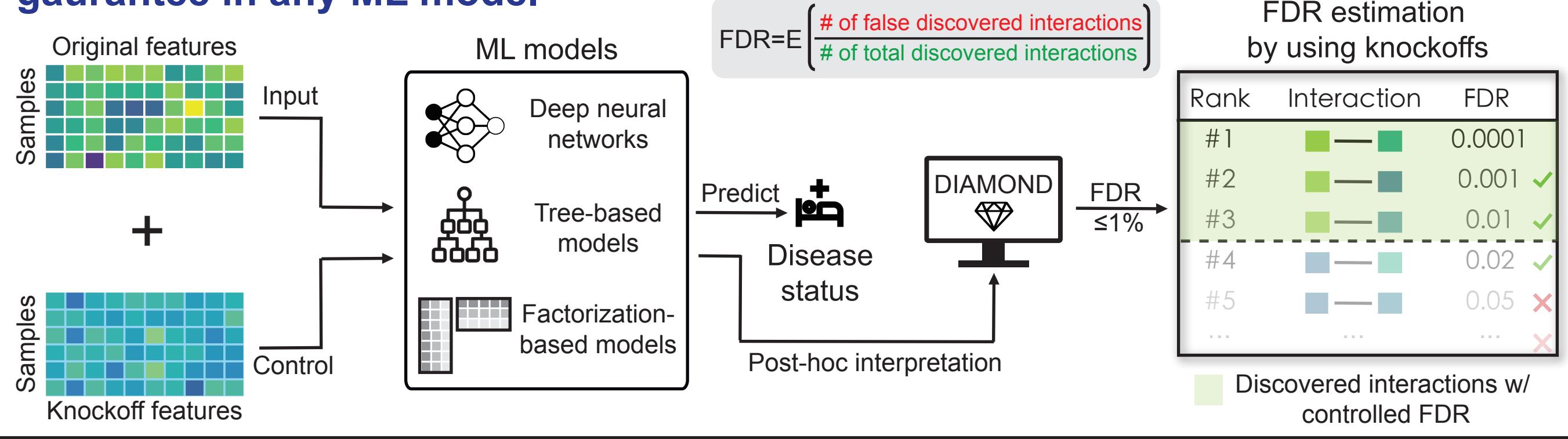


Paper

Code

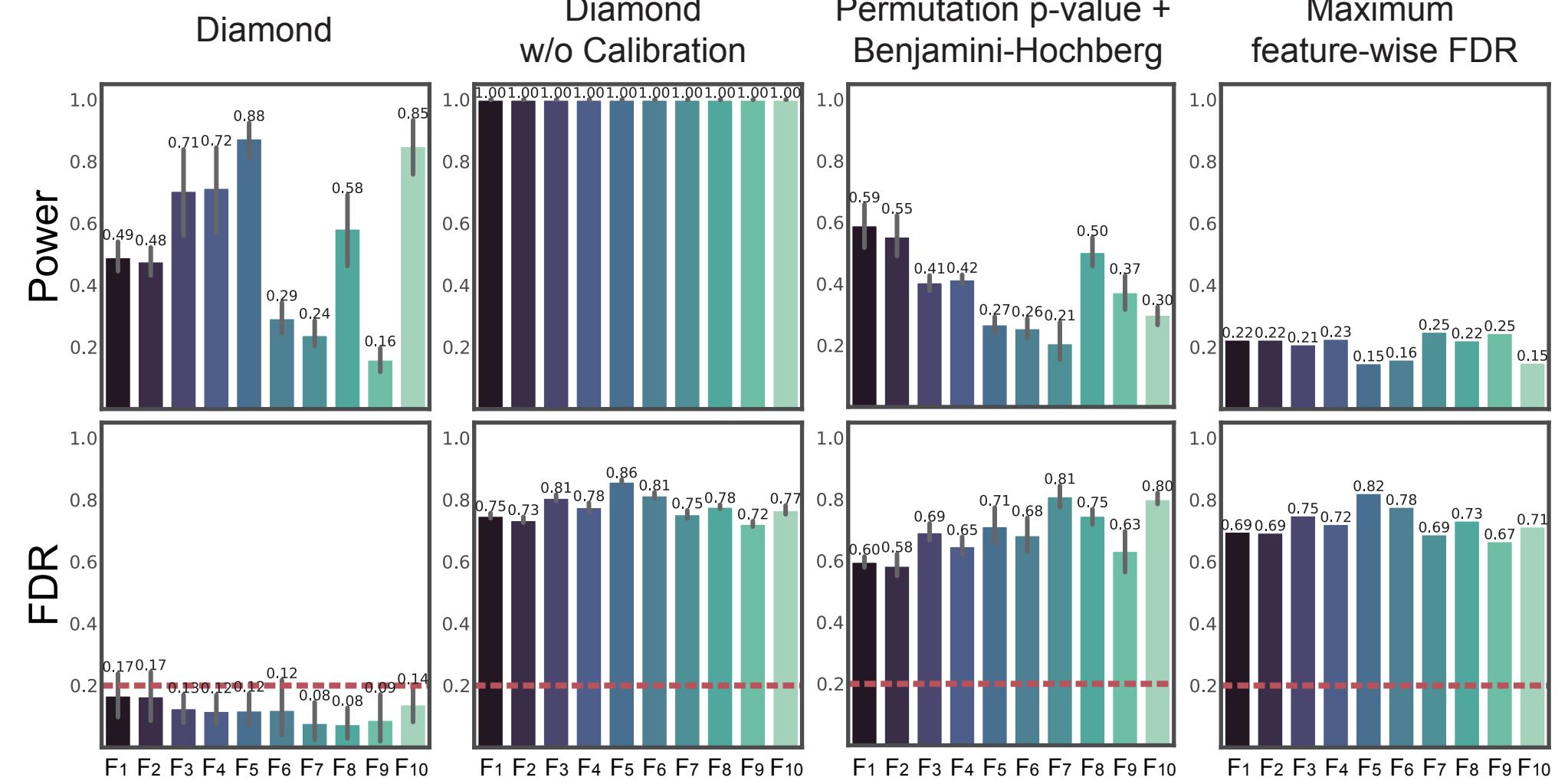
Overview

Diamond detects non-additive interactions with false discovery rate (FDR) guarantee in any ML model



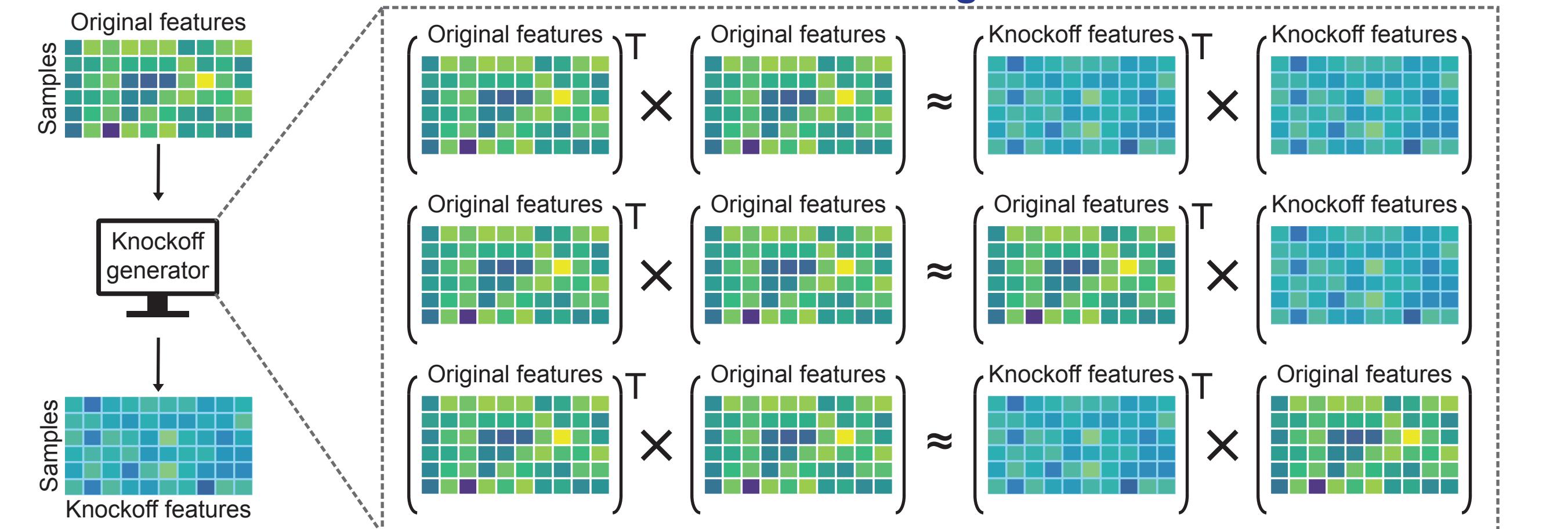
Simulation Experiments

Quantitative results

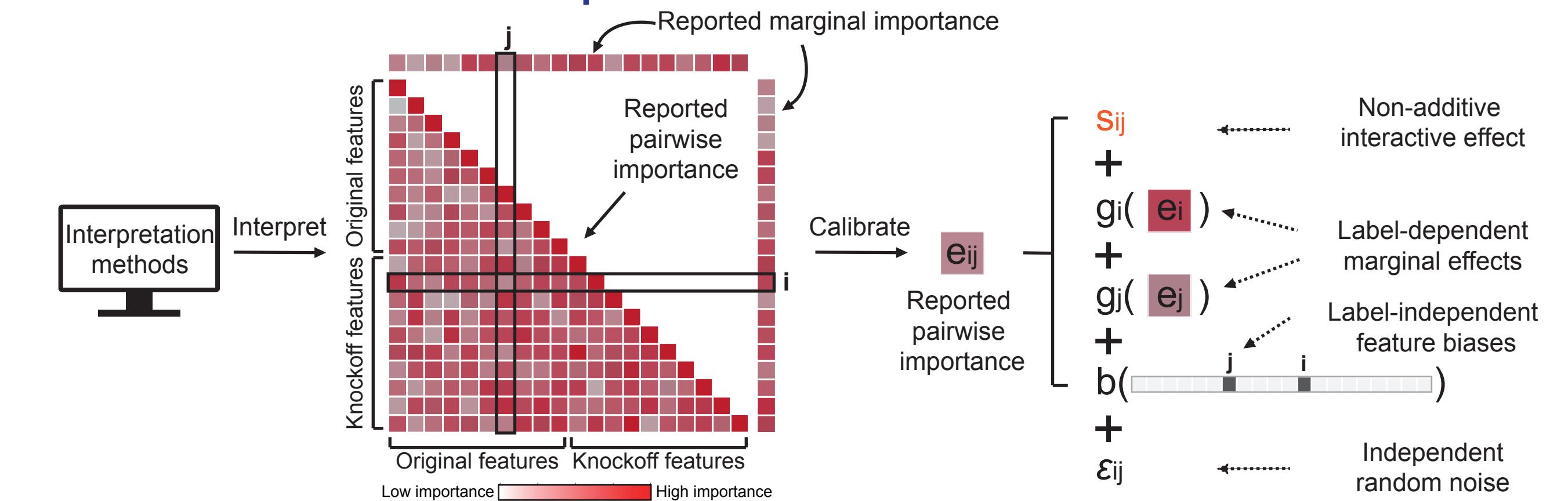


Method

Diamond controls FDR using knockoffs

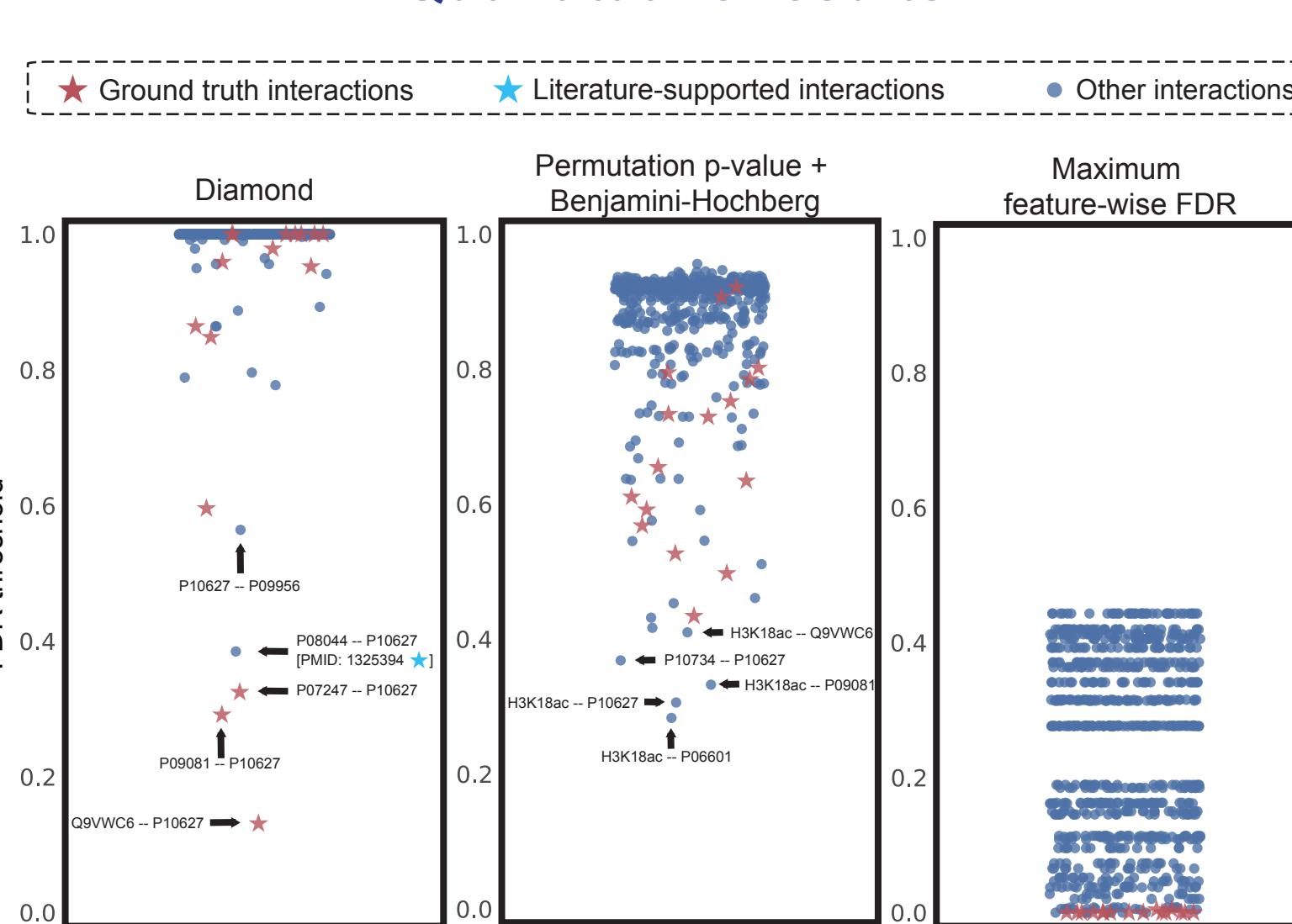


Diamond uses a calibration procedure to distill non-additive interaction effect

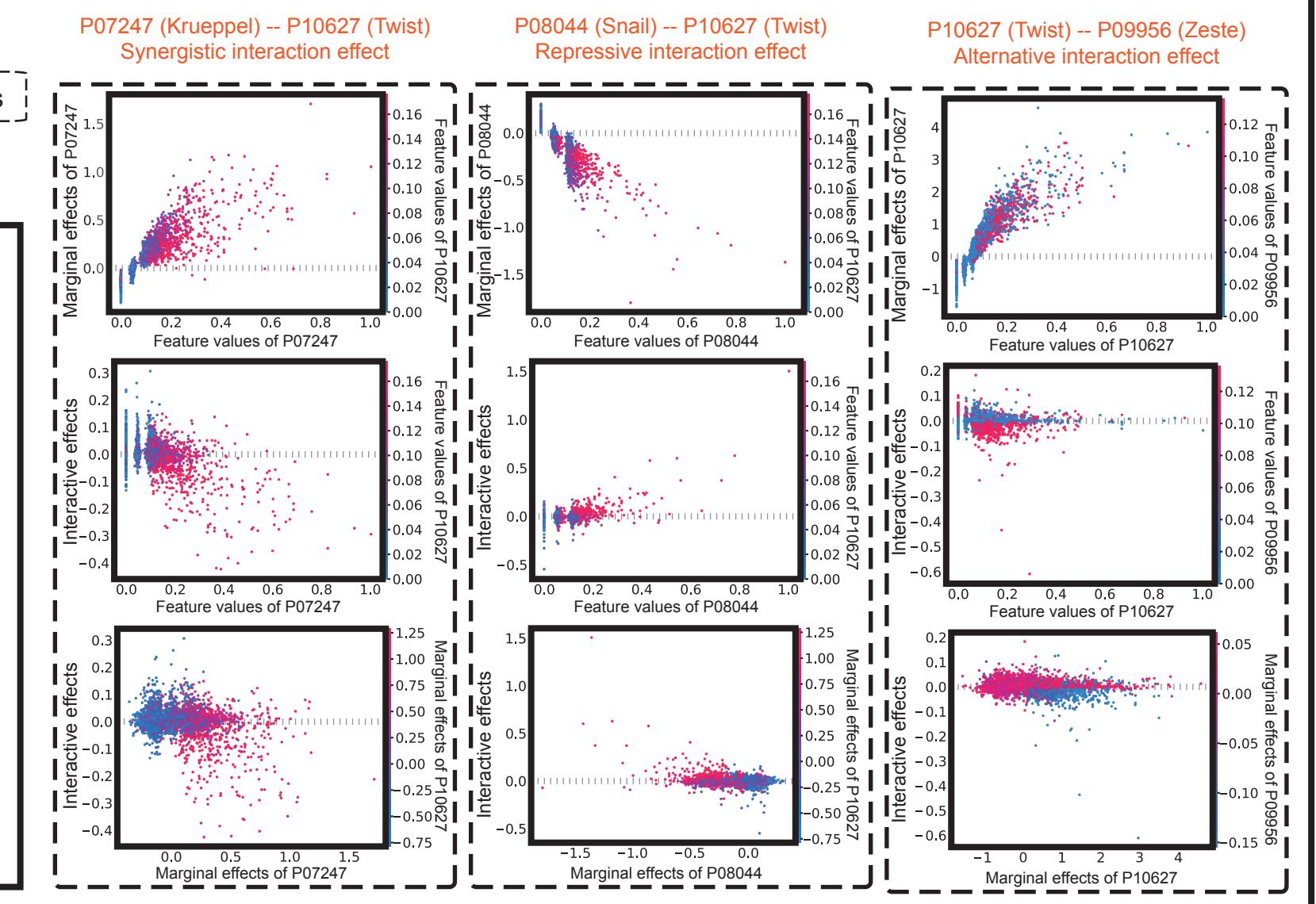


Drosophila Enhancer experiments

Quantitative results



Qualitative results



References

- [1] M. Tsang, et al. Detecting statistical interactions from neural network weights. International Conference on Learning Representations, 2018.
- [2] S. Basu, et al. Iterative random forests to discover predictive and stable high-order interactions. Proceedings of the National Academy of Sciences, 2018.