

# POLYNOMIAL APPROXIMATION OF SYMMETRIC FUNCTIONS

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In this poster, I will present a recent work [1] on the polynomial approximation of symmetric multivariate functions and of multiset functions. More precisely, I will consider functions that are invariant with respect to the permutations of its  $N$  variables, each one being  $d$ -dimensional, and I will show how these symmetries can be exploited to improve the cost versus error ratio when the function is approximated by polynomials. I will then mention how these results can be used for deriving approximation rates for functions defined on multisets, that is where  $N$  becomes a parameter of the input.

[1] Bachmayr, M., Dusson, G., Ortner, C., Thomas, J.: Polynomial Approximation of Symmetric Functions, <http://arxiv.org/abs/2109.14771>, (2021)

*Joint work with Markus Bachmayr (RWTH Aachen, Germany), Christoph Ortner (UBC, Canada) and Jack Thomas (University of Warwick, UK).*