



Optimization and Machine Learning Seminar

Sum-of-squares hierarchies for polynomial optimization and the Christoffel-Darboux kernel

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Abstract

We consider Lasserre's approximation hierarchies for the problem of minimizing a polynomial f over a compact semialgebraic set X in R^n . When X is the unit ball or the standard simplex, we show that the hierarchies based on Schmüdgen-type positivity certificates of degree r converge to the global minimum of f at a rate in $O(1/r^2)$, matching recently obtained convergence rates for the hypersphere and hypercube $[-1, 1]^n$. For our proof, we establish a connection between Lasserre's hierarchies and the Christoffel-Darboux kernel, and make use of closed form expressions for this kernel derived by Xu.

Date:	March 24, 2022 (Thursday)
Time:	4:00 – 5:00pm (Hong Kong Time)
Venue:	ZOOM: https://hku.zoom.us/j/ Meeting ID: 940 0962 9889 Password: 286660

All are welcome