**Title:**

Polytopes from Maxout Neural Networks

**Abstract:**

Motivated by neural network architectures, we investigate special classes of polytopes that can be constructed layer by layer from a finite set of points such that each subsequent polytope is a convex hull of two non-negative Minkowski combinations of polytopes from the previous layer. For each fixed depth and layer sizes, one obtains an interesting class of polytopes. A generic representative of such a class turns out to be cubical for networks without bottlenecks.