

## Spatial Interpolation Technique for the Optimisation of Geometric Programming Problems

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**Abstract :** Posynomials, a special type of polynomials, having singularities, pose difficulties while solving geometric programming problems. In this paper, a methodology has been proposed and used to obtain extreme values for geometric programming problems by nth degree polynomial interpolation technique. Here the main idea to optimise the posynomial is to fit a best polynomial which has continuous gradient values throughout the range of the function. The approximating polynomial is smoothed to remove the discontinuities present in the feasible region and the objective function. This spatial interpolation method is capable to optimise univariate and multivariate geometric programming problems. An example is solved to explain the robustness of the methodology by considering a bivariate nonlinear geometric programming problem. This method is also applicable for signomial programming problem.

**Keywords :** geometric programming problem, multivariate optimisation technique, posynomial, spatial interpolation

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