## Adaptive algorithms for RBF collocation

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We present an adaptive refinement algorithm for solving elliptic partial differential equations (PDEs) via a radial basis function (RBF) collocation method [2]. This adaptive scheme is based on an error indicator, which depends on a leave-one-out cross validation (LOOCV) technique [3]. The indicator enables us the localization of the areas that need to be refined, also including the chance to adaptively add or remove points [1]. Numerical experiments show performance of our scheme.

## References

- T. A. Driscoll, A. R. H. Heryudono, Adaptive residual subsampling methods for radial basis function interpolation and collocation problems, Comput. Math. Appl. 53 (2007) 927–939.
- [2] E. J. Kansa, Multiquadrics–A scattered data approximation scheme with applications to computational fluid-dynamics–II solutions to parabolic, hyperbolic and elliptic partial differential equations, Comput. Math. Appl. 19 (1990) 147–161
- [3] S. Rippa, An algorithm for selecting a good value for the parameter c in radial basis function interpolation, Advances in Computational Mathematics 11 (1999) 193–210.