

Kernel-based Approximation Methods for Generalized Interpolations: A Deterministic or Stochastic Problem?

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In this talk, we solve a deterministically generalized interpolation problem by a stochastic approach. We introduce a kernel-based probability measure on a Banach space by a covariance kernel which is defined on the dual space of the Banach space. The kernel-based probability measure provides a numerical tool to construct and analyze the kernel-based estimators conditioned on non-noise data or noisy data including algorithms and error analysis. Same as meshfree methods, we can also obtain the kernel-based approximate solutions of elliptic partial differential equations by the kernel-based probability measure.

References

- [1] Q. Ye. Kernel-based Approximation Methods for Generalized Interpolations: A Deterministic or Stochastic Problem? *arXiv:1710.05192*, pages 1-31, 2017.