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A unifying view of sparse approximate Gaussian process regression. (English) Zbl 1222.68282
J. Mach. Learn. Res. 6, 1939-1959 (2005).

Summary: We provide a new unifying view, including all existing proper probabilistic sparse approximations for Gaussian process regression. Our approach relies on expressing the effective prior which the methods are using. This allows new insights to be gained, and highlights the relationship between existing methods. It also allows for a clear theoretically justified ranking of the closeness of the known approximations to the corresponding full GPs. Finally we point directly to designs of new better sparse approximations, combining the best of the existing strategies, within attractive computational constraints.

MSC:

68T05 Learning and adaptive systems in artificial intelligence

62H30 Classification and discrimination; cluster analysis (statistical aspects)

Cited in **53** Documents

Keywords:

Gaussian process; probabilistic regression; sparse approximation; Bayesian committee

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