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Machine learning for quantitative finance: fast derivative pricing, hedging and fitting

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Pages 1635-1643 | Received 08 Jun 2018, Accepted 18 Jun 2018, Published online: 27 Jul 2018

Cite this article

<https://doi.org/10.1080/14697688.2018.1495335>

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Disclosure statement

No potential conflict of interest was reported by the authors.

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Notes

† Matrix inversion is often implemented via a Cholesky decomposition (Benoît [1924](#), Rasmussen and Williams [2006](#)), which is more stable than actually inverting the matrix. For small matrices, i.e. small values of n , ordinary matrix inversion can be performed. For the results in this paper we used the Matlab functions `fitrgp` and `predict`. However if the dimension increases, special techniques need to be deployed.

We mention LU-factorization and blockwise Cholesky decomposition, which aim at solving the problem of inverting large matrices. The routines `fitrgp` and `predict` handle problems with large matrices.

† $\kappa = \text{ratio of maximum variance to minimum variance}$ in the long run

† For each \mathbf{y} , we construct the \mathbf{I}



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