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Machine Learning with Python-From Linear Models to Deep Learning

Course **Progress** Discussion Dates Resources

A Course / Unit 2. Nonlinear Classification, Linear regression, ... / Lecture 6. No



4. Motivation for Kernels: Computational Efficiency

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Exercises due Mar 8, 2023 08:59 -03 Completed

Motivation for Kernels: Computational Efficiency



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Video

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Transcripts

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Kernels as Dot Products 1

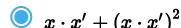
1/1 point (graded)

Let us go through the computation in the video above. Assume we map x and $x' \in \mathbb{R}^2$ $\phi(x)$ and $\phi(x')$ given by

$$egin{aligned} \phi\left(x
ight) &= \left[x_{1},\,x_{2},\,x_{1}{}^{2},\,\sqrt{2}x_{1}x_{2},\,x_{2}{}^{2}
ight] \ \phi\left(x'
ight) &= \left[x'_{1},\,x'_{2},\,{x'_{1}}^{2},\,\sqrt{2}x'_{1}x'_{2},\,{x'_{2}}^{2}
ight]. \end{aligned}$$

Which of the following equals the dot product $\phi\left(x
ight)\cdot\phi\left(x'
ight)$?

 $\bigcirc x \cdot x'$



1/1 point (graded)

Which of the following feature vectors

produces the kernel

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