Machine Learning

Learning machine learning

Kazalo

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def: Vektorski prostor je četverica $(V, O, +, \cdot)$, kjer je:
$V \ldots$ množica vektorjev
$O \ldots$ obseg skalarjev
$+ \ldots$ dvomestna operacija $+ : V \times V \to V$
$\cdot \ldots$ produkt s skalarjem $\cdot : O \times V \to V$

kjer:

$\forall x, y, z \quad x + (y + z) = (x + y) + z$
$\qquad\qquad\quad x + y = y + x$

$\exists 0 \in V : \ x + 0 = x$
$\exists 1 \in O : \ 1 \cdot x = x$
$\forall x \ \exists y : \ x + y = 0$
$\forall x \in V \ \forall \mu, \lambda \in O : \ \lambda \cdot (\mu \cdot x) = (\lambda \cdot \mu) \cdot x$
$\forall x, y \ \forall \lambda : \ \lambda \cdot (x + y) = \lambda \cdot x + \lambda \cdot y$
$\forall x \ \forall \lambda, \mu : \ (\lambda + \mu) \cdot x = \lambda \cdot x + \mu \cdot x$

V je vektorski prostor nad O.

Primeri:
$(\mathbb{R}, \mathbb{R}, +, \cdot)$
$(\mathbb{R}^3, \mathbb{R}, +, \cdot)$
$(\mathbb{R}^{10 \times 10}, \mathbb{R}, +, \cdot)$
$(P_{\leq 7}, \mathbb{C}, +, \cdot)$
$(\mathbb{C}[x], \mathbb{C}, \cdot, \cdot)$
$(\mathbb{R} \to \mathbb{R}, \mathbb{R}, +, \cdot)$