

# Notations

The following is a reference for notations used in the Course.

$A, B, C$	capital letters represent matrices
$u, v, w$	lowercase letters represent vectors
$A$ of size $m \times n$ or $(m \times n)$	matrix $A$ has $m$ rows and $n$ columns
$A^T$	the transpose of matrix $A$
$v^T$	the transpose of vector $v$
$A^{-1}$	the inverse of matrix $A$
$\det (A)$	the determinant of matrix $A$
$AB$	matrix multiplication of matrices $A$ and $B$
$u \cdot v; \langle u, v \rangle$	dot product of vectors $u$ and $v$
$\mathbb{R}$	the set of real numbers, e.g. 0, $-0.642$ , 2, 3.456
$\mathbb{R}^2$	the set of two-dimensional vectors, e.g. $v = \begin{bmatrix} 1 & 3 \end{bmatrix}^T$
$\mathbb{R}^n$	the set of $n$ -dimensional vectors
$v \in \mathbb{R}^2$	vector $v$ is an element of $\mathbb{R}^2$
$ v _1$	L1-norm of a vector
$ v _2;  v ; \ v\ $	L2-norm of a vector
$T : \mathbb{R}^2 \rightarrow \mathbb{R}^3; T(u) = w$	transformation $T$ of a vector $v \in \mathbb{R}^2$ into the vector $w \in \mathbb{R}^3$