# List of Symbols

## 1 Font notation

| | |
|---|---|
| $a, b, c, \ldots, A, B, C, \ldots$ | Scalars |
| $\mathbf{a}, \mathbf{b}, \mathbf{c}, \ldots$ | Vectors |
| $\mathbf{A}, \mathbf{B}, \mathbf{C}, \ldots$ | Matrices |
| $\mathcal{A}, \mathcal{B}, \mathcal{C}, \ldots$ | Tensors |
| $A, B, C, \ldots, \mathcal{A}, \mathcal{B}, \mathcal{C}, \ldots$ | Sets |

## 2 Common symbols

| | |
|---|---|
| $\boldsymbol{\nabla} f, \mathbf{g}$ | Gradient vector |
| $\boldsymbol{\nabla}_x f, \mathbf{g}_x$ | Gradient vector with respect $x$ |
| $\mathbf{g}$ (or $\hat{\mathbf{g}}$ if the gradient vector is $\mathbf{g}$) | Stochastic approximation of the gradient vector |
| $J(\cdot)$ | Cost-function or objective function |
| $\Lambda(\cdot)$ | Likelihood function |
| $\Lambda_l(\cdot)$ | Log-likelihood function |
| $\mathcal{O}(\cdot), O(\cdot)$ | big-O notation |
| $Q(x)$ | $Q$-function |
| $\boldsymbol{\mu}_x, \mathbf{m}_x$ | Mean vector |
| $\hat{\boldsymbol{\mu}}_x, \hat{\mathbf{m}}_x$ | Sample mean vector |
| $r_x(\tau), R_x(\tau)$ | Autocorrelation function of the signal $x(t)$ or $x[n]$ |
| $\hat{r}_x(\tau), \hat{R}_x(\tau)$ | Estimated autocorrelation function of the signal $x(t)$ or $x[n]$ |
| $\mathbf{R_x}$ | (Auto)correlation matrix of $\mathbf{x}$ |
| $\hat{\mathbf{R}}_{\mathbf{x}}$ | Sample (auto)correlation matrix |
| $r_{x,d}(\tau), R_{x,d}(\tau)$ | Cross-correlation between $x[n]$ and $d[n]$ or $x(t)$ and $d(t)$ |
| $\hat{r}_{x,d}(\tau), \hat{R}_{x,d}(\tau)$ | Estimated cross-correlation between $x[n]$ and $d[n]$ or $x(t)$ and $d(t)$ |

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|---|---|
| $\mathbf{R_{xy}}$ | Cross-correlation matrix of $\mathbf{x}$ and $\mathbf{y}$ |
| $\hat{\mathbf{R}}_{\mathbf{xy}}$ | Sample cross-correlation matrix of $\mathbf{R_{xy}}$ |
| $\mathbf{p}_{\mathbf{x}d}$ | Cross-correlation vector |
| $\rho_{x,y}$ | Pearson correlation coefficient between $x$ and $y$ |
| $\hat{\rho}_{x,y}$ | Estimated Pearson correlation coefficient between $x$ and $y$ |
| $c_x(\tau), C_x(\tau)$ | Autocovariance function of the signal $x(t)$ or $x[n]$ |
| $\hat{c}_x(\tau), \hat{C}_x(\tau)$ | Estimated autocovariance function of the signal $x(t)$ or $x[n]$ |
| $\mathbf{C_x}, \mathbf{K_x}, \mathbf{\Sigma_x}$ | (Auto)covariance matrix of $\mathbf{x}$ |
| $\hat{\mathbf{C}}_\mathbf{x}, \hat{\mathbf{K}}_\mathbf{x}, \hat{\mathbf{\Sigma}}_\mathbf{x}$ | Sample (auto)covariance matrix |
| $c_{xy}(\tau), C_{xy}(\tau)$ | Cross-covariance function of the signal $x(t)$ or $x[n]$ |
| $\hat{c}_{xy}(\tau), \hat{C}_{xy}(\tau)$ | Estimated cross-covariance function of the signal $x(t)$ or $x[n]$ |
| $\mathbf{C_{xy}}, \mathbf{K_{xy}}, \mathbf{\Sigma_{xy}}$ | Cross-covariance matrix of $\mathbf{x}$ |
| $\hat{\mathbf{C}}_\mathbf{xy}, \hat{\mathbf{K}}_\mathbf{xy}, \hat{\mathbf{\Sigma}}_\mathbf{xy}$ | Sample cross-covariance matrix |
| $\delta(t)$ | Delta function |
| $\delta[n]$ | Kronecker function |
| $h(t), h[n]$ | Impulse response (continuous and discrete time) |
| $\mathbf{C}$ | Cofactor matrix |
| $\mathbf{W}, \mathbf{D}$ | Diagonal matrix |
| $\mathbf{w}, \boldsymbol{\theta}$ | Parameters, coefficients, or weights vector |
| $\mathbf{w}_o, \mathbf{w}^\star, \boldsymbol{\theta}_o, \boldsymbol{\theta}^\star$ | Optimum value of the parameters, coefficients, or weights vector |
| $\mathbf{W}$ | Matrix of the weights |
| $\mathbf{P}$ | Projection matrix; Permutation matrix |
| $\mathbf{\Lambda}$ | Eigenvalue matrix |
| $\mathbf{L}$ | Lower matrix |
| $\mathbf{U}$ | Upper matrix; Left singular vectors |
| $\mathbf{U}_r$ | Left singular nondegenerated vectors |
| $\mathbf{\Sigma}$ | Singular value matrix |
| $\mathbf{\Sigma}_r$ | Singular value matrix with nonzero singular values in the main diagonal |
| $\mathbf{\Sigma}^+$ | Singular value matrix of the pseudoinverse |
| $\mathbf{\Sigma}_r^+$ | Singular value matrix of the pseudoinverse with nonzero singular values in the main diagonal |

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| $\mathbf{V}$ | Right singular vectors |
| $\mathbf{V}_r$ | Right singular nondegenerated vectors |
| $\mathbf{J}$ | Jordan matrix; Jacobian matrix |
| $\mathbf{S}$ | Symmetric matrix |
| $\mathbf{Q}$ | Orthogonal matrix |
| $\mathbf{I}_N$ | $N \times N$-dimensional identity matrix |
| $\mathbf{0}_{M \times N}$ | $M \times N$-dimensional null matrix |
| $\mathbf{0}_N$ | $N$-dimensional null vector |
| $\mathbf{0}$ | Null matrix, vector, or tensor (dimensionality understood by context) |
| $\mathbf{1}_{M \times N}$ | $M \times N$-dimensional ones matrix |
| $\mathbf{1}_N$ | $N$-dimensional ones vector |
| $\mathbf{1}$ | Ones matrix, vector, or tensor (dimensionality understood by context) |
| $j$ | $\sqrt{-1}$ |

# 3   Linear Algebra operations

| | |
|---|---|
| $\mathbf{A}^{-1}$ | Inverse matrix |
| $\mathbf{A}^+, \mathbf{A}^\dagger$ | Moore-Penrose pseudoinverse |
| $\mathbf{A}^\top$ | Transpose |
| $\mathbf{A}^*$ | Complex conjugate |
| $\mathbf{A}^\mathsf{H}$ | Hermitian |
| $\|\mathbf{A}\|_\mathrm{F}$ | Frobenius norm |
| $\|\mathbf{A}\|$ | Matrix norm |
| $\|\mathbf{a}\|$ | $l_1$ norm, 1-norm, or Manhatan norm |
| $\|\mathbf{a}\|, \|\mathbf{a}\|_2$ | $l_2$ norm, 2-norm, or Euclidean norm |
| $\|\mathbf{a}\|_p$ | $l_p$ norm, $p$-norm, or Minkowski norm |
| $\|\mathbf{a}\|_\infty$ | $l_\infty$ norm, $\infty$-norm, or Chebyshev norm |
| $|\mathbf{A}|, \det(\mathbf{A})$ | Determinant |
| $\mathrm{diag}(\mathbf{a}), \mathrm{diag}(\mathbf{A})$ | Diagonalization: a square, diagonal matrix with entries given by the vector $\mathbf{a}$ or the elements in the diagonal of $\mathbf{A}$ |
| $\mathrm{vec}(\mathbf{A})$ | Vectorization: stacks the columns of the matrix $\mathbf{A}$ into a long column vector |
| $\mathrm{vec_d}(\mathbf{A})$ | Extracts the diagonal elements of a square matrix and returns them in a column vector |

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| $\mathrm{vec_l}\left(\mathbf{A}\right)$ | Extracts the elements strictly below the main diagonal of a square matrix in a column-wise manner and returns them into a column vector |
| $\mathrm{vec_u}\left(\mathbf{A}\right)$ | Extracts the elements strictly above the main diagonal of a square matrix in a column-wise manner and returns them into a column vector |
| $\mathrm{vec_b}\left(\mathbf{A}\right)$ | Block vectorization operator: stacks square block matrices of the input into a long block column matrix |
| $\mathrm{unvec}\left(\mathbf{A}\right)$ | Reshapes a column vector into a matrix |
| $\mathrm{cof}\left(\mathbf{A}\right)$ | Cofactor matrix of $\mathbf{A}$ |
| $\mathrm{eig}\left(\mathbf{A}\right)$ | Set of the eigenvalues of $\mathbf{A}$ |
| $[\![\mathbf{A}, \mathbf{B}, \mathbf{C}, \ldots]\!]$ | CANDECOMP/PARAFAC (CP) decomposition of the tensor $\boldsymbol{\mathcal{X}}$ from the outer product of column vectors of $\mathbf{A}$, $\mathbf{B}$, $\mathbf{C}, \ldots$ |
| $[\![\boldsymbol{\lambda}; \mathbf{A}, \mathbf{B}, \mathbf{C}, \ldots]\!]$ | Normalized CANDECOMP/PARAFAC (CP) decomposition of the tensor $\boldsymbol{\mathcal{X}}$ from the outer product of column vectors of $\mathbf{A}$, $\mathbf{B}$, $\mathbf{C}, \ldots$ |
| $\mathrm{N}\left(\mathbf{A}\right), \mathrm{nullspace}(\mathbf{A}), \mathrm{kernel}(\mathbf{A})$ | Nullspace (or kernel) |
| $\mathrm{C}\left(\mathbf{A}\right), \mathrm{columnspace}(\mathbf{A}), \mathrm{range}(\mathbf{A})$ | Columnspace (or range), i.e., the space $\mathrm{span}\left(\mathbf{a}_1, \mathbf{a}_2, \ldots, \mathbf{a}_n\right)$, where $\mathbf{a}_i$ is the ith column vector of the matrix $\mathbf{A}$ |
| $\mathrm{span}\left(\mathbf{a}_1, \mathbf{a}_2, \ldots, \mathbf{a}_n\right)$ | Vector space spanned by the argument vectors |
| $\mathrm{span}\left(\mathbf{A}\right)$ | Vector space spanned by the column vectors of $\mathbf{A}$, which gives the columnspace of $\mathbf{A}$ |
| $\mathrm{rank}\left(\mathbf{A}\right)$ | Rank, that is, $\dim\left(\mathrm{span}\left(\mathbf{A}\right)\right) = \dim\left(\mathrm{C}\left(\mathbf{A}\right)\right)$ |
| $\mathrm{nullity}\left(\mathbf{A}\right)$ | Nullity of $\mathbf{A}$, i.e., $\dim\left(\mathrm{N}\left(\mathbf{A}\right)\right)$ |
| $\mathrm{tr}\left(\mathbf{A}\right)$ | trace |
| $\mathbf{a} \perp \mathbf{b}$ | $\mathbf{a}$ is orthogonal to $\mathbf{b}$ |
| $\mathbf{a} \not\perp \mathbf{b}$ | $\mathbf{a}$ is not orthogonal to $\mathbf{b}$ |
| $\langle \mathbf{a}, \mathbf{b} \rangle$ | Inner product, i.e., $\mathbf{a}^\top \mathbf{b}$ |
| $\mathbf{a} \circ \mathbf{b}$ | Outer product, i.e., $\mathbf{a}\mathbf{b}^\top$ |
| $\otimes$ | Kronecker product |
| $\odot$ | Hadamard (elementwise) product |
| $\diamond$ | Khatri-Rao product |
| $\otimes$ | Kronecker Product |

| | |
|---|---|
| $\times_n$ | $n$-mode product |
| $\mathbf{X}_{(n)}$ | $n$-mode matricization of the tensor $\boldsymbol{\mathcal{X}}$ |
| $\boldsymbol{\mathcal{X}} \leq 0$ | Nonnegative tensor |
| $\mathbf{a} \preceq_K \mathbf{b}$ | Generalized inequality meaning that $\mathbf{b} - \mathbf{a}$ belongs to the conic subset $K$ in the space $\mathbb{R}^n$ |
| $\mathbf{a} \prec_K \mathbf{b}$ | Strict generalized inequality meaning that $\mathbf{b} - \mathbf{a}$ belongs to the interior of the conic subset $K$ in the space $\mathbb{R}^n$ |
| $\mathbf{a} \preceq \mathbf{b}$ | Generalized inequality meaning that $\mathbf{b} - \mathbf{a}$ belongs to the nonnegative orthant conic subset, $\mathbb{R}^n_+$, in the space $\mathbb{R}^n$ |
| $\mathbf{a} \prec \mathbf{b}$ | Strict generalized inequality meaning that $\mathbf{b} - \mathbf{a}$ belongs to the positive orthant conic subset, $\mathbb{R}^n_{++}$, in the space $\mathbb{R}^n$ |
| $\mathbf{A} \preceq_K \mathbf{B}$ | Generalized inequality meaning that $\mathbf{B} - \mathbf{A}$ belongs to the conic subset $K$ in the space $\mathbb{S}^n$ |
| $\mathbf{A} \prec_K \mathbf{B}$ | Strict generalized inequality meaning that $\mathbf{B} - \mathbf{A}$ belongs to the interior of the conic subset $K$ in the space $\mathbb{S}^n$ |
| $\mathbf{A} \preceq \mathbf{B}$ | Generalized inequality meaning that $\mathbf{B} - \mathbf{A}$ belongs to the positive semidefinite conic subset, $\mathbb{S}^n_+$, in the space $\mathbb{S}^n$ |
| $\mathbf{A} \prec \mathbf{B}$ | Strict generalized inequality meaning that $\mathbf{B} - \mathbf{A}$ belongs to the positive orthant conic subset, $\mathbb{S}^n_{++}$, in the space $\mathbb{S}^n$ |

## 3.1  Indexing

| | |
|---|---|
| $x_{i_1,i_2,\ldots,i_N}$ | Element in the position $(i_1, i_2, \ldots, i_N)$ of the tensor $\boldsymbol{\mathcal{X}}$ |
| $\boldsymbol{\mathcal{X}}^{(n)}$ | $n$th tensor in a nontemporal sequence |
| $[\boldsymbol{\mathcal{X}}]_{i_1,i_2,\ldots,i_N}$ | Element $x_{i_1,i_2,\ldots,i_N}$ |
| $\mathbf{x}_n, \mathbf{x}_{:n}$ | $n$th column of the matrix $X$ |
| $\mathbf{x}_{n:}$ | $n$th row of the matrix $X$ |
| $\mathbf{x}_{i_1,\ldots,i_{n-1},:,i_{n+1},\ldots,i_N}$ | Mode-$n$ fiber of the tensor $\boldsymbol{\mathcal{X}}$ |
| $\mathbf{x}_{:,i_2,i_3}$ | Column fiber (mode-1 fiber) of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |
| $\mathbf{x}_{i_1,:,i_3}$ | Row fiber (mode-2 fiber) of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |

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| $\mathbf{x}_{i_1,i_2,:}$ | Tube fiber (mode-3 fiber) of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |
| $\mathbf{X}_{i_1,:,:}$ | Horizontal slice of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |
| $\mathbf{X}_{:,i_2,:}$ | Lateral slices slice of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |
| $\mathbf{X}_{i_3}, \mathbf{X}_{:,:,i_3}$ | Frontal slices slice of the thrid-order tensor $\boldsymbol{\mathcal{X}}$ |

# 4 Sets

| | |
|---|---|
| $A + B$ | Set addition (Minkowski sum) |
| $A - B$ | Minkowski difference |
| $A \setminus B, A - B$ | Set difference or set subtraction, i.e., the set containing the elements of $A$ that are not in $B$ |
| $A \cup B$ | Set of union |
| $A \cap B$ | Set of intersection |
| $A \times B$ | Cartesian product |
| $A^\perp$ | Orthogonal complement of $A$, e.g., $\mathrm{N}(\mathbf{A}) = \mathrm{C}(\mathbf{A}^\top)^\perp$ |
| $A \oplus B$ | Direct sum, e.g., $\mathrm{C}(\mathbf{A}^\top) \oplus \mathrm{C}(\mathbf{A}^\top)^\perp = \mathbb{R}^n$ |
| $A^c, \bar{A}$ | Complement set |
| $\#A, |A|$ | Cardinality |
| $a \in A$ | $a$ is element of $A$ |
| $a \notin A$ | $a$ is not element of $A$ |
| $\{1, 2, \ldots, n\}$ | Discrete set containing the integer elements $1, 2, \ldots, n$ |
| $\mathbb{R}$ | Set of real numbers |
| $\mathbb{C}$ | Set of complex numbers |
| $\mathbb{Z}$ | Set of integer number |
| $\mathbb{B} = \{0, 1\}$ | Boolean set |
| $\varnothing$ | Empty set |
| $\mathbb{N}$ | Set of natural numbers |
| $\mathbb{K} \in \{\mathbb{R}, \mathbb{C}\}$ | ??? |
| $\mathbb{K}^{I_1 \times I_2 \times \cdots \times I_N}$ | $I_1 \times I_2 \times \cdots \times I_N$-dimensional real (or complex) space |
| $\mathbb{K}_+$ | Nonnegative real (or complex) space |
| $\mathbb{K}_{++}$ | Positive real (or complex) space, i.e., $\mathbb{K}_{++} = \mathbb{K}_+ \setminus \{\mathbf{0}\}$ |
| $\mathbb{S}^n, \mathcal{S}^n$ | Conic set of the symmetric matrices in $\mathbb{R}^{n \times n}$ |

| | |
|---|---|
| $\mathbb{S}_+^n, \mathcal{S}_+^n$ | Conic set of the symmetric positive semidefinite matrices in $\mathbb{R}^{n\times n}$ |
| $\mathbb{S}_{++}^n, \mathcal{S}_{++}^n$ | Conic set of the symmetric positive definite matrices in $\mathbb{R}^{n\times n}$, i.e., $\mathbb{S}_{++}^n = \mathbb{S}_+^n \setminus \{\mathbf{0}\}$ |
| $\mathbb{H}^n$ | Set of all hermitian matrices in $\mathbb{C}^{n\times n}$ |
| $[a,b]$ | Closed interval of a real set from $a$ to $b$ |
| $(a,b)$ | Opened interval of a real set from $a$ to $b$ |
| $[a,b), (a,b]$ | Half-opened intervals of a real set from $a$ to $b$ |

# 5 Signals and functions operations and indexing

| | |
|---|---|
| $f : A \rightarrow B$ | A function $f$ whose domain is $A$ and codomain is $B$ |
| $f^{(n)}$ | $n$th derivative of the function $f$ |
| $f^{-1}$ | Inverse function of $f$ |
| $f \circ g$ | Composition of the functions $f$ and $g$ |
| $\inf\limits_{\mathbf{y}\in\mathcal{A}} g(\mathbf{x},\mathbf{y})$ | Infimum |
| $\sup\limits_{\mathbf{y}\in\mathcal{A}} g(\mathbf{x},\mathbf{y})$ | Supremum |
| $*$ | Convolution |
| $\circledast, \textcircled{N}$ | Circular convolution |
| $x(t)$ | Continuous-time $t$ |
| $x[n], x[k], x[m], x[i], \ldots$ | Discrete-time $n, k, m, i, \ldots$ |
| $x(n), x(k), x(m), x(i), \ldots$ | Discrete-time $n, k, m, i, \ldots$ (it should be used only if there are no continuous-time signals in the context to avoid ambiguity) |
| $\hat{x}(t)$ or $\hat{x}[n]$ | Estimate of $x(t)$ or $x[n]$; the Hilbert transform of $x(t)$ or $x[n]$ |
| $\tilde{x}[n]$ | Periodic discrete-time signal |
| $x\left[((n-m))_N\right], x\left((n-m)\right)_N$ | Circular shift in $m$ samples within a $N$-samples window |
| $x_I(t)$ or $x_I[n]$ | Real or in-phase part of $x(t)$ or $x[n]$ |
| $x_Q(t)$ or $x_Q[n]$ | Imaginary or quadrature part of $x(t)$ or $x[n]$ |
| $\mathcal{F}\{\cdot\}$ | Fourier transform |
| $\mathcal{L}\{\cdot\}$ | Laplace transform |
| $\mathcal{Z}\{\cdot\}$ | $z$-transform |
| $X(s)$ | Laplace transform of $x(t)$ |

| | |
|---|---|
| $X(f)$ | Fourier transform (FT) (in linear frequency, Hz) of $x(t)$ |
| $X(j\omega)$ | Fourier transform (FT) (in angular frequency, rad/sec) of $x(t)$ |
| $X(e^{j\omega})$ | Discrete-time Fourier transform (DTFT) of $x[n]$ |
| $X[k], X(k)$ | Discrete Fourier transform (DFT) or fast Fourier transform (FFT) of $x[n]$, or even the Fourier series (FS) of the periodic signal $x(t)$ |
| $\tilde{X}[k], \tilde{X}(k)$ | Discrete Fourier series (DFS) of $\tilde{x}[n]$ |
| $X(z)$ | $z$-transform of $x[n]$ |
| $S_x(f)$ | Power spectral density of $x(t)$ in linear frequency |
| $S_x(j\omega)$ | Power spectral density of $x(t)$ in angular frequency |

# 6 Probability and stochastic processes

| | |
|---|---|
| $E[\cdot]$ | Statistical expectation |
| $E_u[\cdot]$ | Statistical expectation with respect to $u$ |
| $\mathrm{var}(x)$ | Variance of the random variable $x$ |
| $\mathrm{erfc}(\cdot)$ | Complementary error function |
| $P(A)$ | Probability of the event or set $A$ |
| $p(\cdot)$ | Probability density function |
| $p(x \mid A)$ | Conditional probability density function |
| $a \sim P$ | Random variable $a$ with distribution $P$ |
| $\mathcal{N}(\mu, \sigma^2)$ | Gaussian distribution of a random variable with mean $\mu$ and variance $\sigma^2$ |
| $\mathcal{CN}(\mu, \sigma^2)$ | Complex Gaussian distribution of a random variable with mean $\mu$ and variance $\sigma^2$ |
| $\mathcal{N}(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ | Gaussian distribution of a vector random variable with mean $\boldsymbol{\mu}$ and covariance matrix $\boldsymbol{\Sigma}$ |
| $\mathcal{CN}(\boldsymbol{\mu}, \boldsymbol{\Sigma})$ | Complex Gaussian distribution of a vector random variable with mean $\boldsymbol{\mu}$ and covariance matrix $\boldsymbol{\Sigma}$ |
| $\mathcal{U}(a, b)$ | Uniform distribution from $a$ to $b$ |

# 7  General notations

| | |
|---|---|
| $a \wedge b$ | Logical AND of $a$ and $b$ |
| $a \vee b$ | Logical OR of $a$ and $b$ |
| $\neg a$ | Logical negation of $a$ |
| $\exists$ | There exists |
| $\nexists$ | There does not exist |
| $\exists !$ | There exist an unique |
| $\forall$ | For all |
| $\|$ | Such that |
| $\therefore$ | Therefore |
| $\Longleftrightarrow$ | Logical equivalence |
| $\triangleq$ | Equal by definition |
| $\neq$ | Not equal |
| $\infty$ | Infinity |
| $|a|$ | Absolute value of $a$ |
| $\log$ | Base-10 logarithm or decimal logarithm |
| $\ln$ | Natual logarithm |
| $\operatorname{Re}\{x\}$ | Real part of $x$ |
| $\operatorname{Im}\{x\}$ | Imaginary part of $x$ |
| $\lceil \cdot \rceil$ | Ceiling operation |
| $\lfloor \cdot \rfloor$ | Floor operation |
| $\angle \cdot$ | phase (complex argument) |
| $x \bmod y$ | Remainder, i.e., $x - y\lfloor x/y \rfloor$ |
| $\operatorname{frac}(x)$ | Fractional part, i.e., $x \bmod 1$ |

# 8  Abbreviations

| | |
|---|---|
| wrt. | With respect to |
| st. | Subject to |
| iff. | If and only if |
| EVD | Eigenvalue decomposition, or eigen-decomposition |
| SVD | Singular value decomposition |
| CP | CANDECOMP/PARAFAC |