Notation

General

		Subscript		
Quantity	Notation	Left	Right	 Example
Scalar	lowercase	n/a	n/a	a=4
Vector	lowercase, bold	frame	$\mathrm{from} \to \mathrm{to}$	$_{\mathcal{A}}r_{AB}$
Homogeneous vector	lowercase, bold, tilde	frame	$\mathrm{from} \to \mathrm{to}$	$_{\mathcal{A}}\tilde{r}_{AB}$
Matrix	uppercase, bold	n/a	n/a	\boldsymbol{A}
${\it Transformation matrix}^1$	uppercase, bold	n/a	$to \leftarrow from$	$oldsymbol{R}_{BA}$

 $^{^{\}rm 1}$ This includes passive rotations, homogeneous transformations, quaternions

f(x; p) a quantity f with variables x and (optionally) parameterized by parameters p.

Probability

Property	Notation		
Random variable (RV), state	X, x		
Probability	P(X=x) =: P(X)		
Conditional probability	P(X = x Y = y) =: P(X Y)		
Expectation of a continuous RV	$E[X] =: \mu$		
Expectation of a discrete RV	$E[X] =: \mu$		
Expectation (continuous RV) of a function g	$E_{x \sim f(x)}[g(x)] = \int_{-\infty}^{\infty} g(x)f(x)dx$		
Expectation (discrete RV) of a function g	$E_{x \sim p(x)}[g(x)] = \sum_{i} g(x_i)p(x_i)$		
Variance	$Var[X] =: \sigma^2$		
Standard deviation	$SD[X] =: \sigma$		
Probability mass function ¹	$p_X(x) =: p(x)$		
Probability density function ²	$f_X(x) =: f(x)$		
Cumulative distribution function	$F_X(x) =: F(x)$		

 $^{^{1}\,\}mathrm{for}$ discrete RVs $^{2}\,\mathrm{for}$ continuous RVs