

Robotics, Vision & Control notation in LaTeX

Peter Corke

Pose	
$\backslash\text{pose}$ $\backslash\text{pose}[A]_B$ $\backslash\backslash$ $\backslash\text{pose}[A]_B \oplus \backslash\text{pose}[B]_C \ominus$ $\backslash\text{pose}[C]_D$ $\backslash\backslash$ $\backslash\text{pose} \bullet \backslash\text{vec}\{v\}$	$\begin{array}{c} \xi^A \xi_B \\ {}^A \xi_B \oplus {}^B \xi_C \ominus {}^C \xi_D \\ \xi \cdot v \end{array}$
Coordinate frame	
$\backslash\text{cframe}\{A\}$	$\{A\}$
Point	
$\backslash\text{point}\{P\}$	P
Matrices	
$\backslash\text{mat}\{R\}$ $\backslash\text{mat}[A]R$ $\backslash\text{mat}[A]\{R\}_B$ $\backslash\backslash$ $\backslash\text{dmat}\{R\}$ $\backslash\backslash$ $\backslash\text{emat}\{R\}$ $\backslash\backslash$ $\backslash\text{matfn}\{J\}\{\backslash\text{vec}\{q\}\}$ $\backslash\text{matfn}[0]\{J\}\{\backslash\text{vec}\{q\}\}$ $\backslash\backslash$ $\backslash\text{mat}\{0\}_{2 \times 3}$ $\backslash\text{mat}\{1\}_{3 \times 3}$ $\backslash\text{times } 3\}$	$\begin{array}{c} R^A R^A R_B \\ \dot{R} \\ \hat{R} \\ J(q) {}^0J(q) \\ \mathbf{0}_{2 \times 3} \mathbf{1}_{3 \times 3} \end{array}$
Vectors	
$\backslash\text{vec}\{v\}$ $\backslash\text{vec}[A]\{v\}$ $\backslash\backslash$ $\backslash\text{dvec}\{v\}$ $\backslash\text{dvec}[A]\{v\}$ $\backslash\backslash$ $\backslash\text{ddvec}\{v\}$ $\backslash\text{ddvec}[A]\{v\}$ $\backslash\backslash$ $\backslash\text{evec}\{v\}$ $\backslash\text{evec}[A]\{v\}$ $\backslash\backslash$ $\backslash\text{bvec}\{v\}$ $\backslash\text{bvec}[A]\{v\}$ $\backslash\backslash$ $\backslash\text{hvec}\{v\}$ $\backslash\text{hvec}[A]\{v\}$	$\begin{array}{c} v^A v \\ \dot{v}^A \dot{v} \\ \ddot{v}^A \ddot{v} \\ \hat{v}^A \hat{v} \\ \bar{v}^A \bar{v} \\ \tilde{v}^A \tilde{v} \end{array}$

Quaternions	
$\$ \backslash \text{quat}\{q\} \backslash \text{circ} \backslash \text{quat}\{p\} \$$	$\check{q} \circ \check{p}$
Unit quaternions	
$\$ \backslash \text{uquat}[A]\{q\}_B \backslash \text{circ} \backslash \text{uquat}[B]\{q\}_C \$$	${}^A\check{q}_B \circ {}^B\check{q}_C$
Skew-symmetric matrices	
$\$ \backslash \text{skx}\{v\} \$$ $\$ \backslash \text{iskx}\{\text{mat}\{A\}\} \$ \backslash \backslash$ $\$ \backslash \text{sk}\{v\} \$$ $\$ \backslash \text{isk}\{\text{mat}\{A\}\} \$$	$[v]_{\times}$ $\bigvee_{\times}(\mathbf{A})$ $[v]$ $\bigvee(\mathbf{A})$
Groups and spaces	
$\$ \backslash \text{SO}\{3\}, \backslash \text{SE}\{3\} \$ \backslash \backslash$ $\$ \backslash \text{so}\{3\}, \backslash \text{se}\{3\} \$ \backslash \backslash$ text mode $\backslash \text{SO}\{3\} \backslash \backslash$ $\$ \backslash \mathbb{R} \$ \backslash \backslash$ $\$ \backslash \text{cspace} \$$	$\mathbf{SO}(3), \mathbf{SE}(3)$ $\mathfrak{so}(3), \mathfrak{se}(3)$ text mode $\mathbf{SO}(3)$ \mathbb{R} \mathcal{C}
Code	
<pre>\begin{Code} [x,e] = eig(A); \end{Code}</pre> <pre>\begin{CodeNum} [x,e] = eig(A); z = x(:,2); \end{CodeNum}</pre>	<pre>[x,e] = eig(A);</pre> <pre>1 [x,e] = eig(A); 2 z = x(:,2);</pre>
Other operators	
$\$ \backslash \theta_1 \backslash \text{circleddash} \backslash \theta_2 \$ \backslash \backslash$	$\theta_1 \ominus \theta_2$
Units	
The object was 12\mm\ across, accelerated at 2.3\unit{m s^{-2}}, the servo interval was 12\ms, and the angle spanned 30\deg.	The object was 12mm across, accelerated at 2.3ms ⁻² , the servo interval was 12ms, and the angle spanned 30°.

Numbers and coordinates

`\sci{5}{-2}` `\`
`\coord{1}{2}, \vector{1}{2}{3}`

$5 \cdot 10^{-2}$
 $(1, 2), (1, 2, 3)$

Miscellaneous

Here is a sentence running into an
equation
`\[`
`y = x^{2} \fullstop`
`\]`

Here is a sentence run-
ning into an equation
 $y = x^2$.