$$
\begin{aligned}
T(\mathbf{v}) &= (1-\cos\theta)(\mathbf{v}\cdot\widehat{r})\,\widehat{r} + \cos\theta\mathbf{v} + \sin\theta(\widehat{r}\times\mathbf{v}) \\
&= (1-\cos\theta)\begin{bmatrix} u_x^2 & u_xu_y & u_xu_z \\ u_xu_y & u_y^2 & u_yu_z \\ u_xu_z & u_yu_z & u_z^2 \end{bmatrix}\mathbf{v} + \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}\cos\theta\mathbf{v} + \sin\theta\begin{bmatrix} 0 & -u_z & u_y \\ u_z & 0 & -u_x \\ -u_y & u_x & 0 \end{bmatrix}\mathbf{v} \\
&= \left\{(1-\cos\theta)\begin{bmatrix} u_x^2 & u_xu_y & u_xu_z \\ u_xu_y & u_y^2 & u_yu_z \\ u_xu_z & u_yu_z & u_z^2 \end{bmatrix} + \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}\cos\theta + \sin\theta\begin{bmatrix} 0 & -u_z & u_y \\ u_z & 0 & -u_x \\ -u_y & u_x & 0 \end{bmatrix}\right\}\mathbf{v} \\
&= \begin{bmatrix} tu_x^2 + C & tu_xu_y - Su_z & tu_xu_z + Su_y \\ tu_xu_y + Su_z & tu_y^2 + C & tu_yu_z - Su_x \\ tu_xu_z - Su_y & tu_yu_z + Su_x & tu_z^2 + C \end{bmatrix}\mathbf{v}
\end{aligned}
$$

where

$$
\begin{aligned}
\widehat{r} &= (u_x, u_y, u_z) \\
C &= \cos\theta \\
S &= \sin\theta \\
t &= 1-\cos\theta
\end{aligned}
$$

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