Ball Joints

$$
\begin{aligned}
\boldsymbol{p} &= \hat{\boldsymbol{r}}(\hat{\boldsymbol{r}} \cdot \boldsymbol{x}) \\
&+ \sin(\|\boldsymbol{r}\|)(\hat{\boldsymbol{r}} \times \boldsymbol{x}) \\
&- \cos(\|\boldsymbol{r}\|)(\hat{\boldsymbol{r}} \times (\hat{\boldsymbol{r}} \times \boldsymbol{x}))
\end{aligned}
$$