Input: $\mathcal{T}_R^{efL}, mocapFrameData$
Output: wp_{obj}^{efL}
Initial require: $t_{observe} = 10ms, t_{predict} = 1sec, i = 1$
$mocapStart$ **and** $mocapFrameData(i)! = NaN$
$(i\%t_{observe}) == 0$
$\mathcal{T}_R^{efL} \leftarrow endEffectorTask$
$\mathcal{T}_M^{efL_{marker}} \leftarrow mocapFrameData.robotMarker((i - t_{observe}) + 1)$
$j \leftarrow 1$ to $t_{observe}$
$\mathcal{T}_M^{obj_{marker}} \leftarrow mocapFrameData.objectMarker(i - t_{observe}) + j)$
$\mathcal{T}_{obj_{marker}}^{efL} = \mathcal{T}_R^{efL^{-1}} \times \mathcal{T}_M^{obj_{marker}} \times \mathcal{T}_M^{efL_{marker}{}^{-1}} \times \mathcal{T}_R^{efL}$
$j == 1 P_0^{obj_{marker}} \leftarrow \mathcal{T}_{obj_{marker}}^{efL}.translation()(1)$
$j == t_{observe} P_{t_{observe}}^{obj_{marker}} \leftarrow \mathcal{T}_{obj_{marker}}^{efL}.translation()(t_{observe})$
$\mathcal{C} \leftarrow \mathcal{F}_c(P_0^{obj_{marker}}, P_{t_{observe}}^{obj_{marker}}, t_{observe})$
$\mathcal{V}_{obj_{marker}}^{efL} \leftarrow \mathcal{F}_{diff}(\mathcal{T}_{obj_{marker}}^{efL}.translation())$
$\vec{\mathcal{V}}_{obj_{marker}}^{efL} \leftarrow \mathcal{F}_{avg}(\mathcal{V}_{obj_{marker}}^{efL})$
predict position of object handover at $t_{predict}$ $\vec{\mathcal{V}}_{obj_{marker}}^{efL}, \mathcal{C}, t_{predict}$
$P_{t_{predict}}^{obj} \leftarrow \vec{\mathcal{V}}_{obj_{marker}}^{efL} \times t_{predict} + \mathcal{C}$
$P_{t_{predict}}^{obj}$
generate way points between robot left end effector and object handover location $P_{t_{observe}}^{obj_{marker}}, P_{t_{predict}}^{obj}, t_{predict}$
$k \leftarrow 0$ to $t_{predict}$
$wp_{obj}^{efL}(k) \leftarrow (P_{t_{predict}}^{obj} - P_{t_{observe}}^{obj_{marker}}) \times k + P_{t_{observe}}^{obj_{marker}}$
wp_{obj}^{efL}
$i = i + 1$
$t_{observe} t_{predict}$
$\mathcal{T}_R^{efL} mocapFrameData \mathcal{T}_M^{efL_{marker}} \mathcal{T}_M^{obj_{marker}} \mathcal{T}_R^{efL} \mathcal{T}_M^{efl_{marker}} \mathcal{T}_M^{obj_{marker}} \mathcal{I}$
$\mathcal{T}_{obj_{marker}}^{efL} P_0^{obj_{marker}} P_{t_{observe}}^{obj_{marker}} i\%t_{observe} == 0 P_0^{obj_{marker}} P_{t_{observe}}^{obj_{marker}} \vec{\mathcal{V}}_{obj_{marker}}^{efL} \mathcal{F}_c \mathcal{F}_{diff} \mathcal{F}_{avg}$ *helper functions*
$PREDICTPOS P_{t_{predict}}^{obj} t_{predict}$
$GENERATEWP wp_{obj}^{efL}$
wp_{obj}^{efL} `mc_rtc positionTask`