

Multi-task Gaussian Process Learning of Robot Inverse Dynamics

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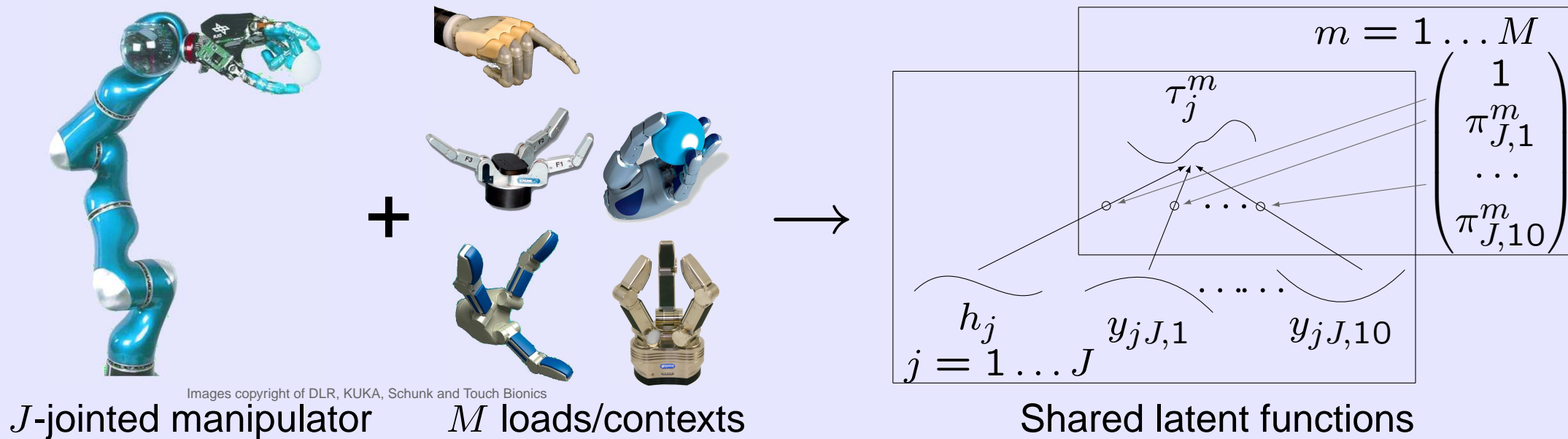
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For controlling a robot manipulator under many contexts (loads), we propose the use of the multi-task Gaussian process for non-parameteric learning of the inverse dynamics $\tau(q, \dot{q}, \ddot{q})$.



- $\tau_j^m(x) = h_j(x) + \mathbf{y}_{jJ}^\top(x) \boldsymbol{\pi}_J^m$, where $x \stackrel{\text{def}}{=} (q, \dot{q}, \ddot{q})$.
- $\boldsymbol{\pi}_J^m$ depends on the m^{th} load.
- Linear relationship of inverse dynamics between contexts
+ Place iid GP priors over latent functions
 $\Rightarrow J$ separate multi-task GPs

