Supplementary Material For rCRF: Recursive Belief Estimation over CRFs in RGB-D Activity Videos

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I. Resulting Algorithm

II. Overview

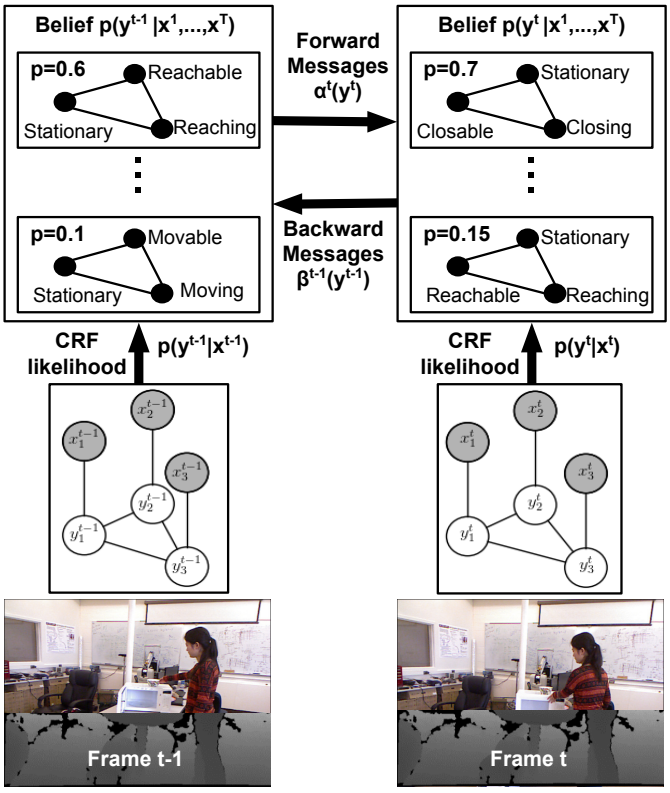

Fig. 1: **Computing the full belief by using rCRF.** Each iteration of the recursive estimation algorithm includes computing forward and backward messages, $\alpha^t(\mathbf{y}^t)$ and $\beta^{t-1}(\mathbf{y}^{t-1})$, by using the current samples and computing the belief $p(\mathbf{y}^t|\mathbf{x}^1,\ldots,\mathbf{x}^T)$ with the computed messages. Then, we re-compute the messages and re-sample the belief until the belief converges. *Here, we only have two objects as* $\mathbf{y}^t = (\mathbf{O}_1^t, \mathbf{O}_2^t, \mathbf{A}^t)$ *and* $\mathbf{x}^t = (\mathbf{L}_1^t, \mathbf{L}_2^t, \mathbf{H}^t)$