Reconstructing Articulated Rigged Models from RGB-D Videos

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===== *Supplemetary Material* =====

http://files.is.tue.mpg.de/dtzionas/Skeleton-Reconstruction

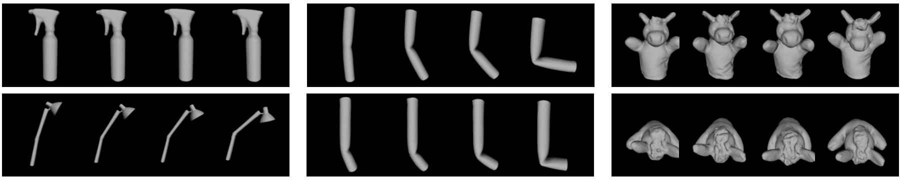

Fig. 1: Each object is scanned in four target poses with escalating difficulty and pose estimation from an initial state is performed for evaluation while spanning the parameter space of $(\gamma_{def}, \lambda_{thresh})$. For the "donkey" object both a front and a top view is presented.

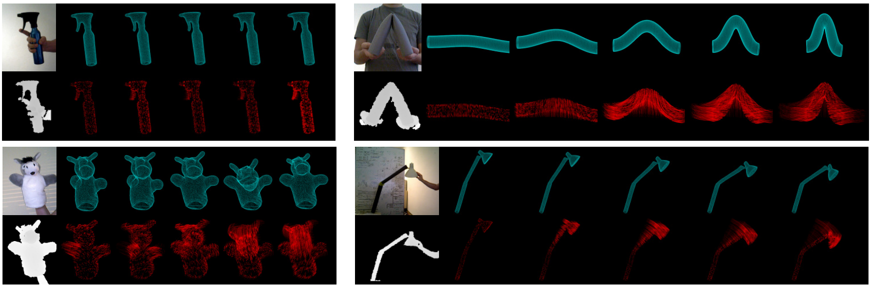

Fig. 2: Tracked mesh with the deformable tracker and the corresponding 3d vertex trajectories. We present images for the sequences "spray" and "pipe 1/2" showing the temporal evolution at 20%, 40%, 60%, 80% and 100% of the sequence.

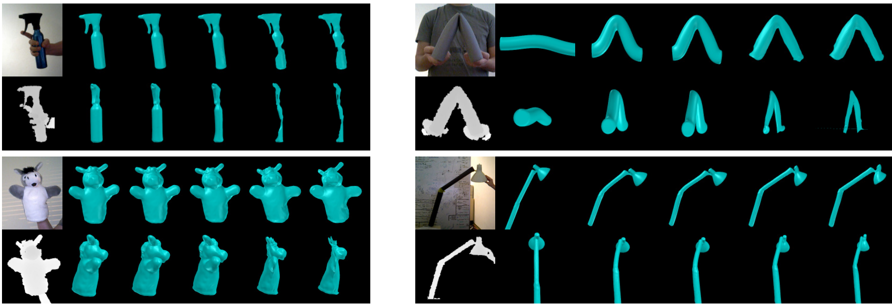

Fig. 3: Deformable tracking for $\gamma_{def} = 0.001,\ 0.005,\ 0.01,\ 0.05,\ 0.1$ (from left to right) that steers the influence of the smoothness and data terms in the objective function. We depict the front (top) and side view (bottom) for the last frame of the sequences "spray", "pipe 1/2", "donkey" and "lamp".

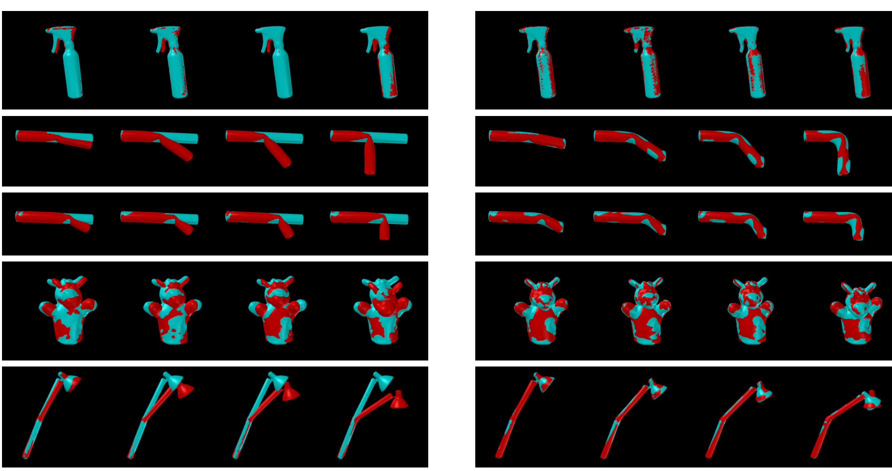

Fig. 4: Experiment for new sequences. Each object is scanned in 5 different poses that are used as target poses during the evaluation. The poses present escalating difficulty. An overlay is presented for each sequence, where the *tracked pose* is depicted with cyan color, while the *target pose* is depicted with red color. INI and DEFORM

Fig. 5: Results for all configurations (γ_{def}, λ_{thr}) spanning the parameter space. The images show for the object "spray" the motion segments.

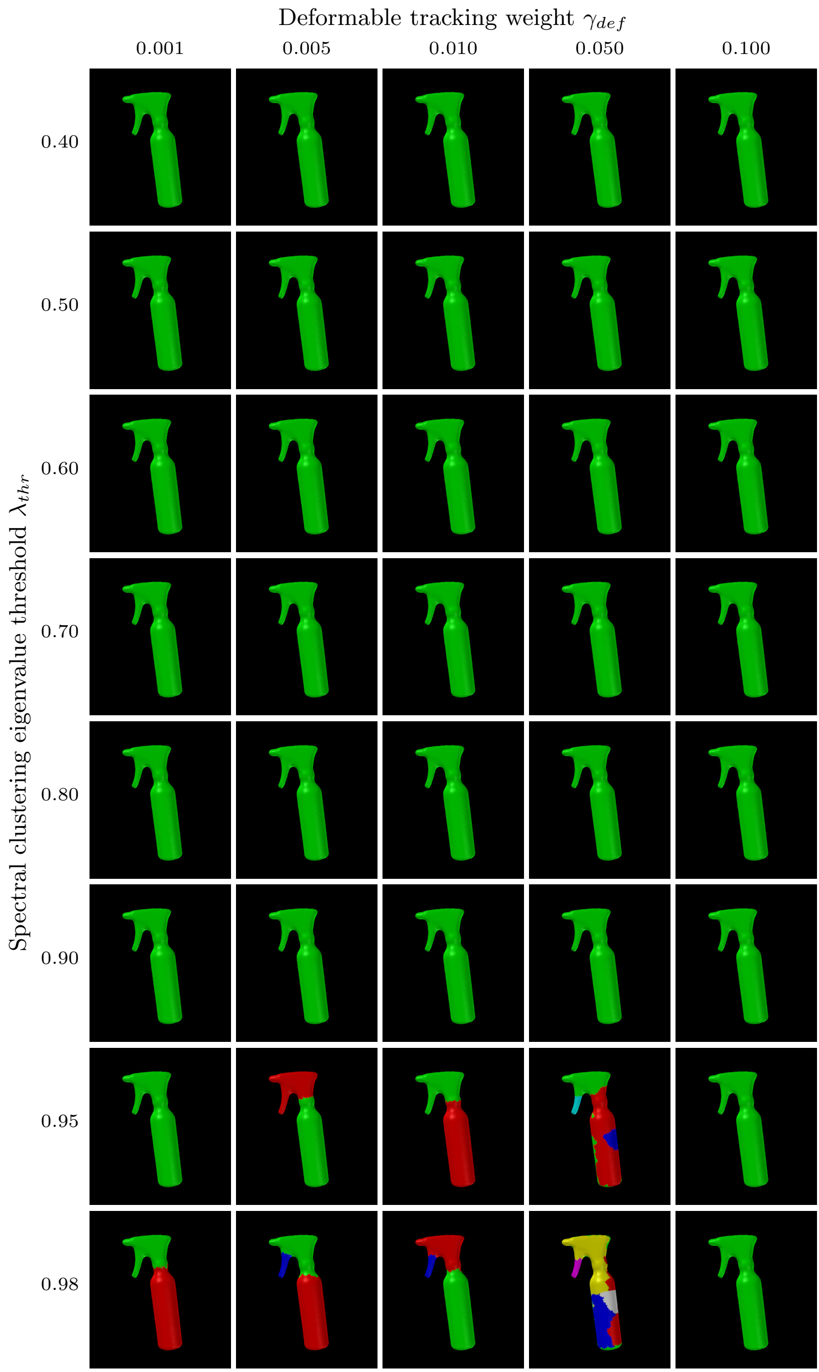

Fig. 6: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ spanning the parameter space. The images show for the object "donkey" the motion segments.

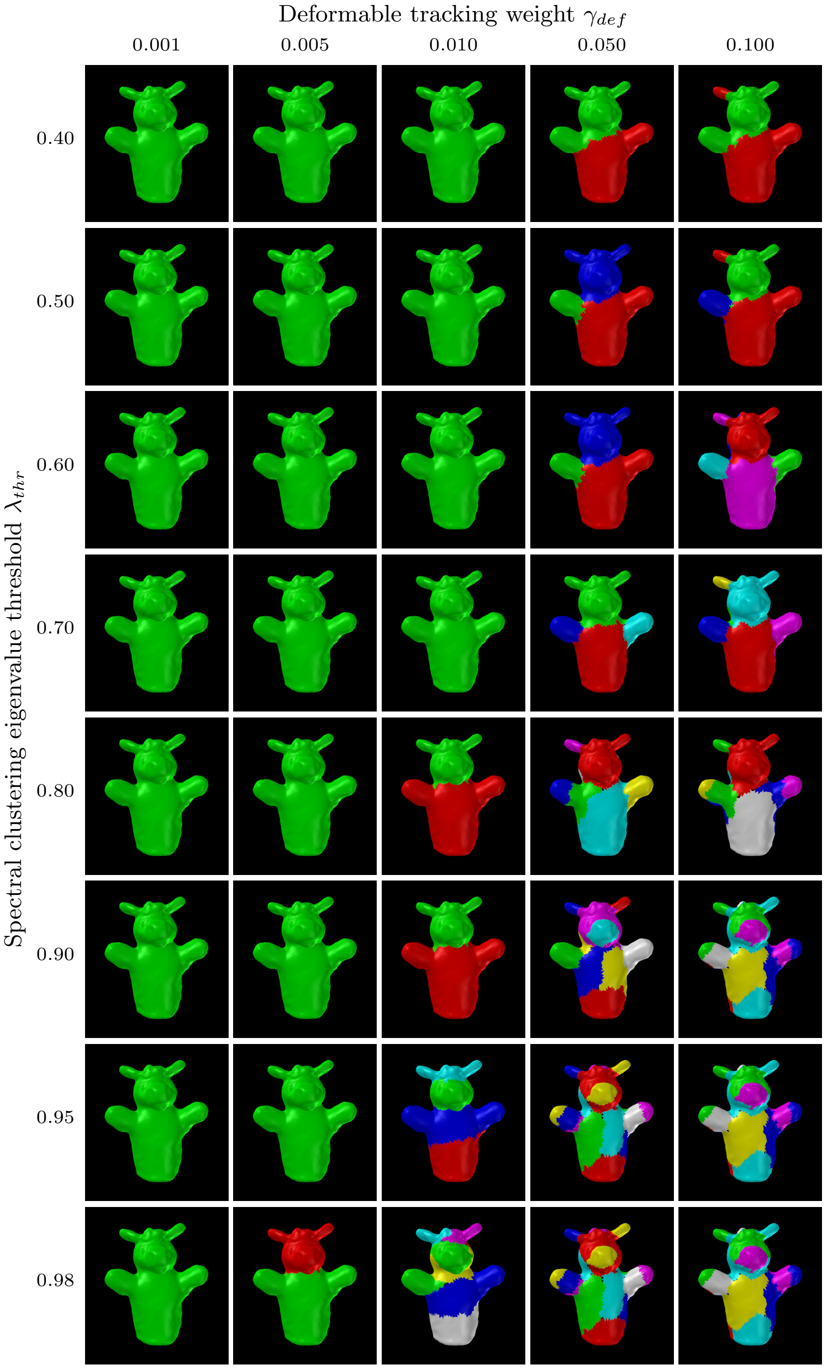

Fig. 7: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ spanning the parameter space. The images show for the object "lamp" the motion segments.

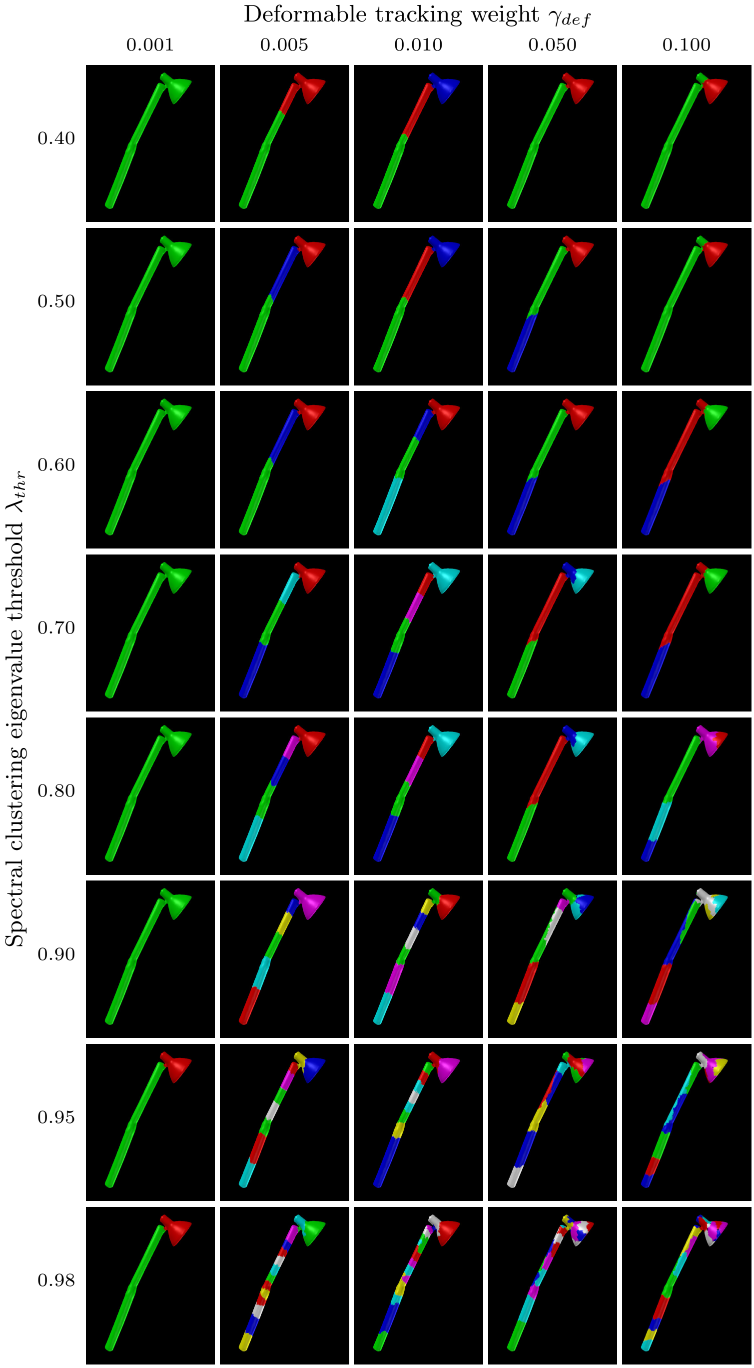

Fig. 8: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ spanning the parameter space. The images show for the object “pipe 1/2” the motion segments.

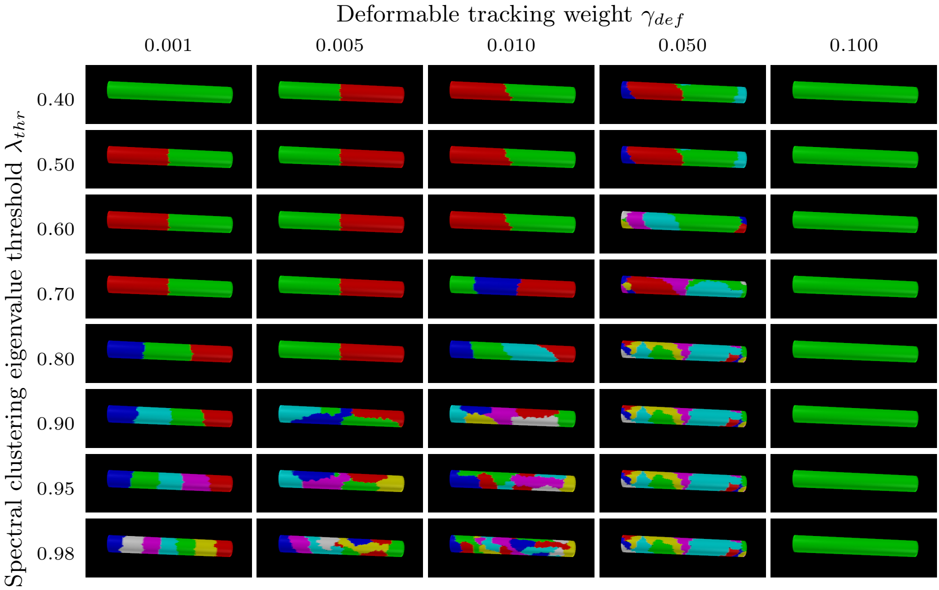

Fig. 9: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ spanning the parameter space. The images show for the object “pipe 3/4” the motion segments.

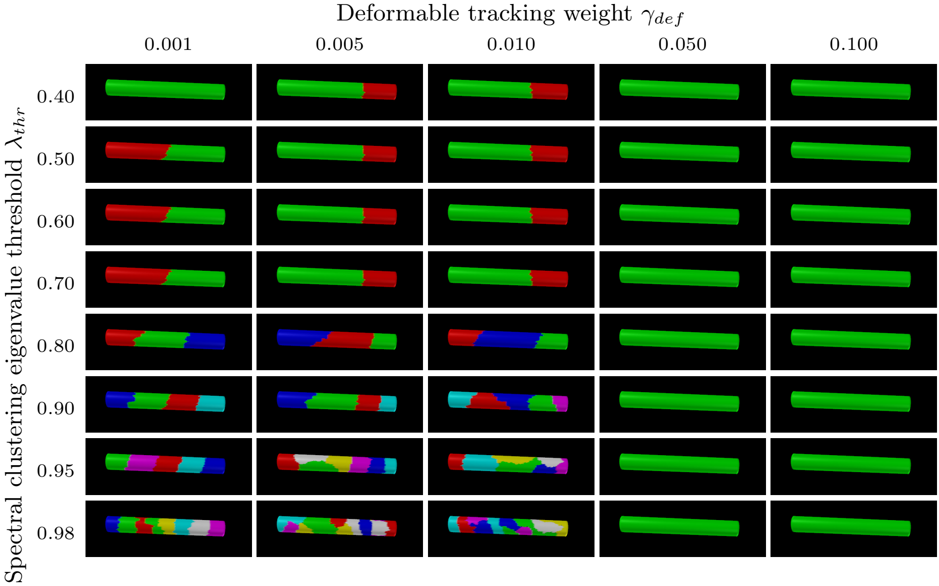

Fig. 10: Results for all configurations (γ_{def}, λ_{thr}) that arise from the proposed parameters. The images show for the object "spray" the inferred 3d skeleton, where the joints with DoF are depicted with red color.

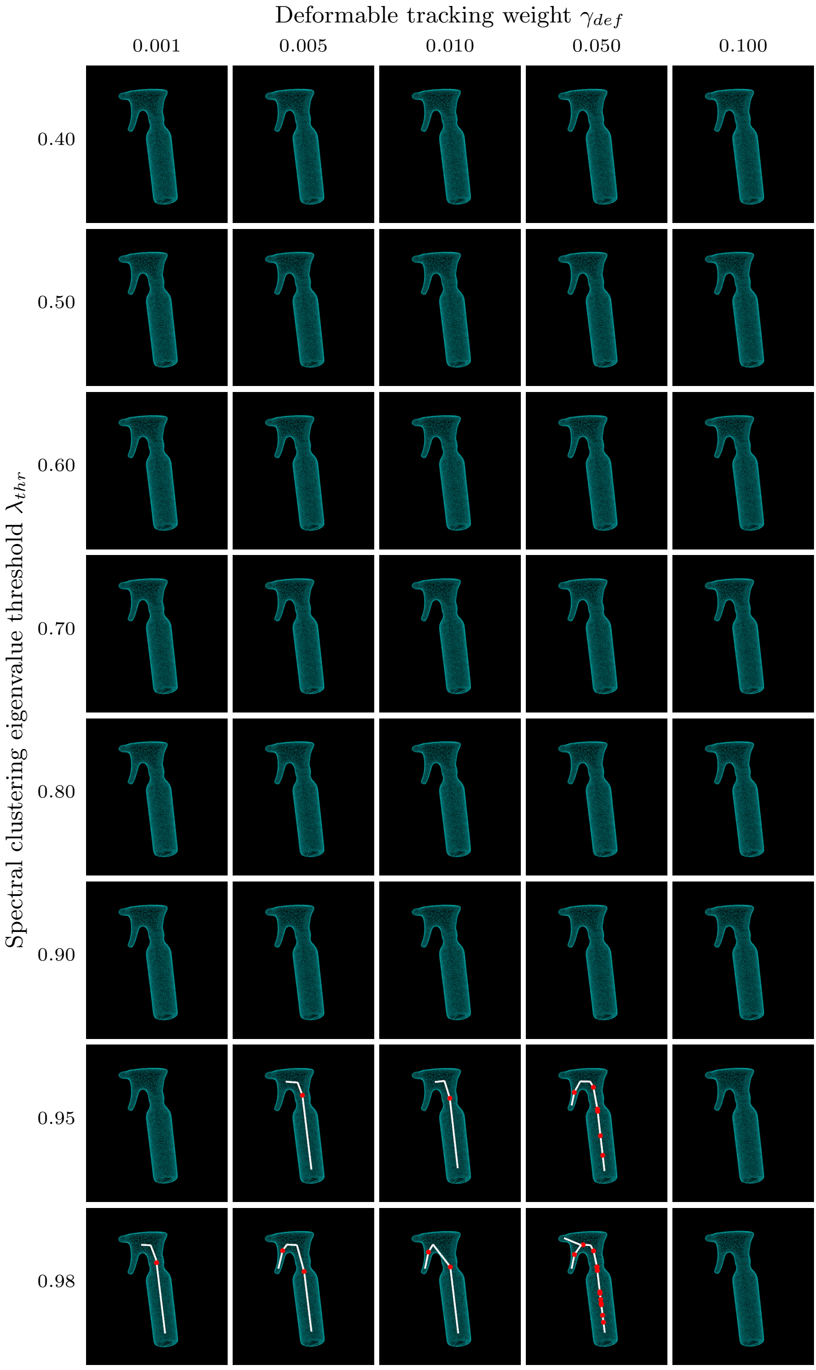

Fig. 11: Results for all configurations (γ_{def}, λ_{thr}) that arise from the proposed parameters. The images show for the object “donkey” the inferred 3d skeleton, where the joints with DoF are depicted with red color.

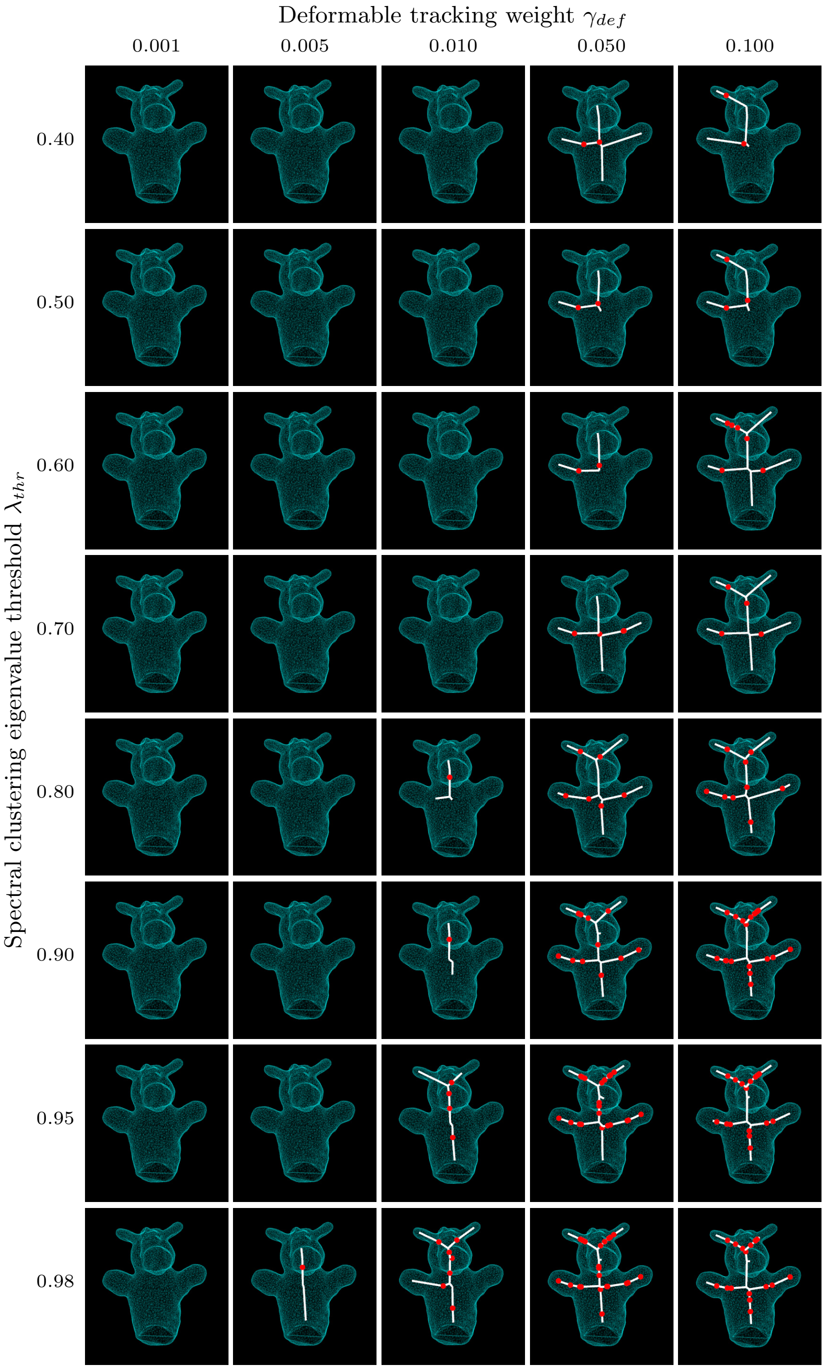

Fig. 12: Results for all configurations (γ_{def}, λ_{thr}) that arise from the proposed parameters. The images show for the object "lamp" the inferred 3d skeleton, where the joints with DoF are depicted with red color.

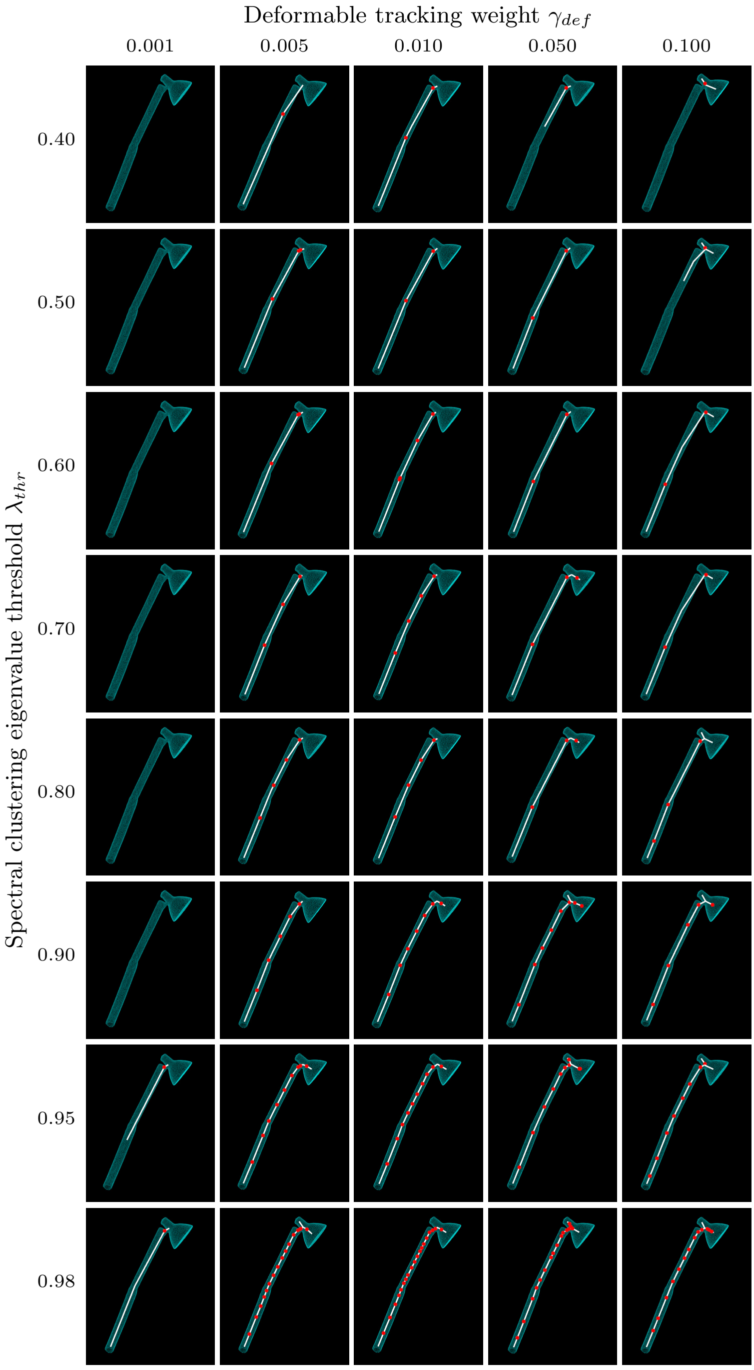

Fig. 13: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ that arise from the proposed parameters. The images show for the object "pipe 1/2" the inferred 3d skeleton, where the joints with DoF are depicted with red color.

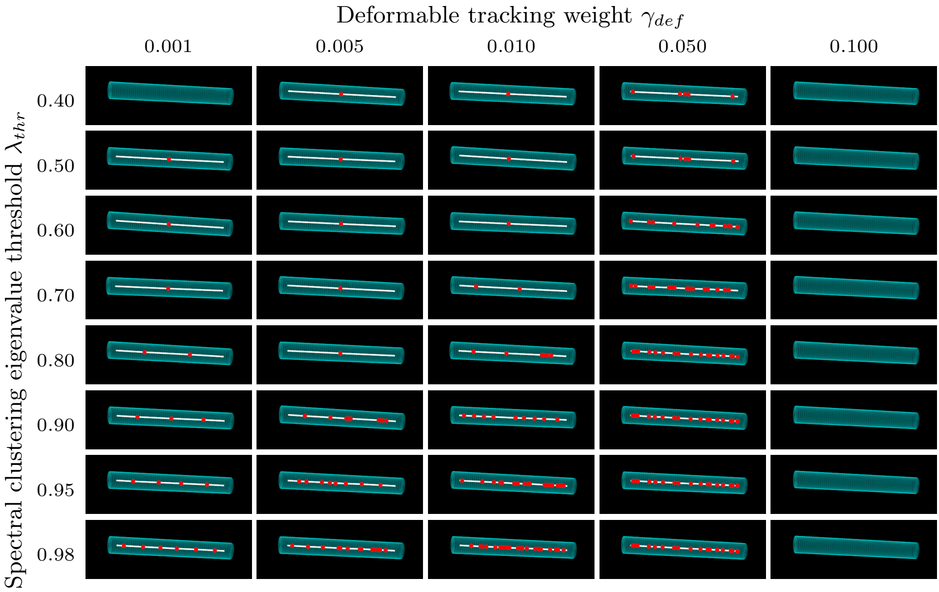

Fig. 14: Results for all configurations $(\gamma_{def},\ \lambda_{thr})$ that arise from the proposed parameters. The images show for the object "pipe 3/4" the inferred 3d skeleton, where the joints with DoF are depicted with red color.