

# Unsupervised Intuitive Physics from Visual Observations

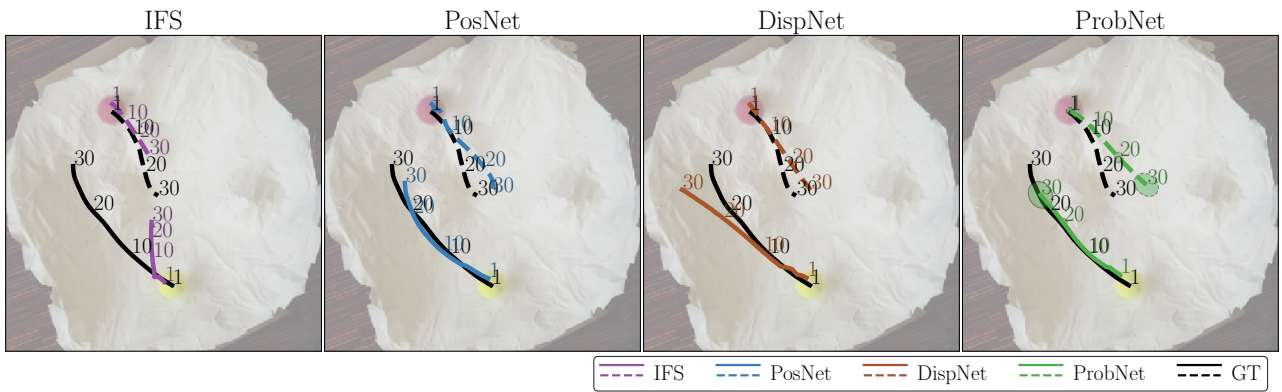
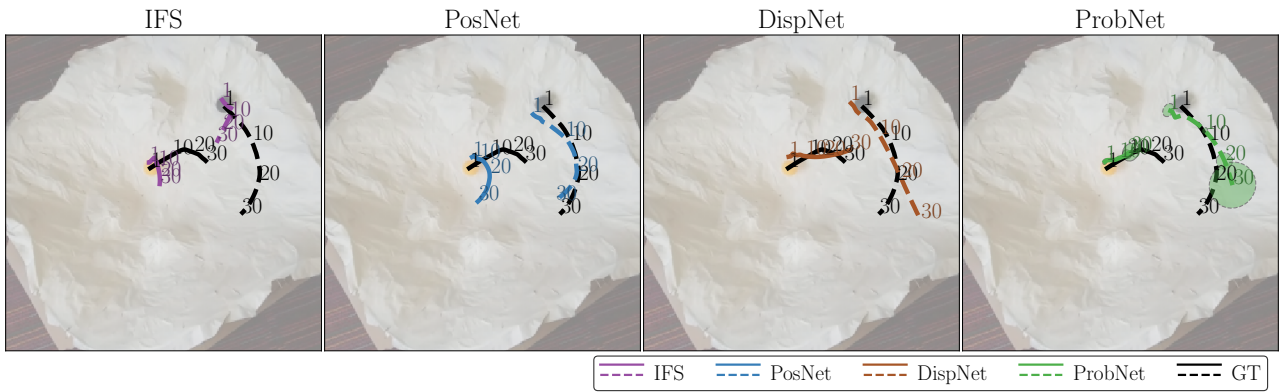
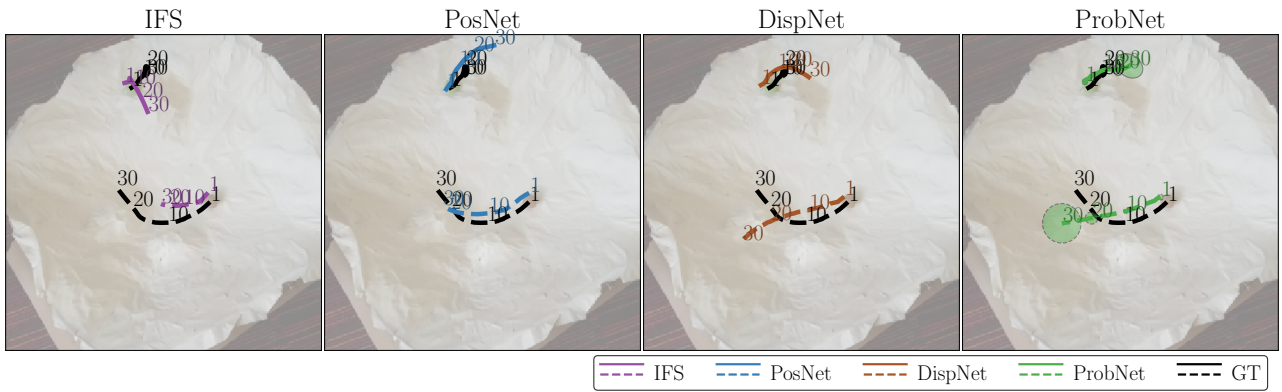
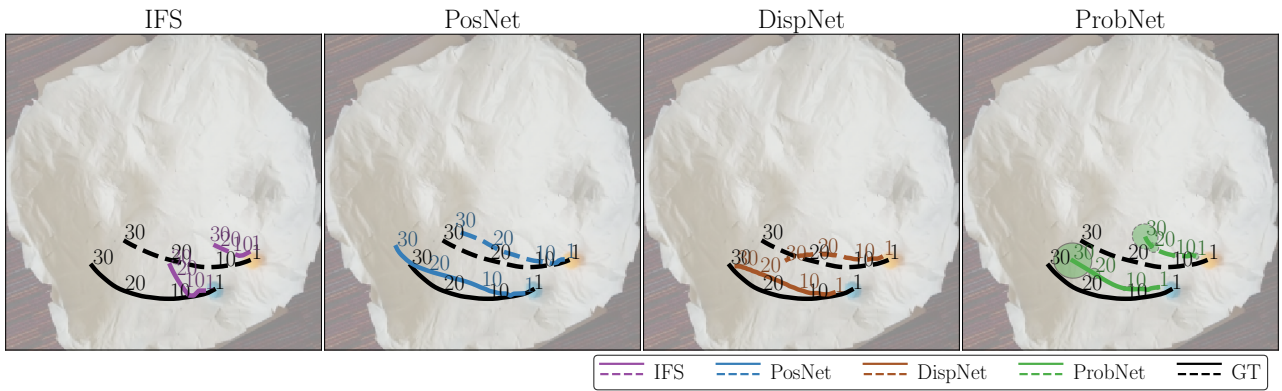
Extrapolation results (qualitative) on the previously unseen *test* sets from the ROLL4REAL (R4R) dataset. For the corresponding quantitative results, please see the tables in the paper.

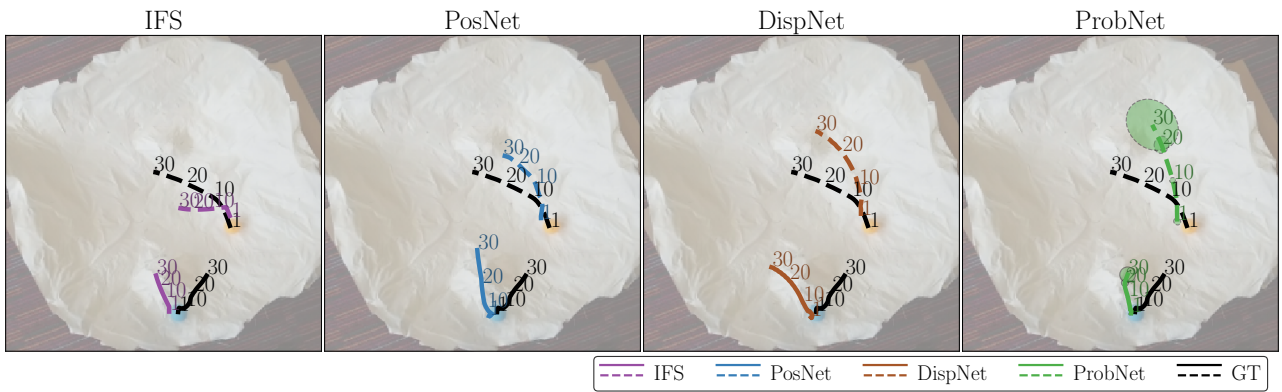
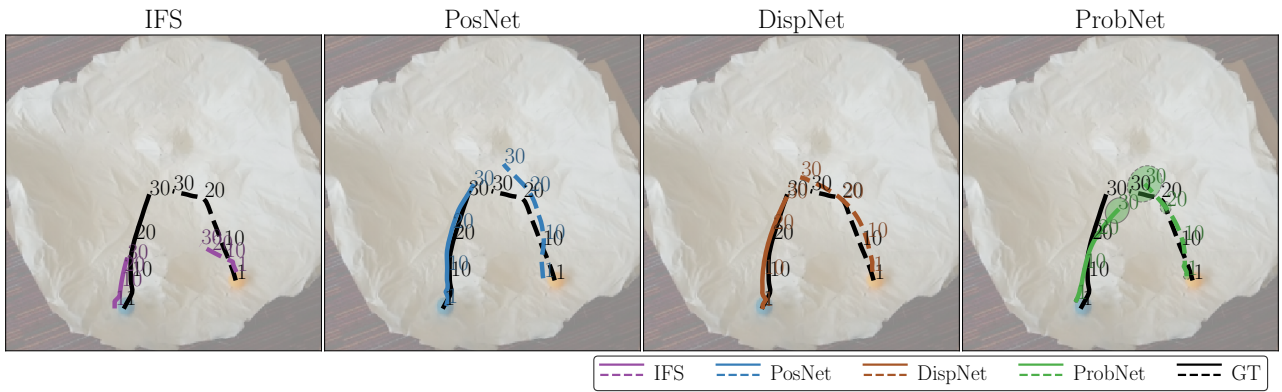
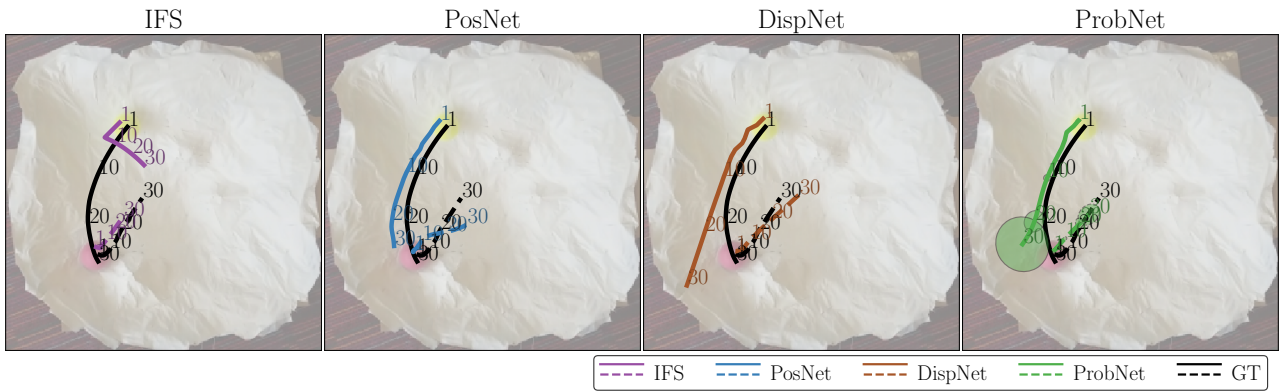
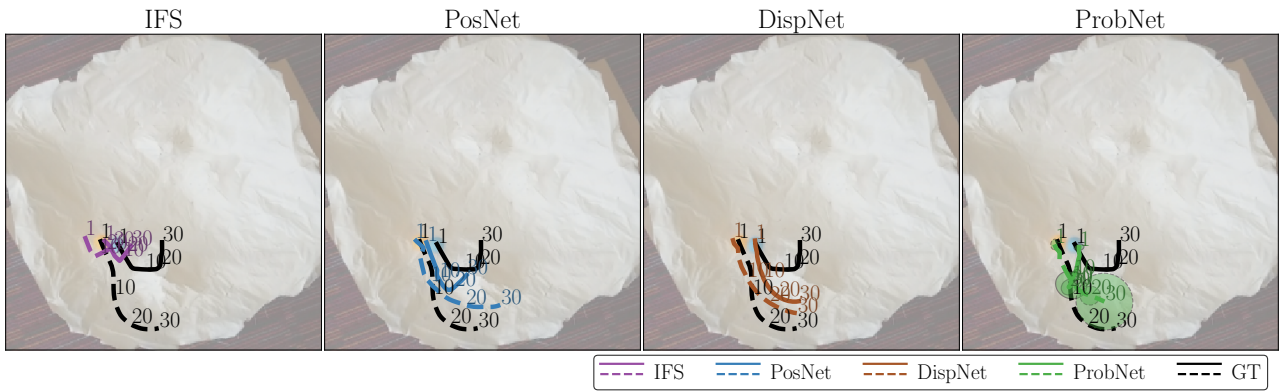
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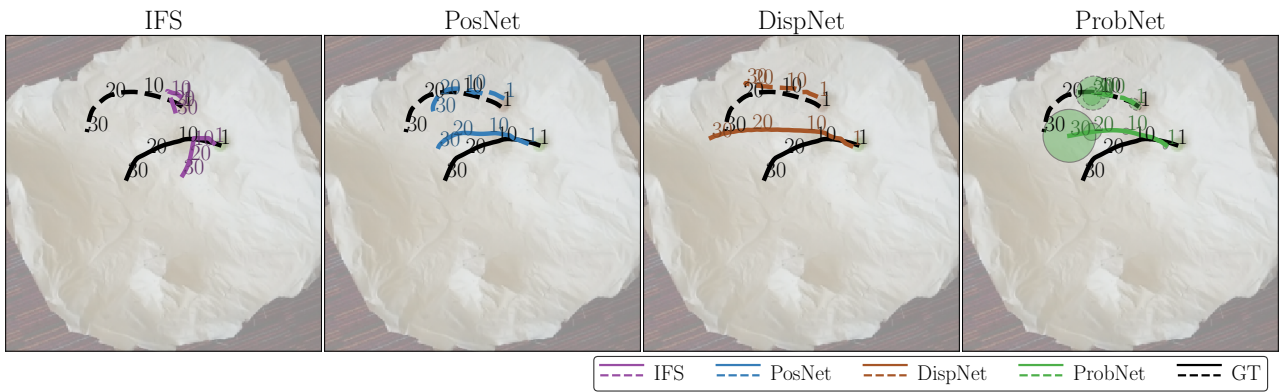
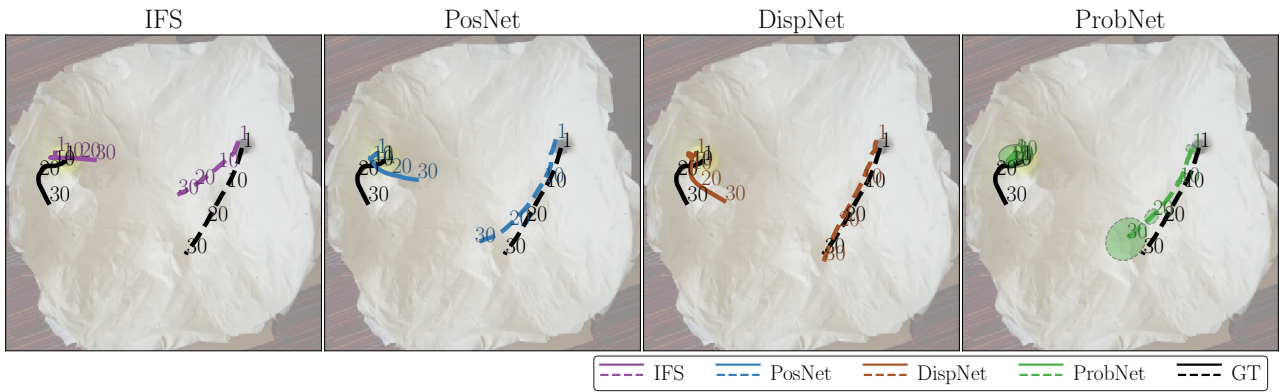
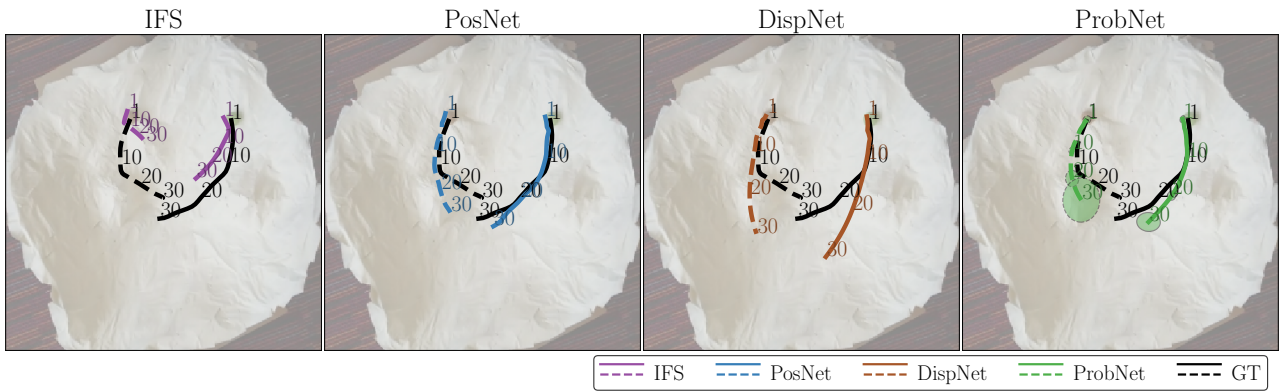
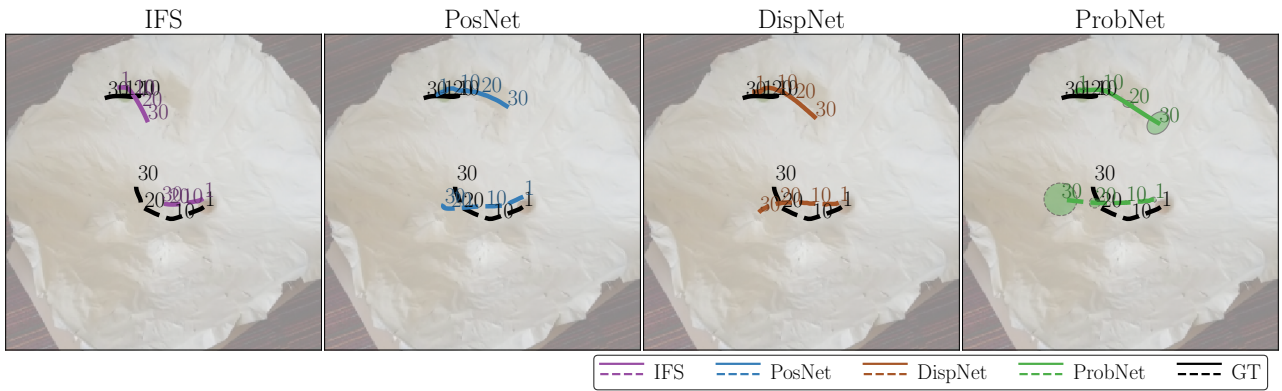
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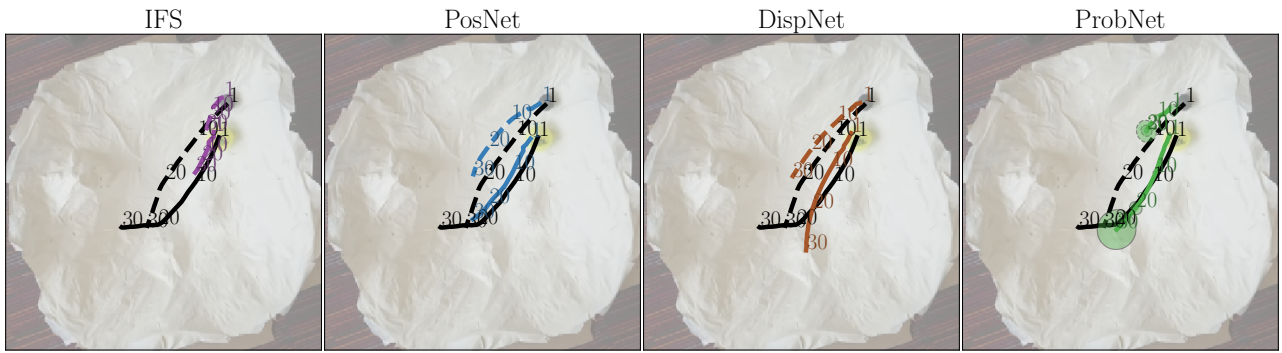
# 1 Real heightfield 2balls (HEIGHTR 2b.)



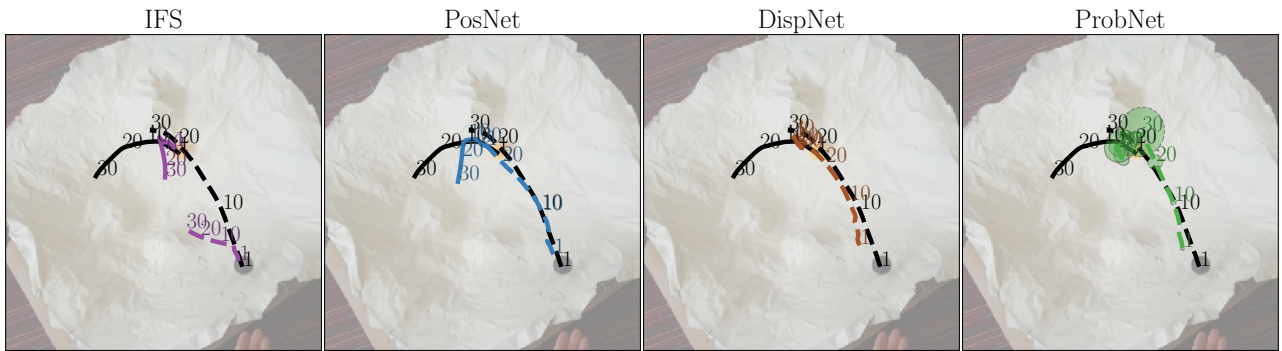




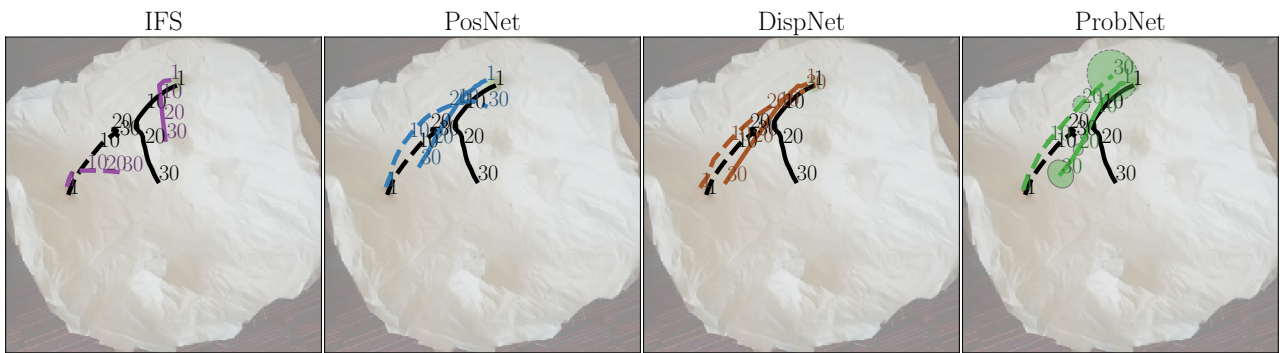




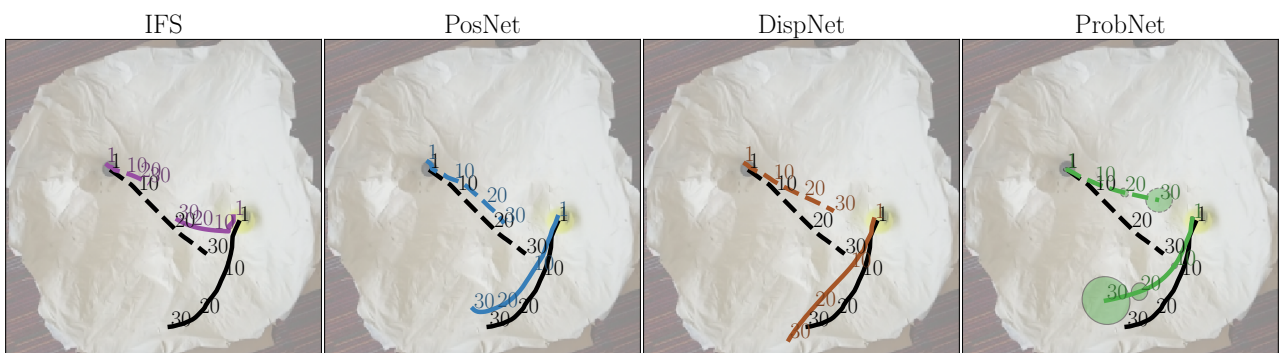
IFS PosNet DispNet ProbNet GT



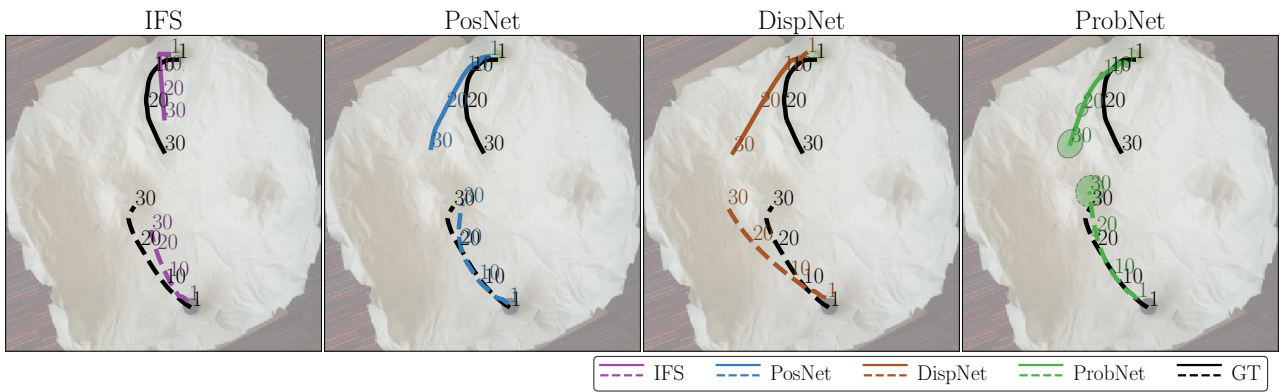
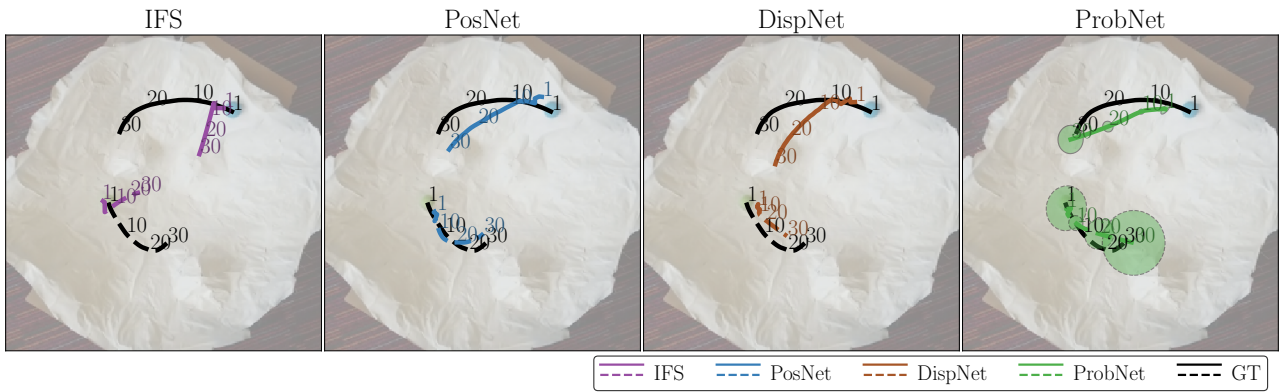
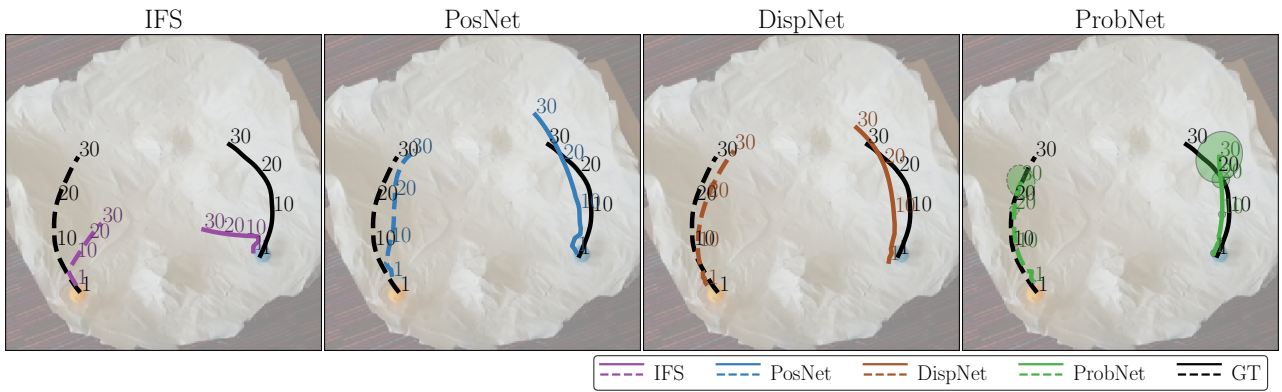
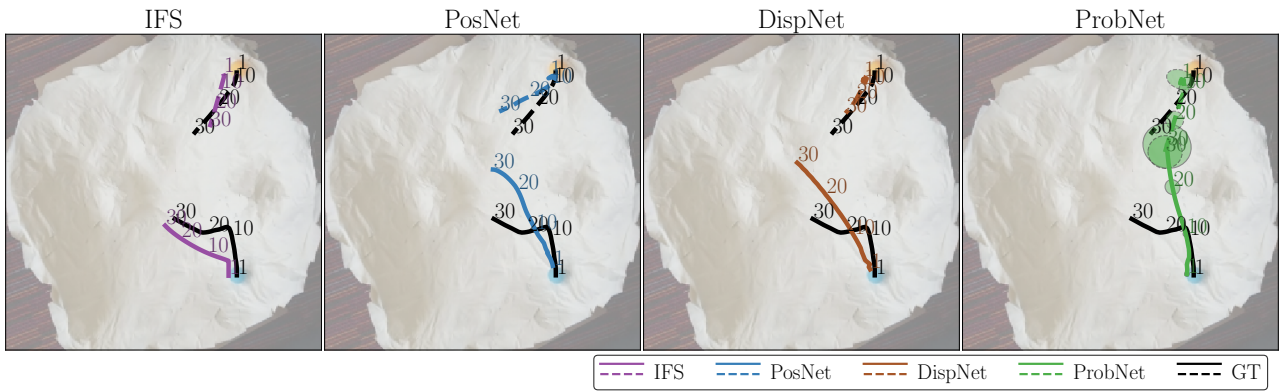
IFS PosNet DispNet ProbNet GT

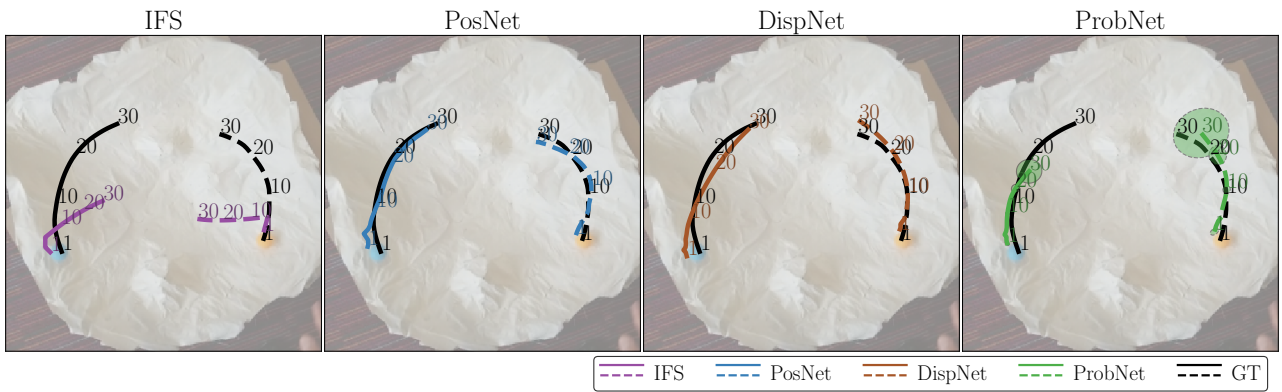
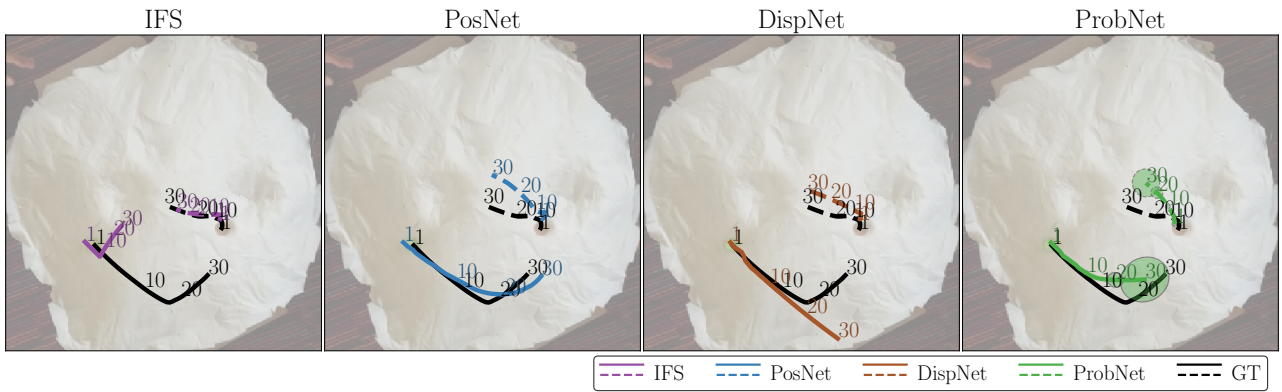
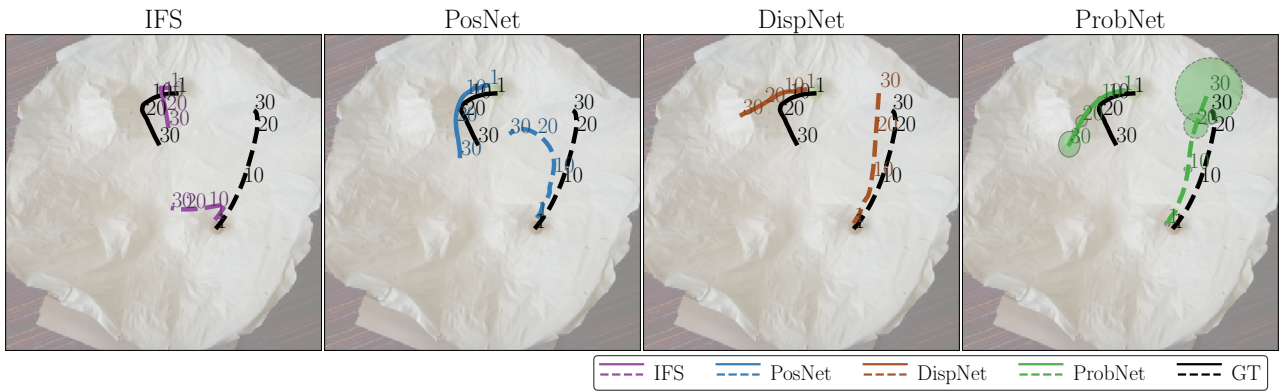
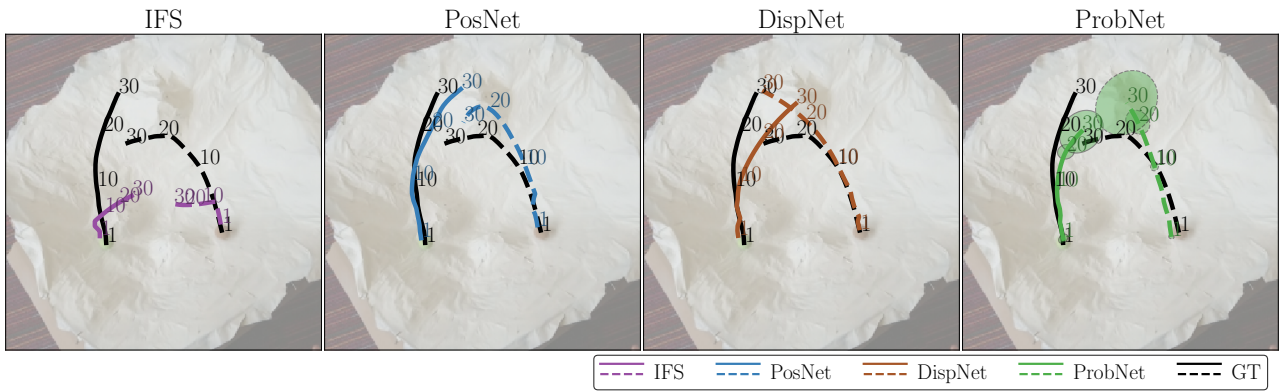


IFS PosNet DispNet ProbNet GT



IFS PosNet DispNet ProbNet GT

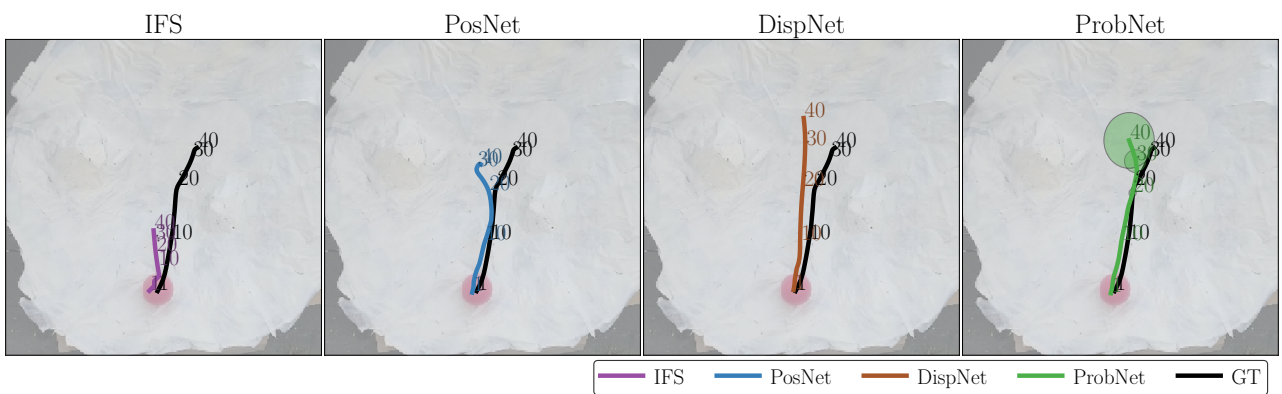
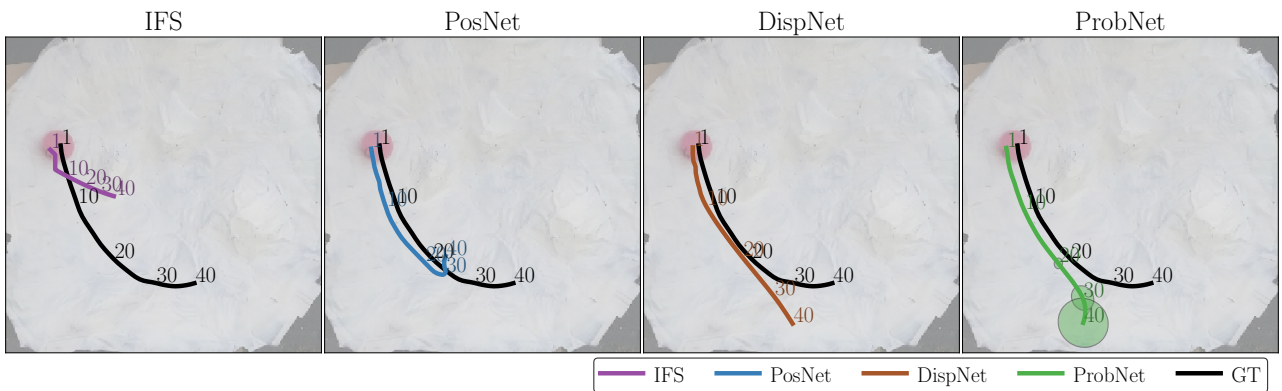
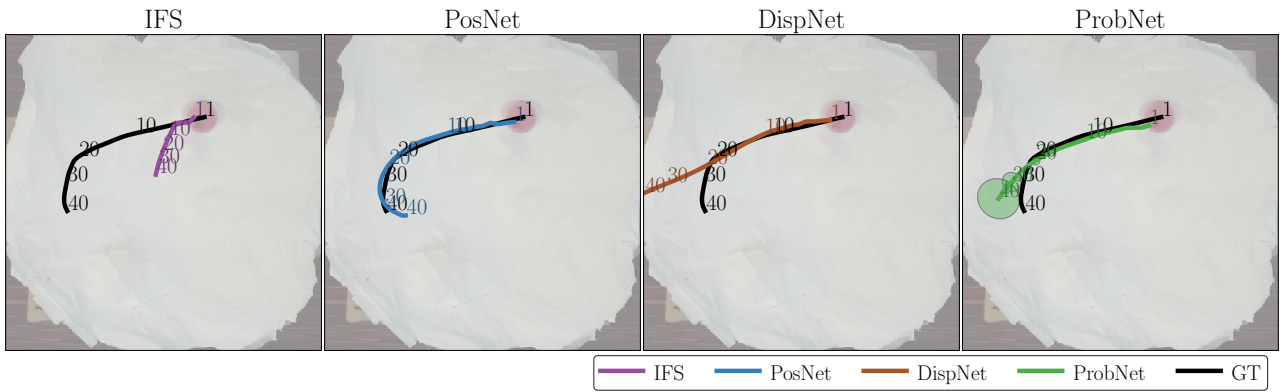
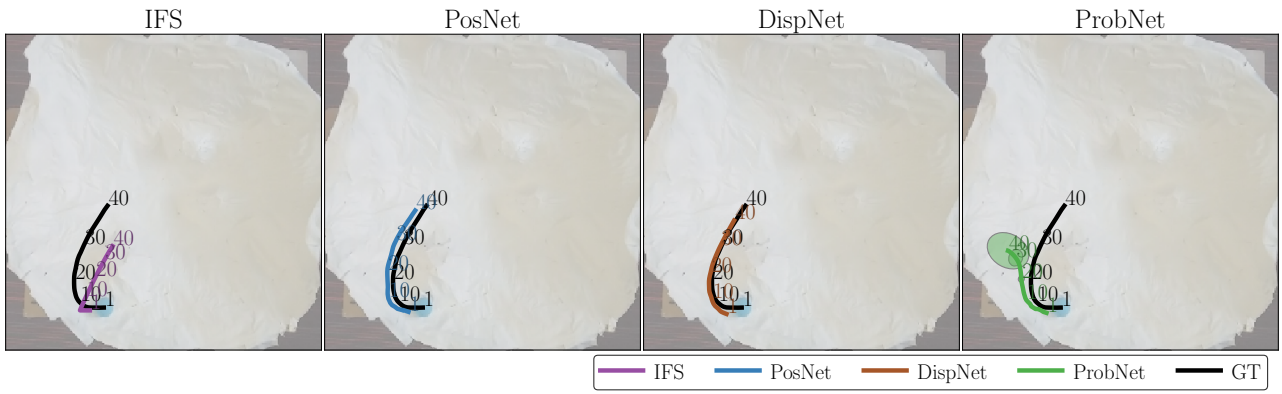


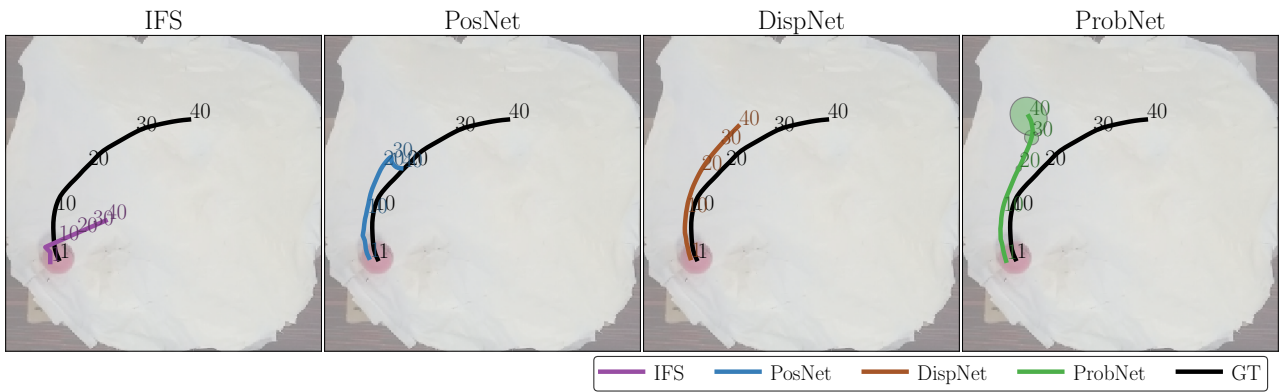
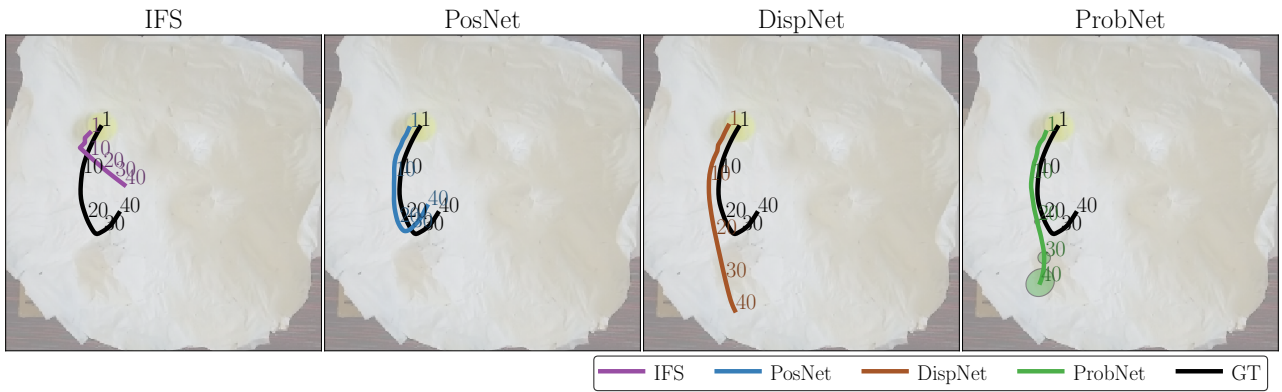
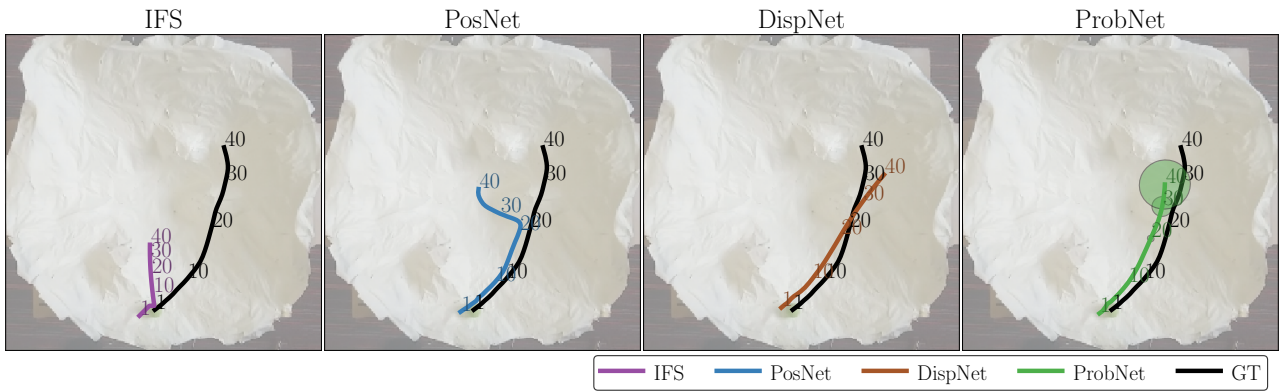
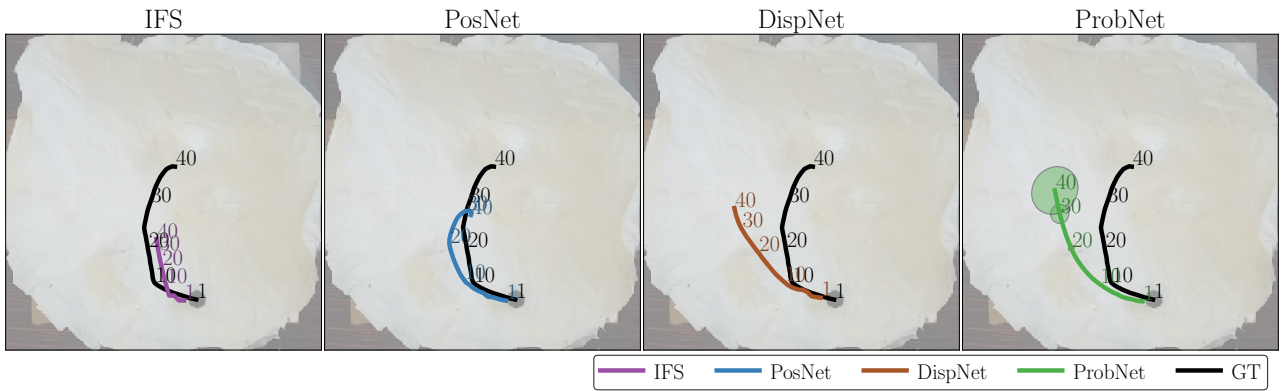


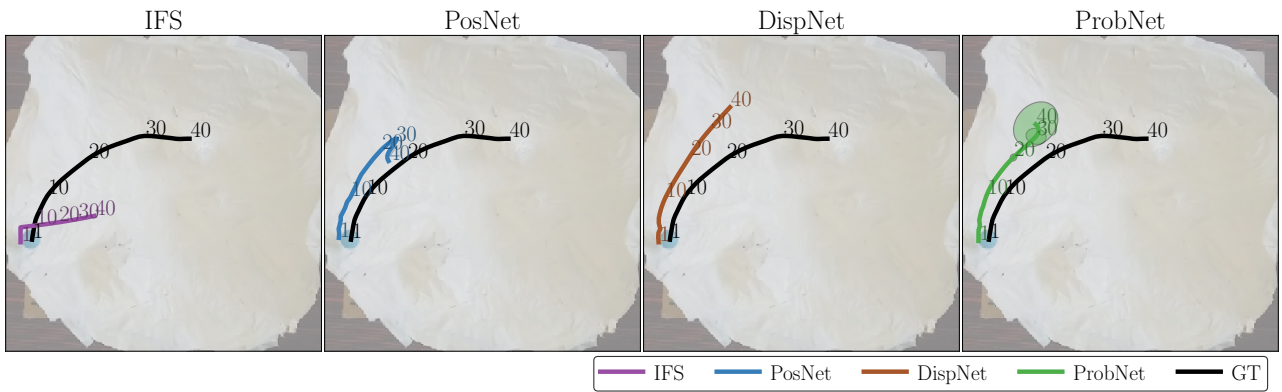
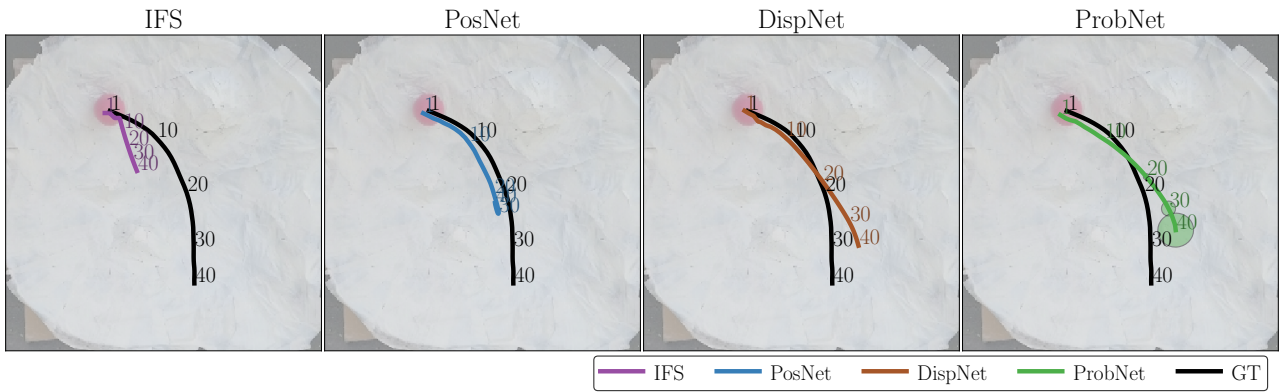
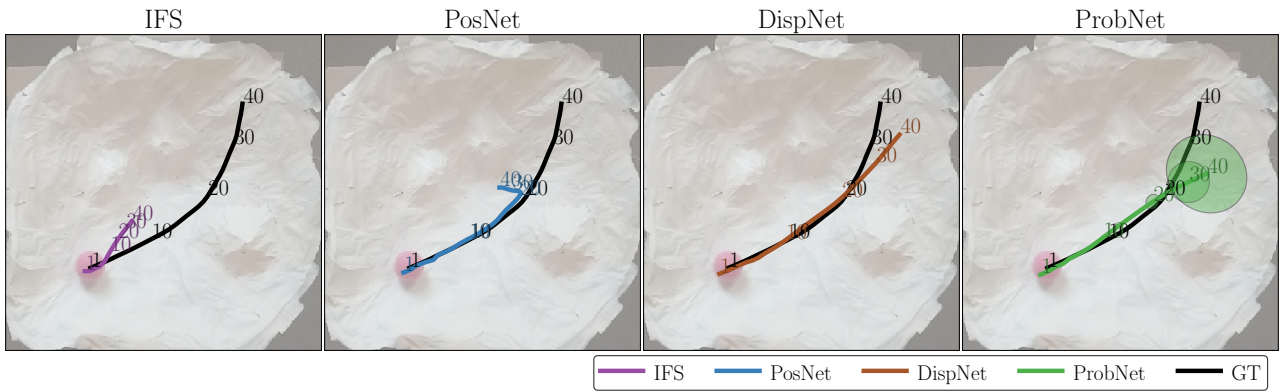
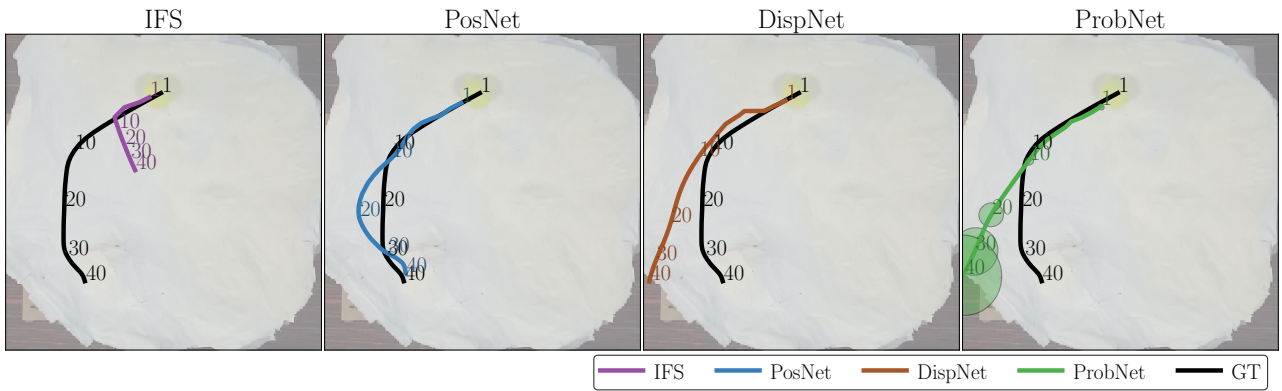


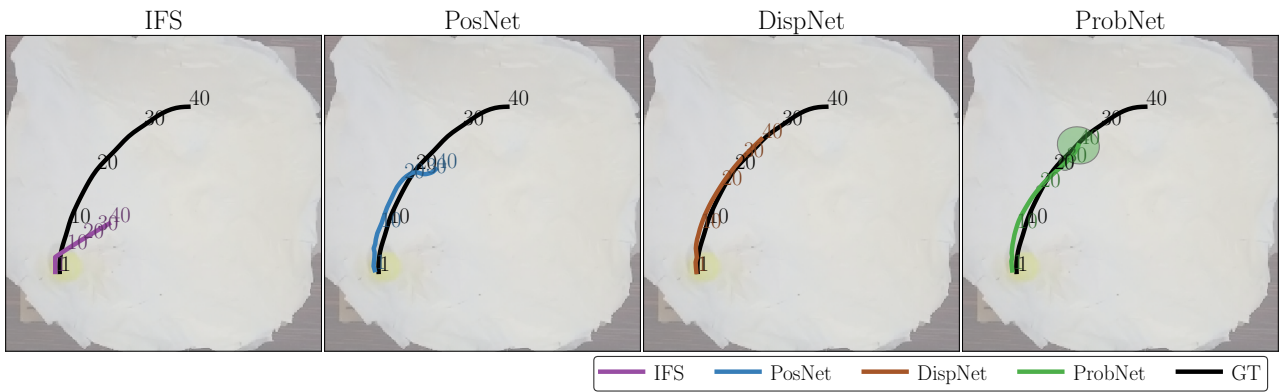
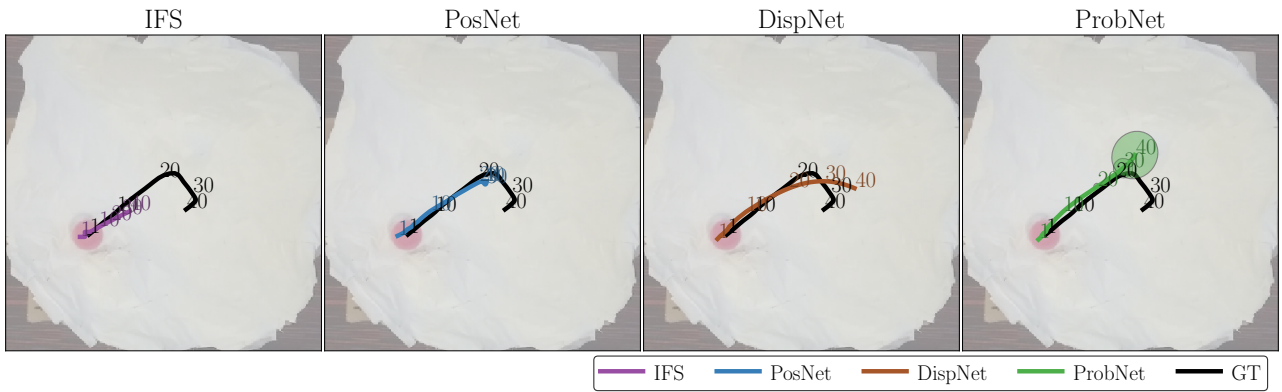
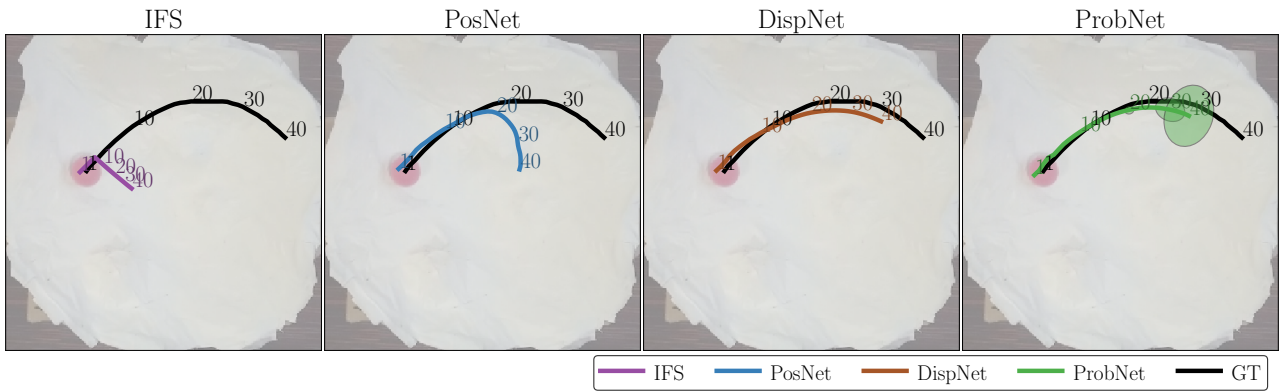
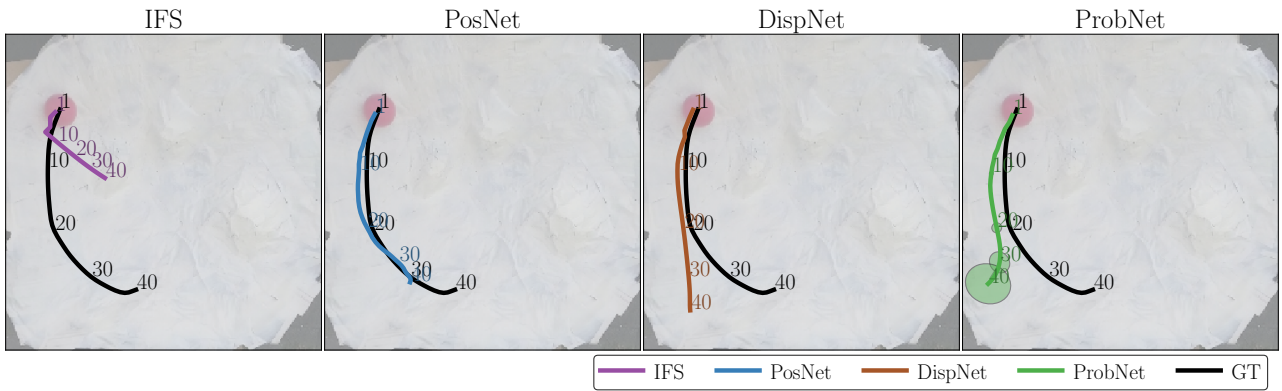
## 2 Real heightfield 1ball (HEIGHTR 1b.)

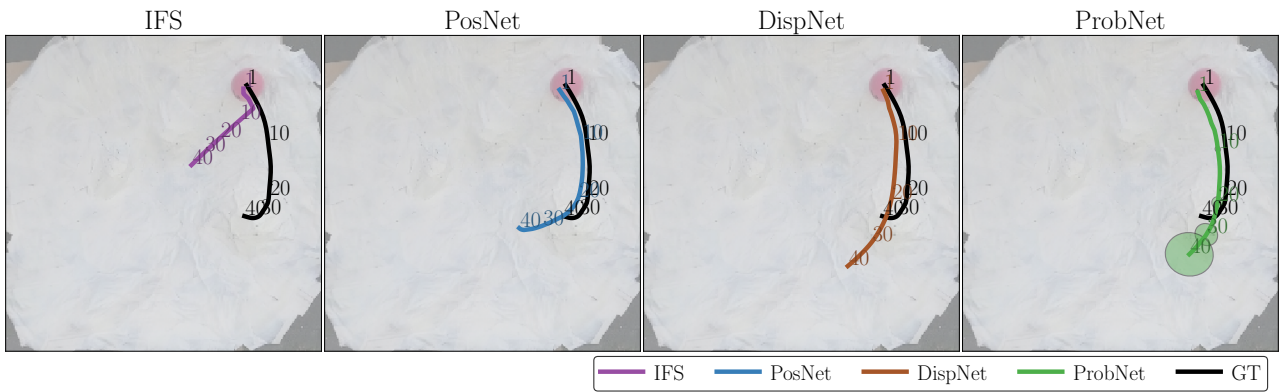
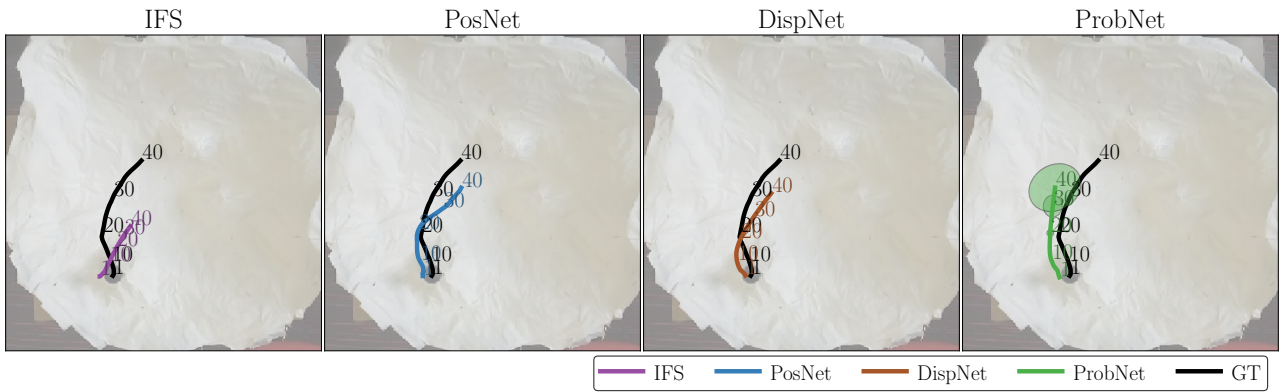
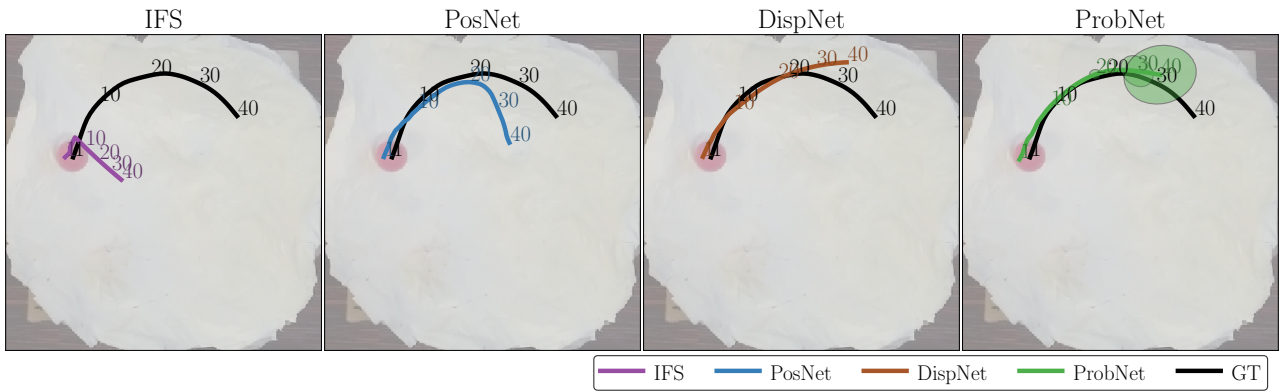
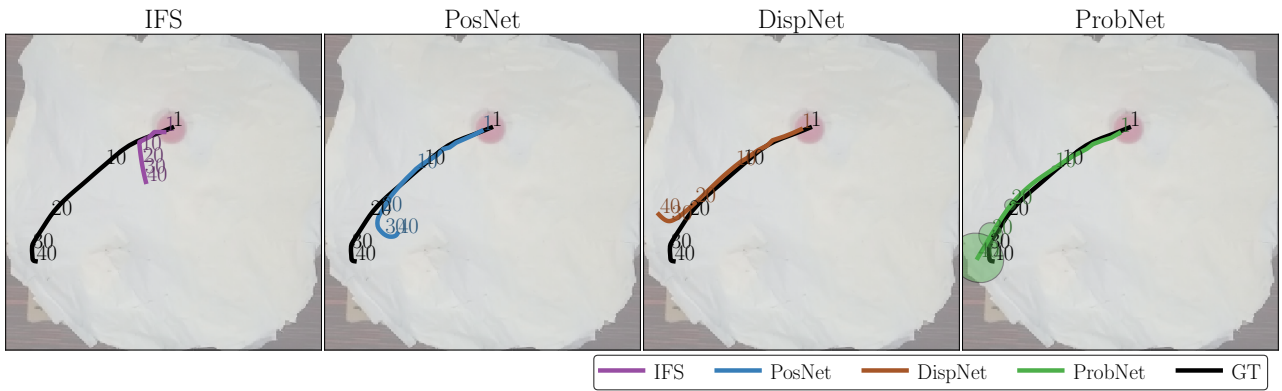


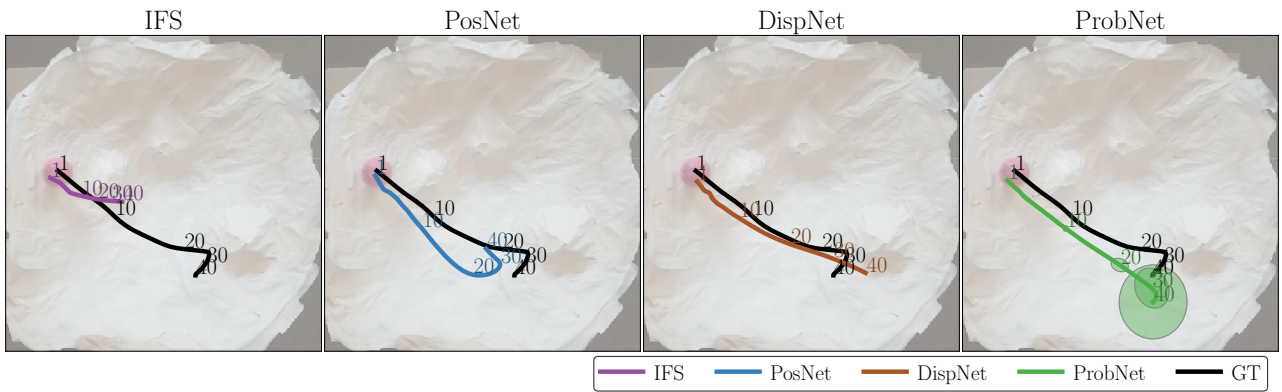
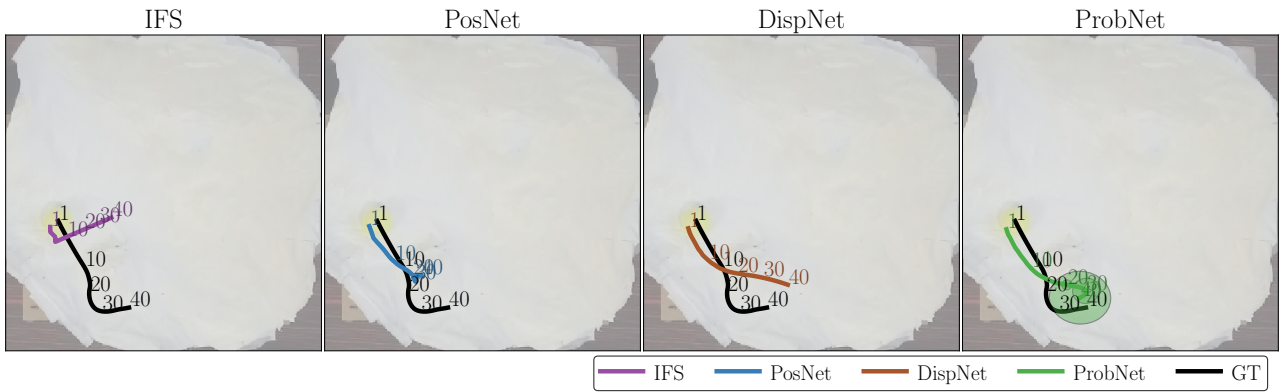
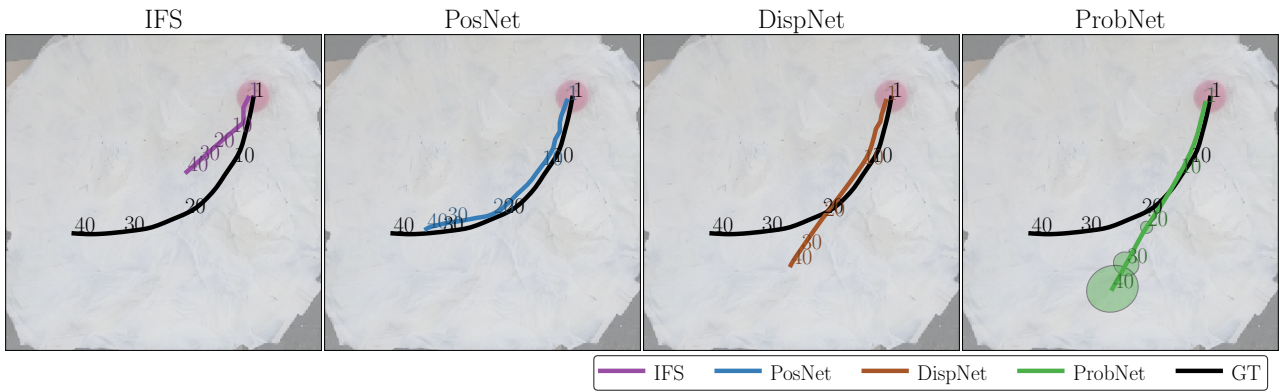
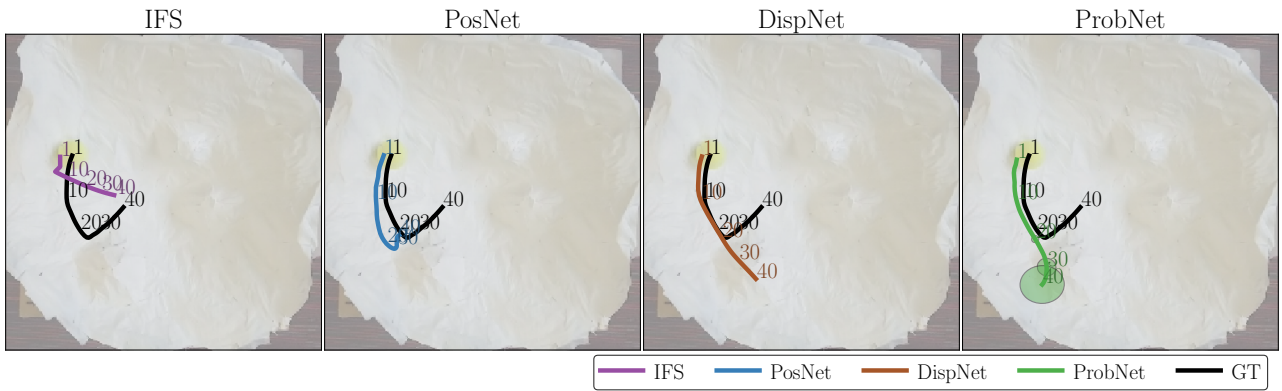


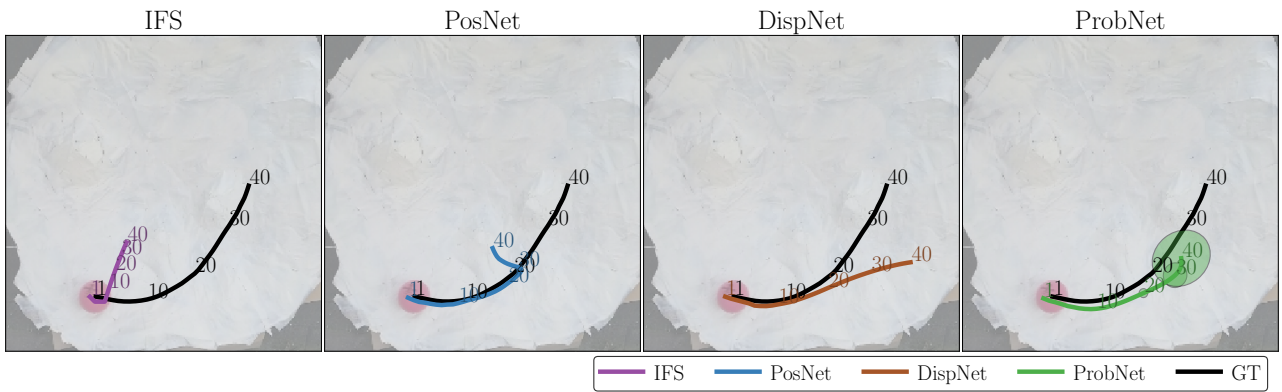
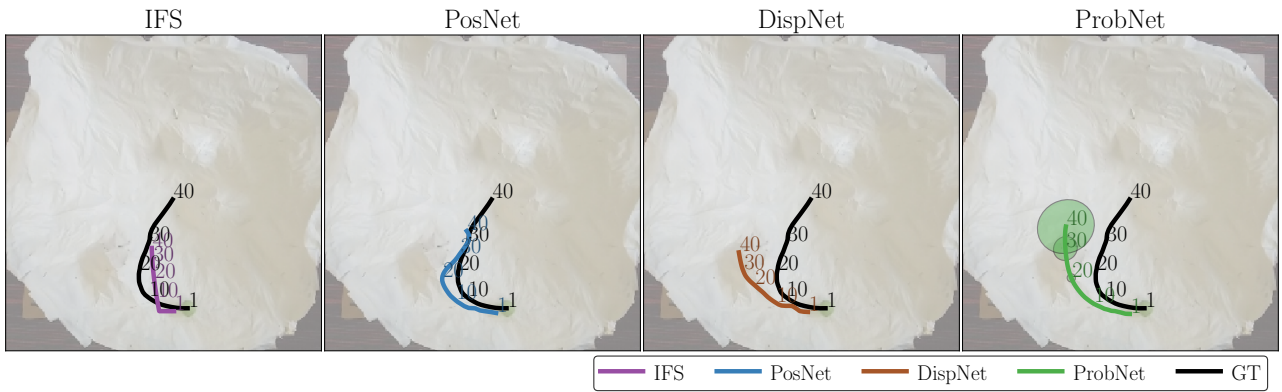
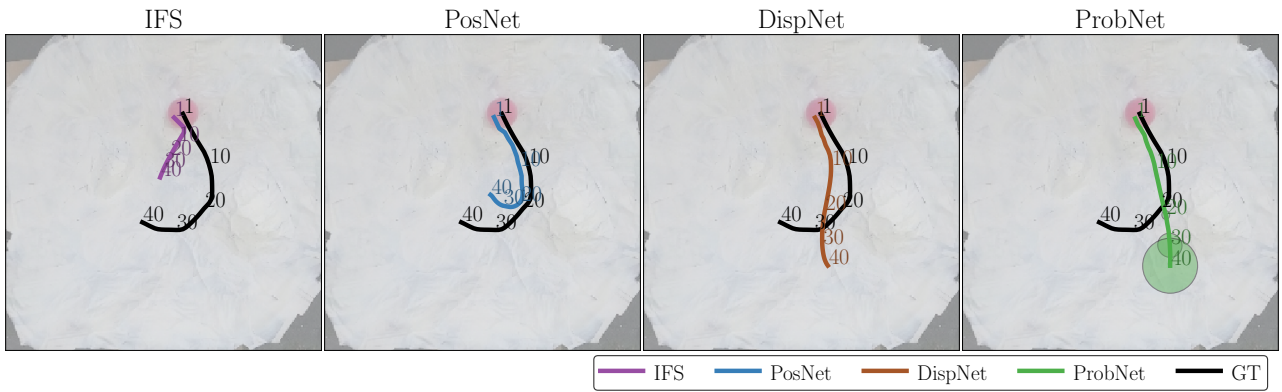
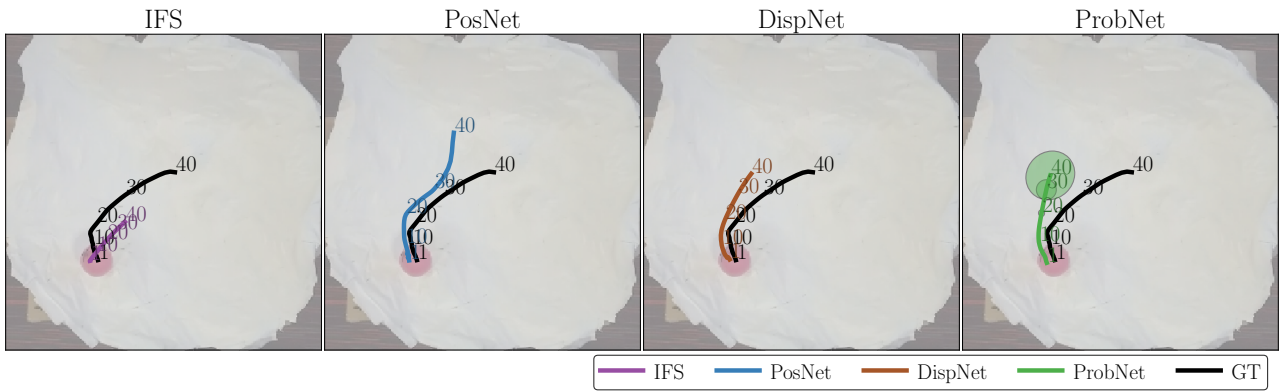




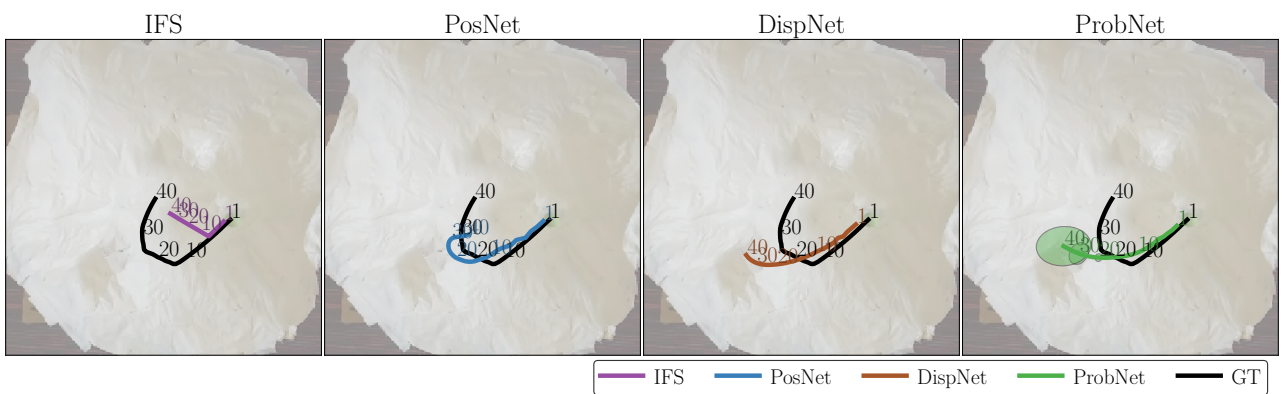
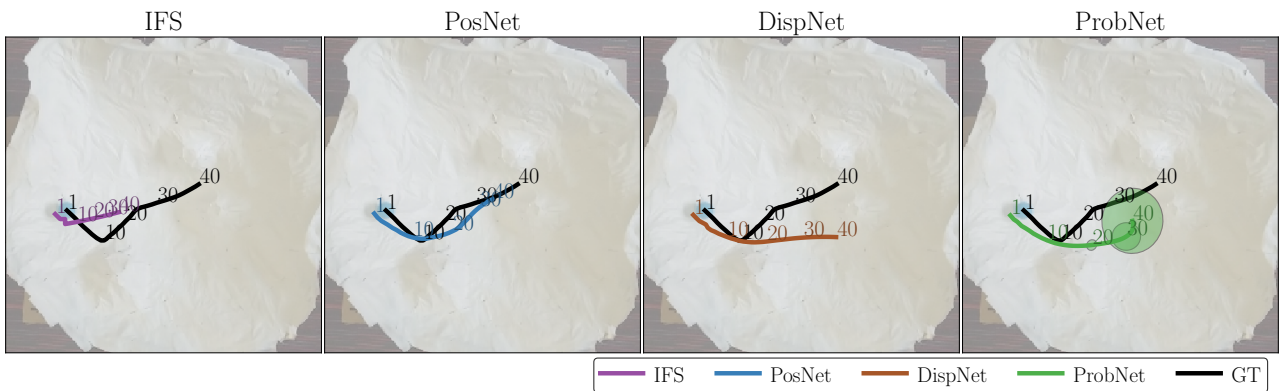
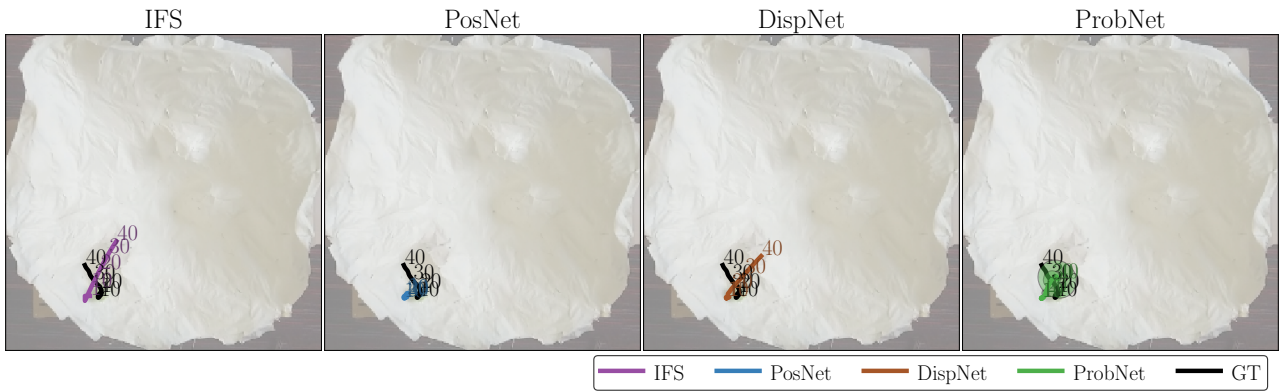
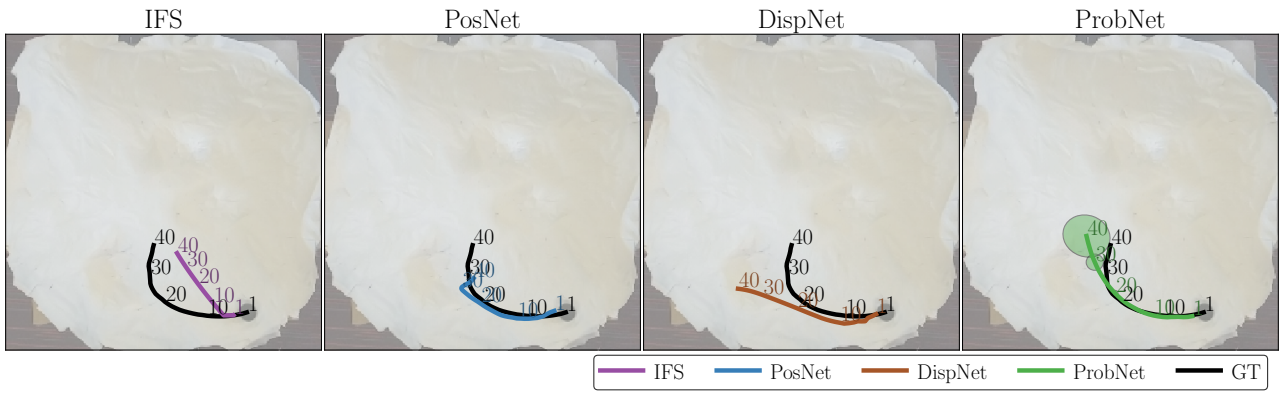


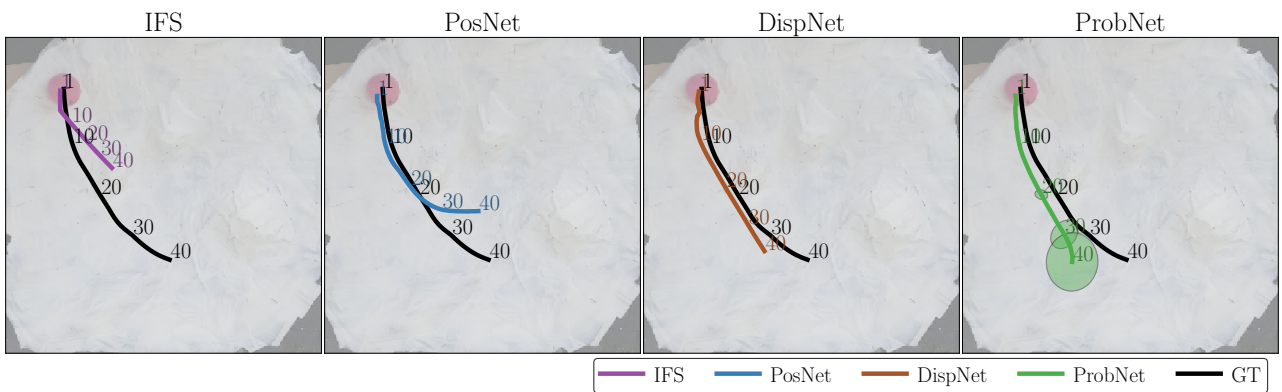
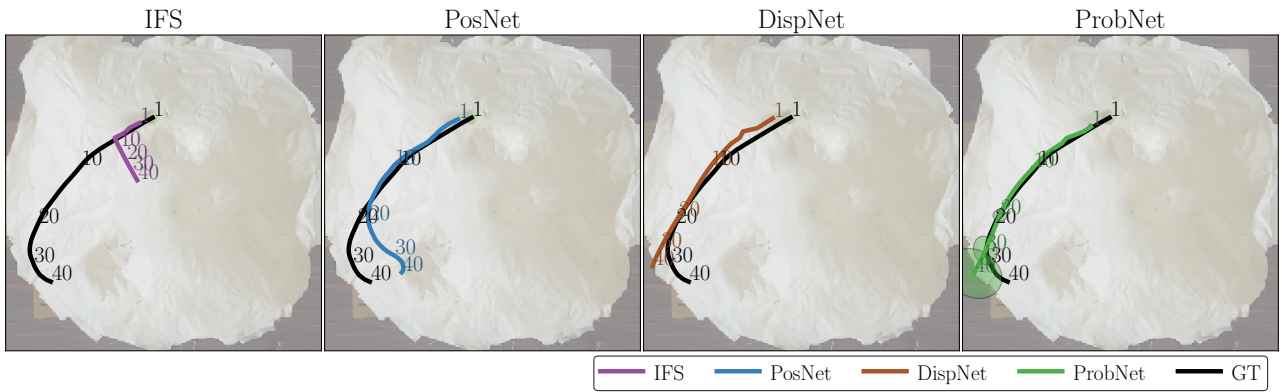
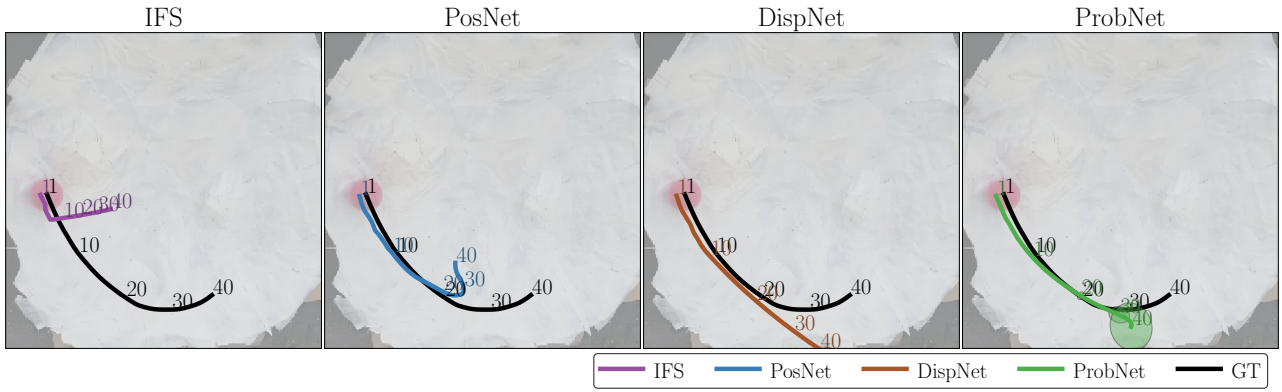
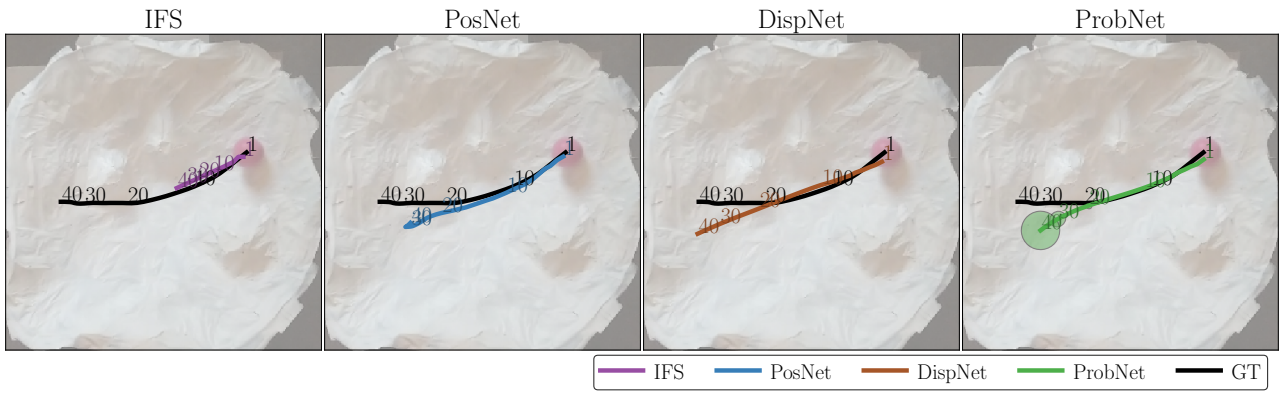


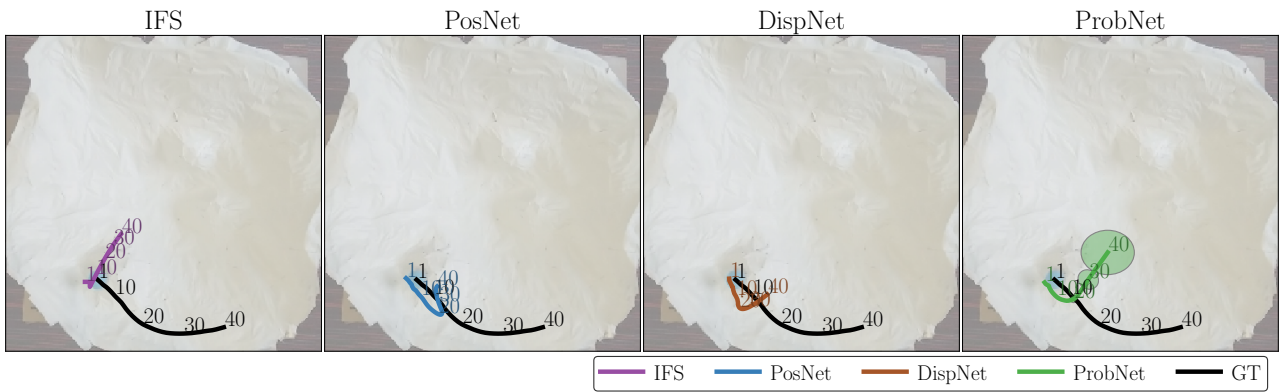
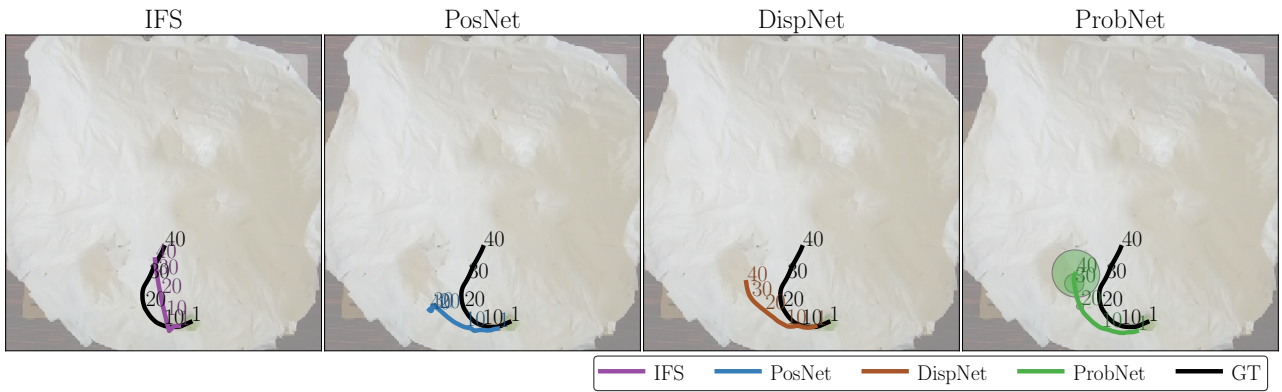
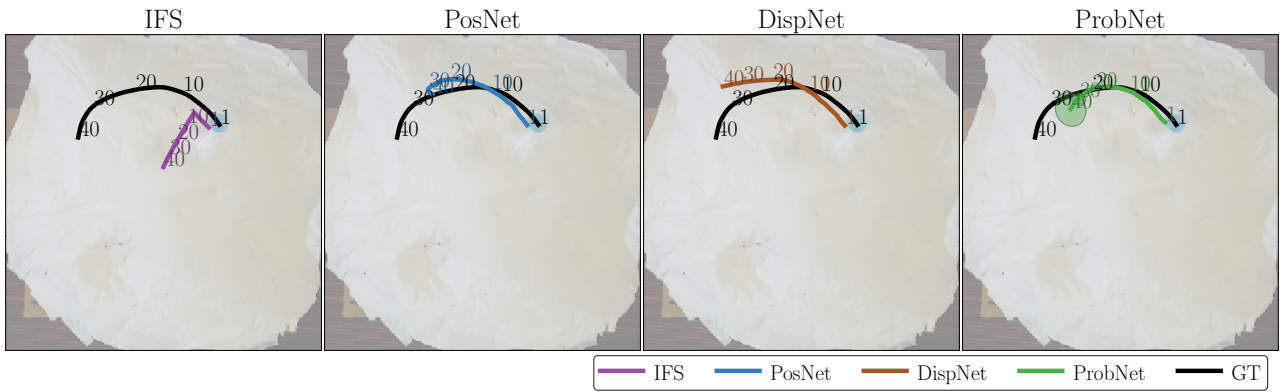
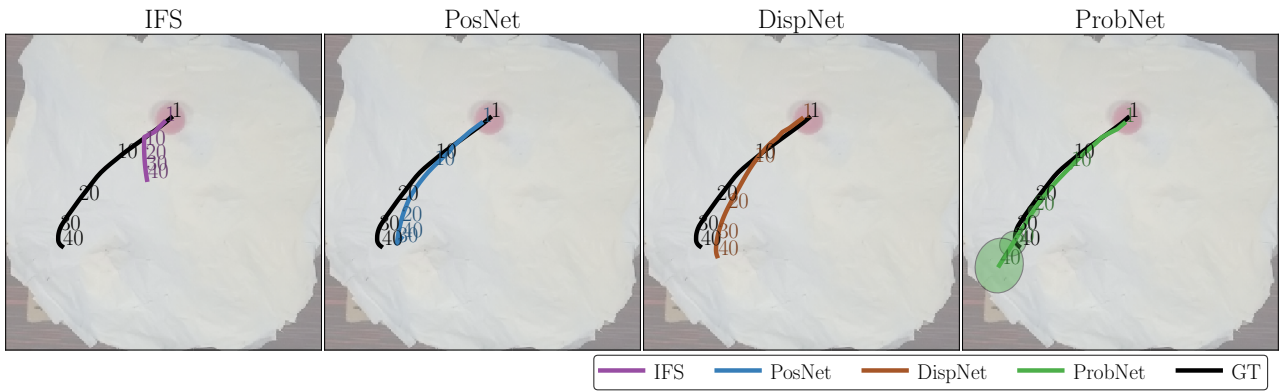


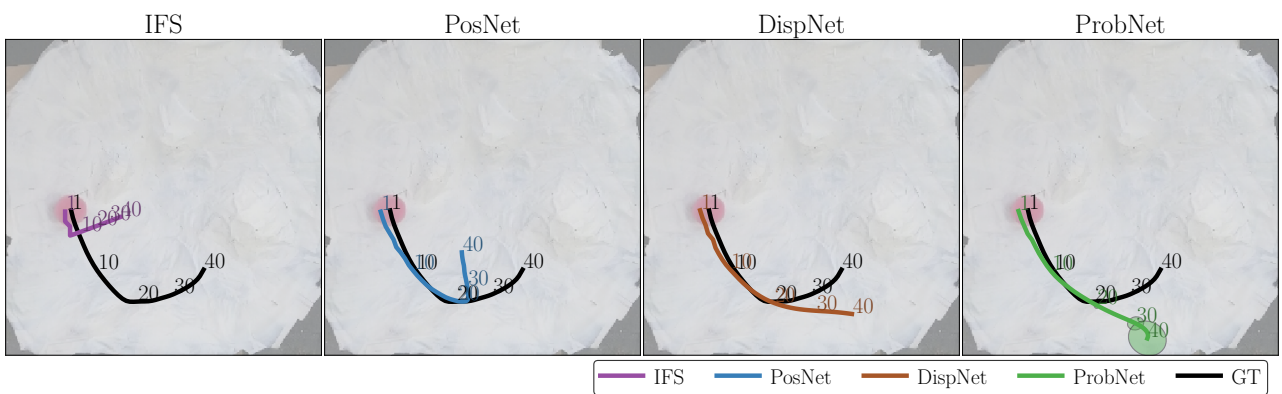
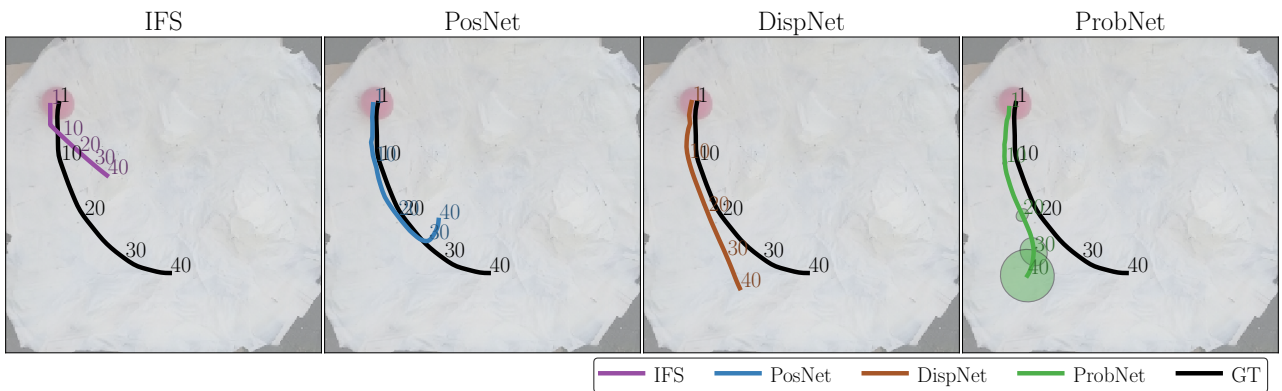
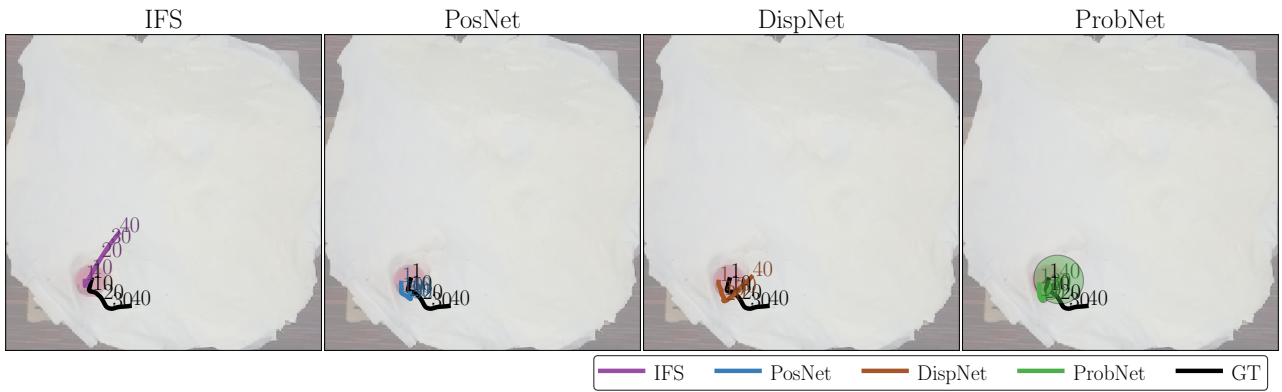
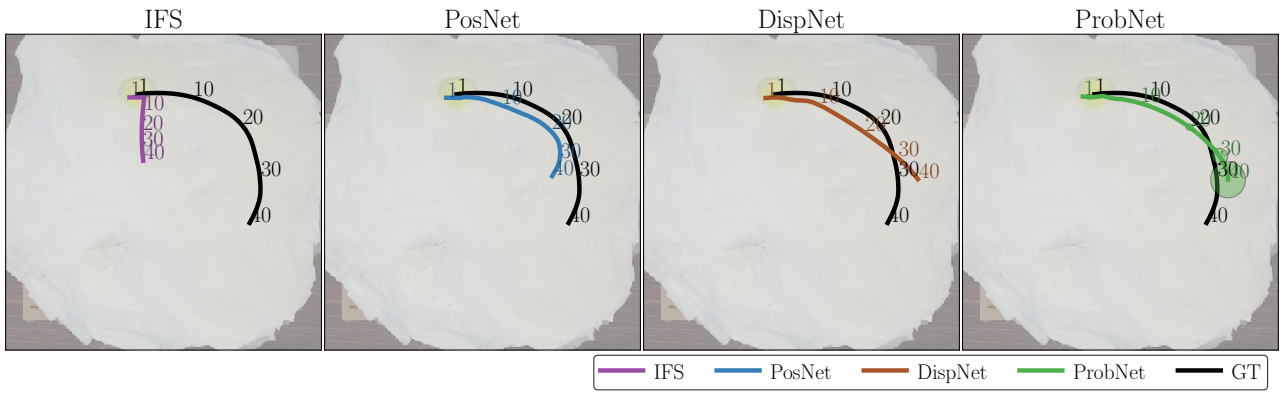


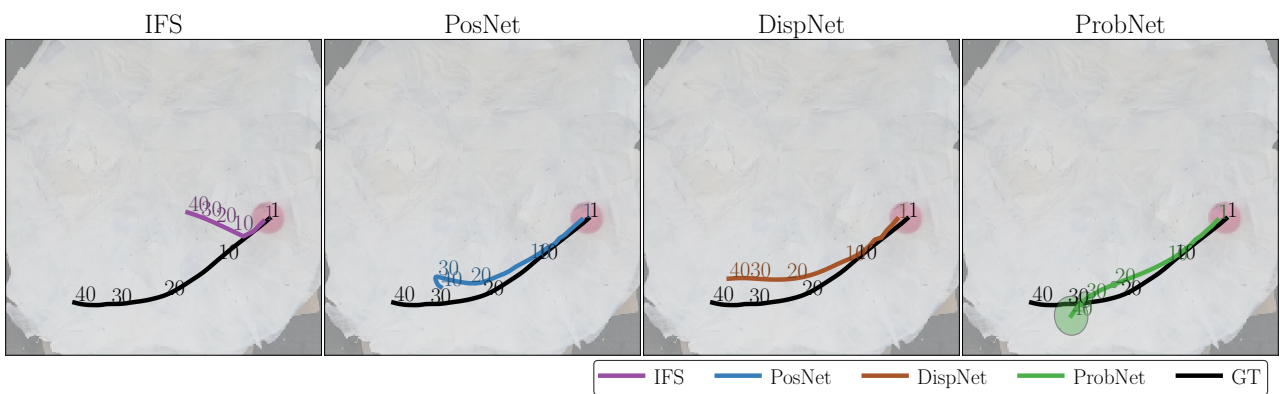
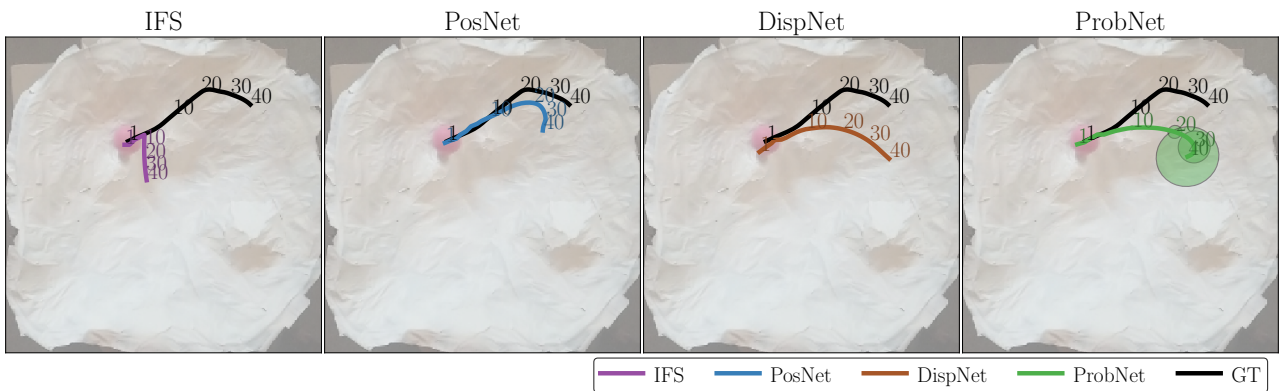
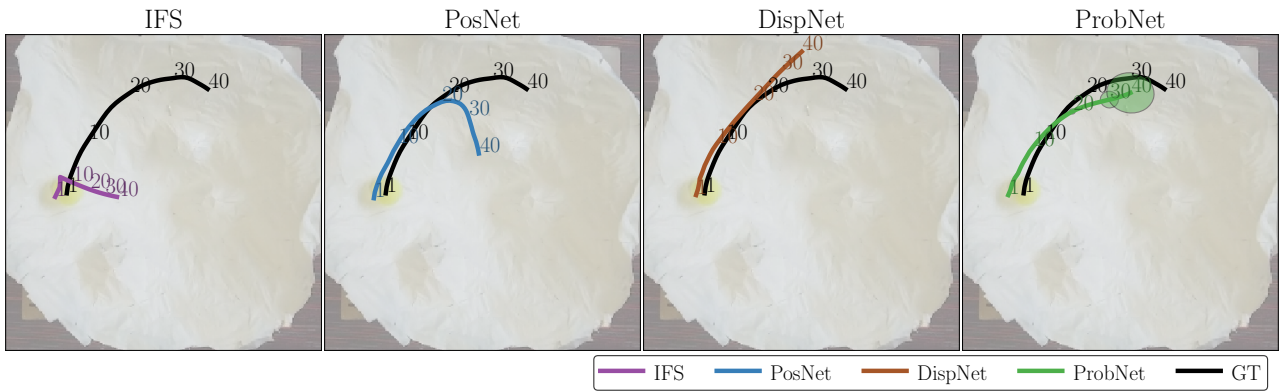
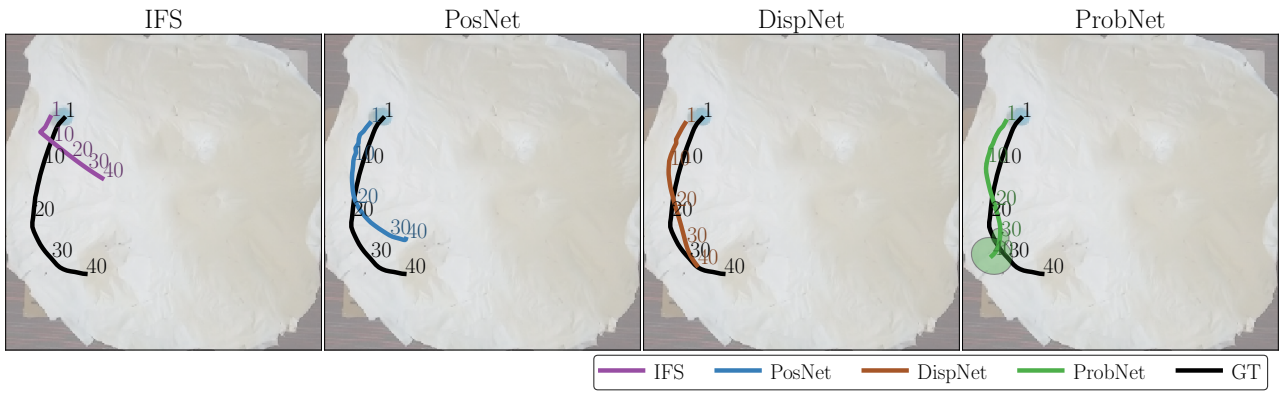


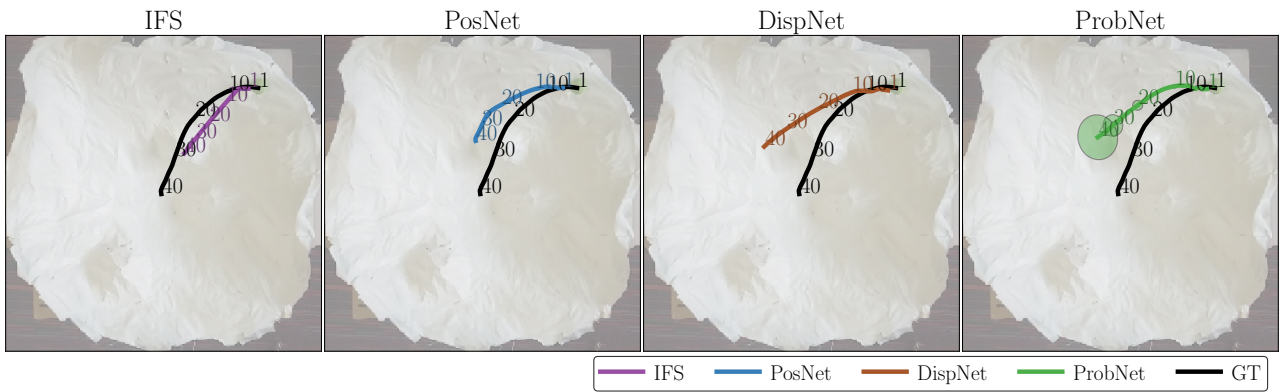
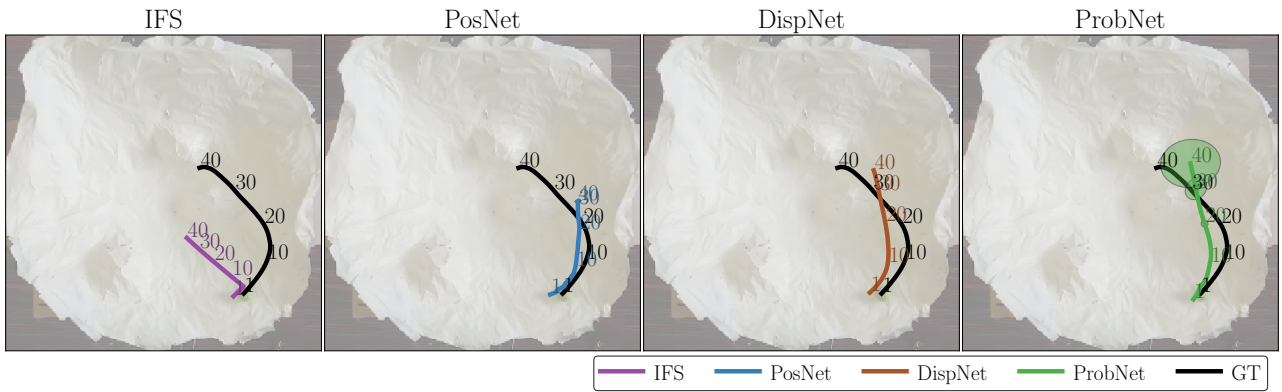
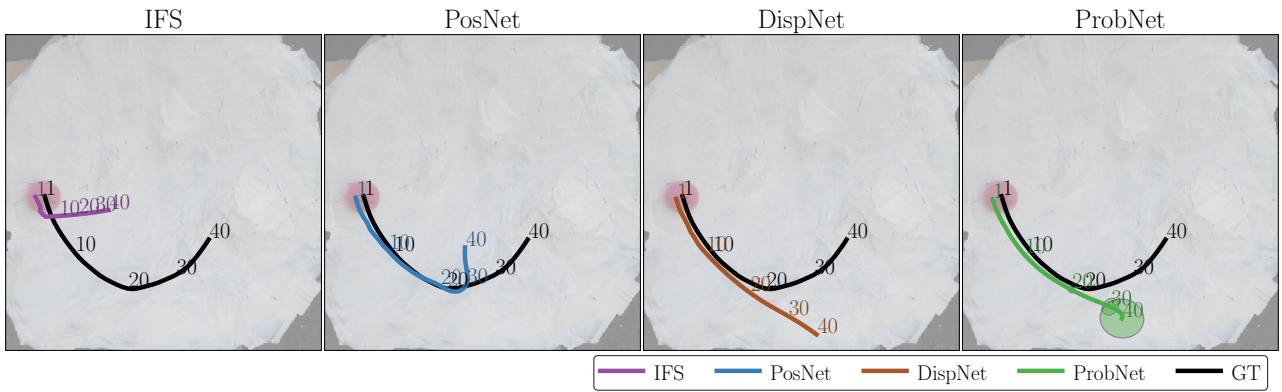
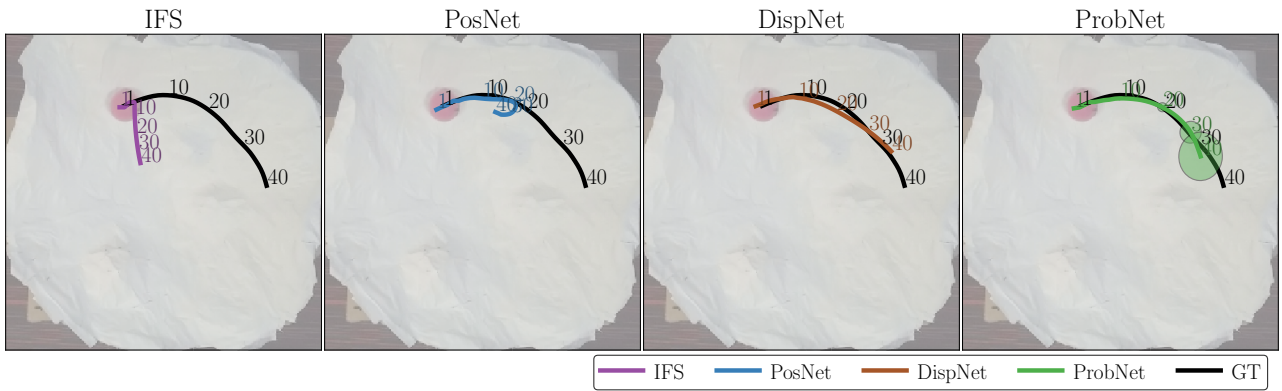


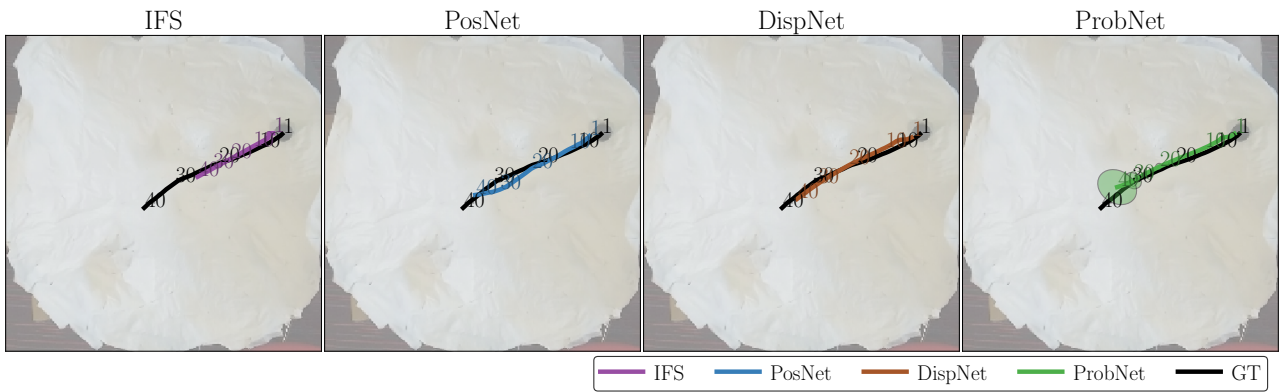
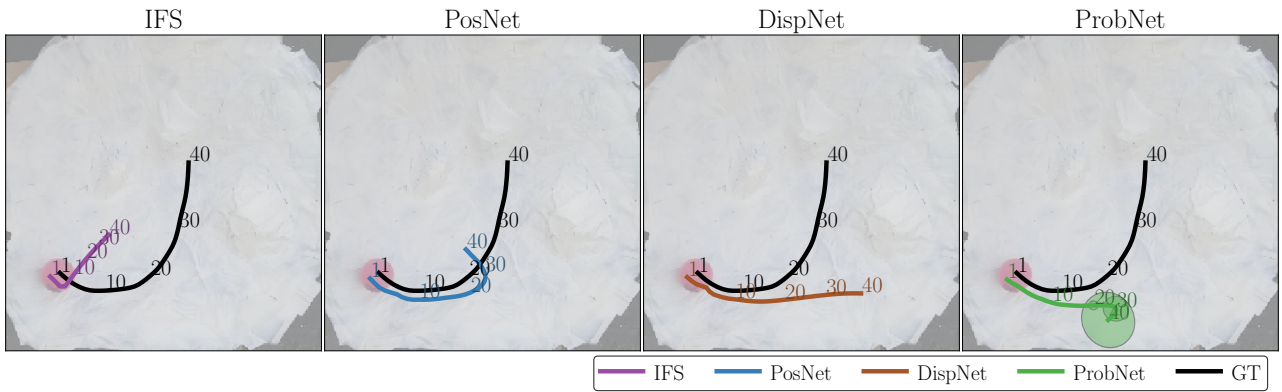
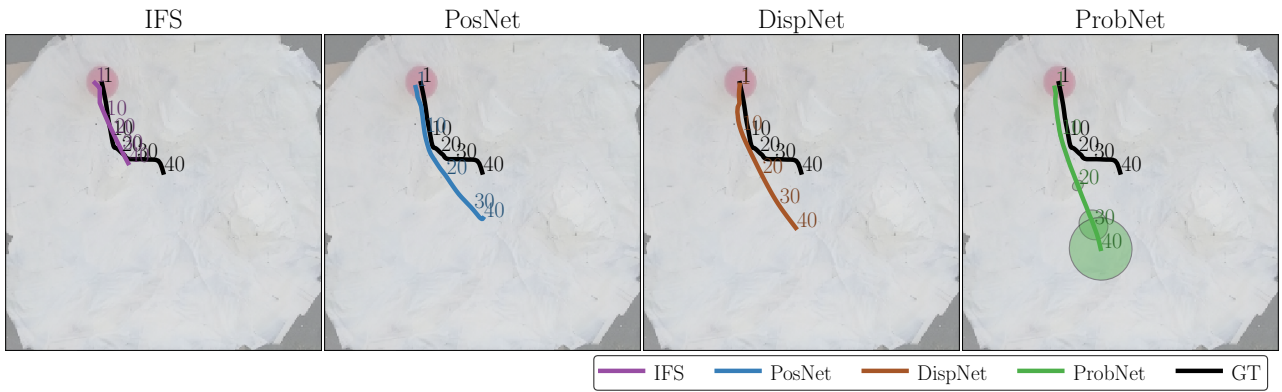
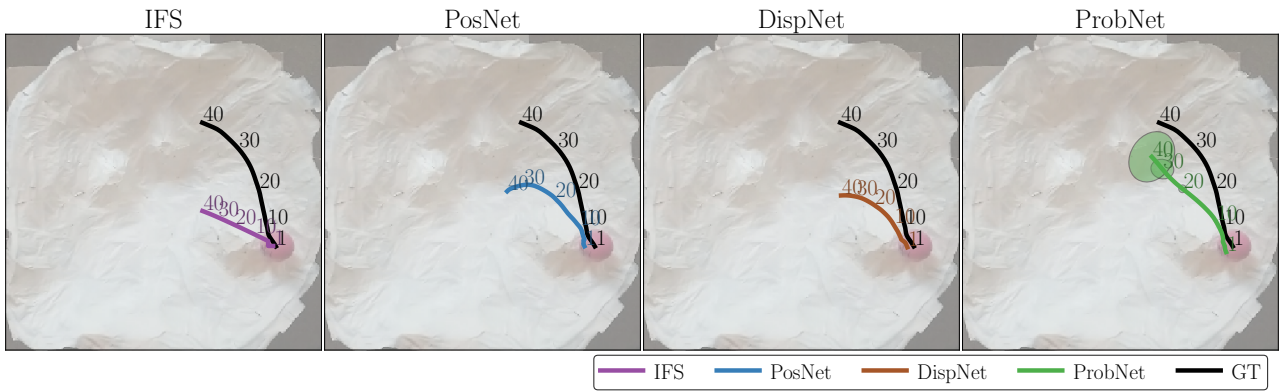








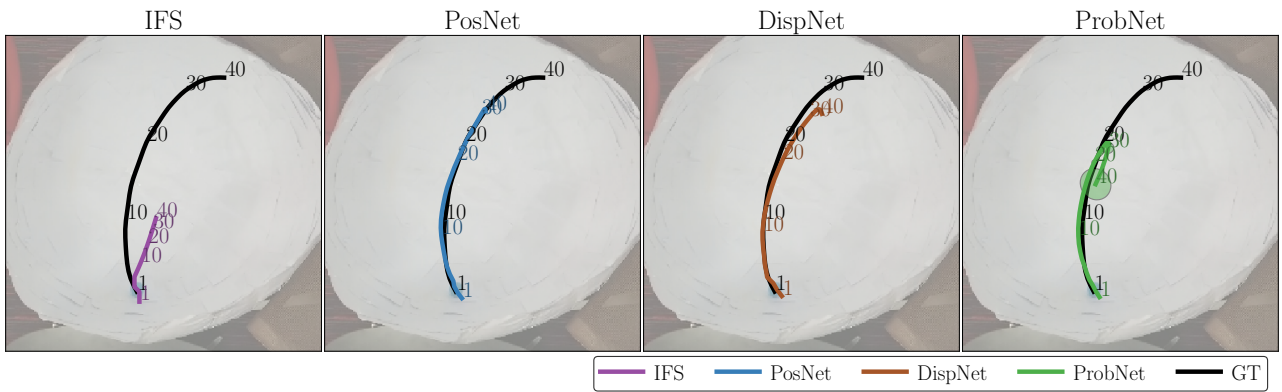
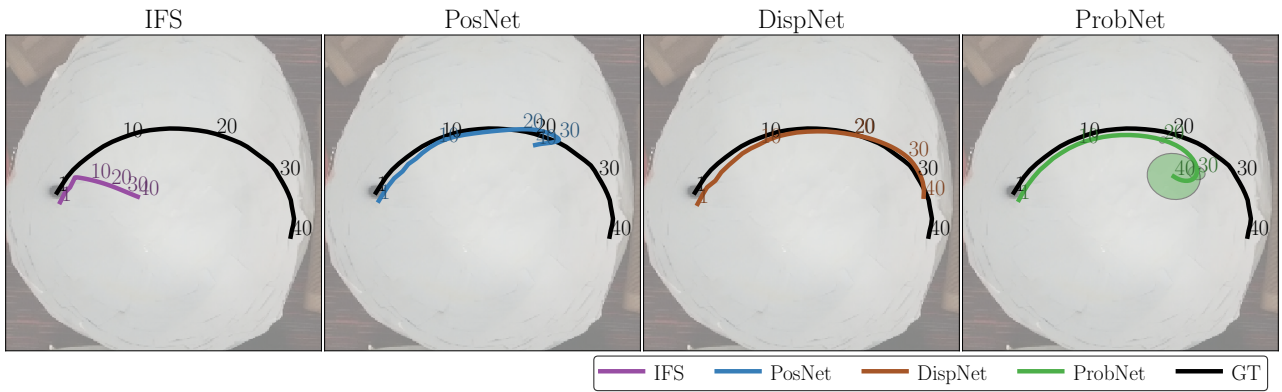
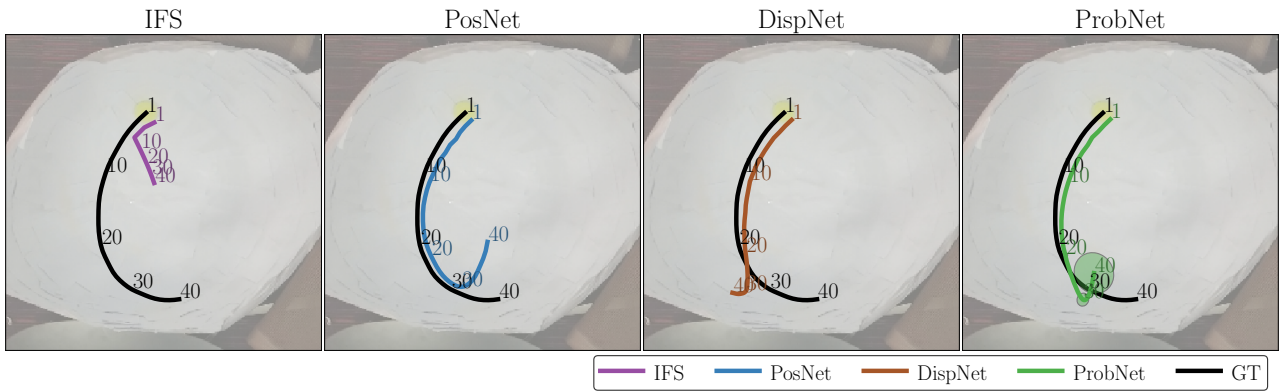
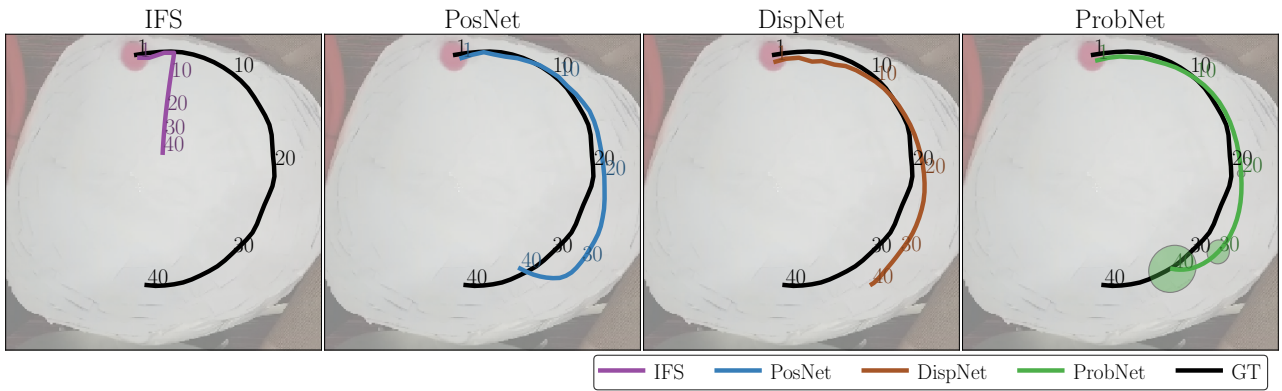


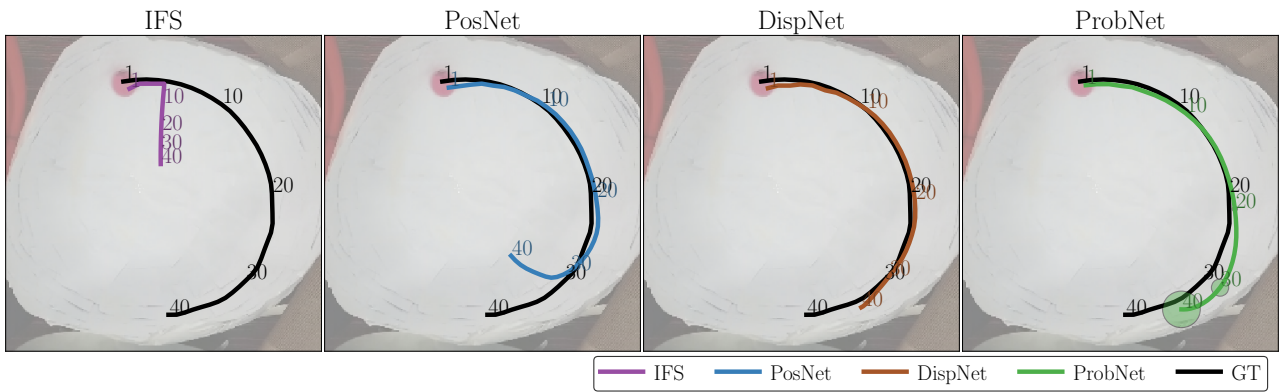
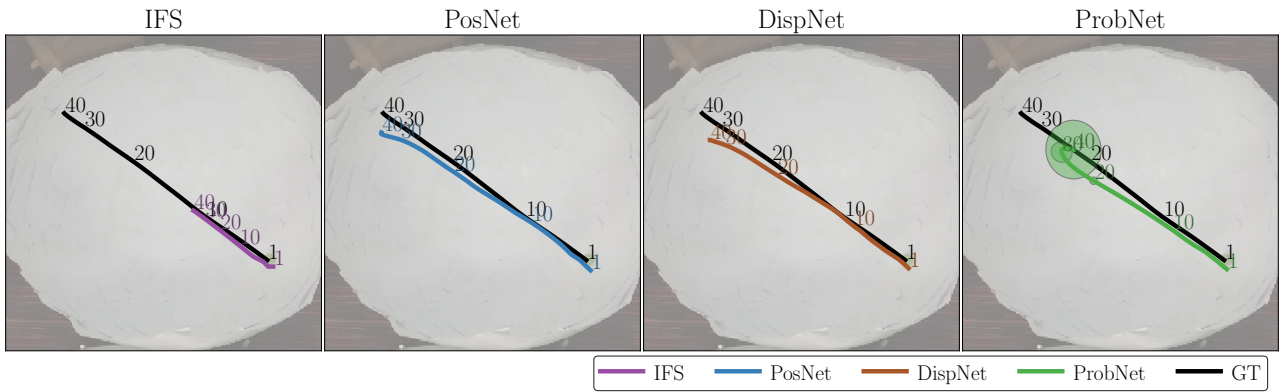
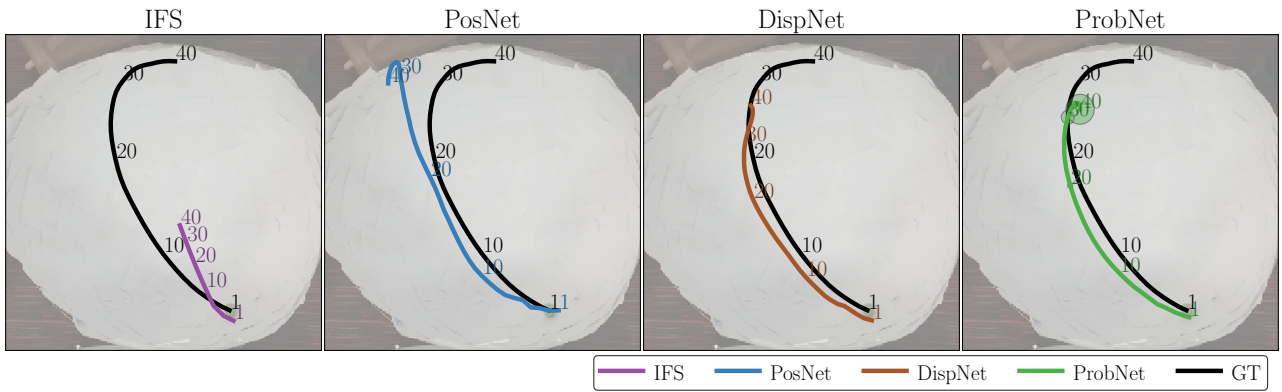
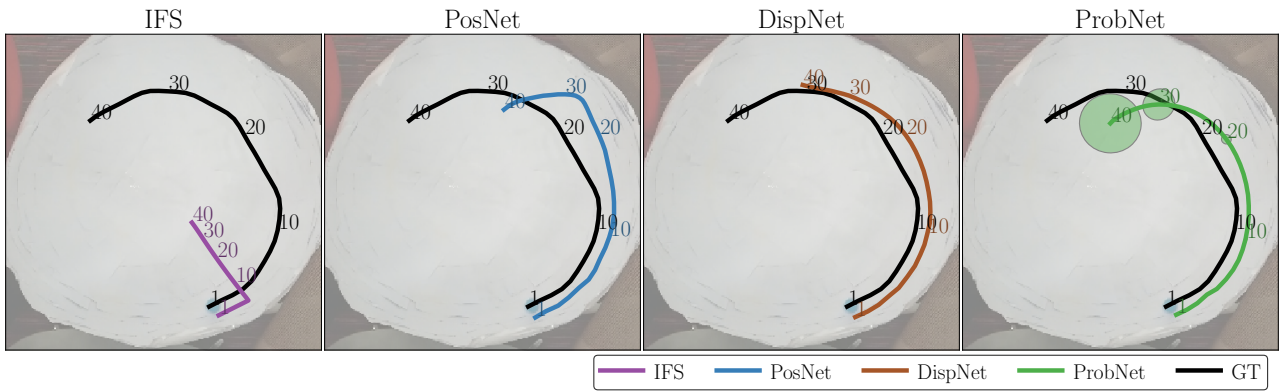


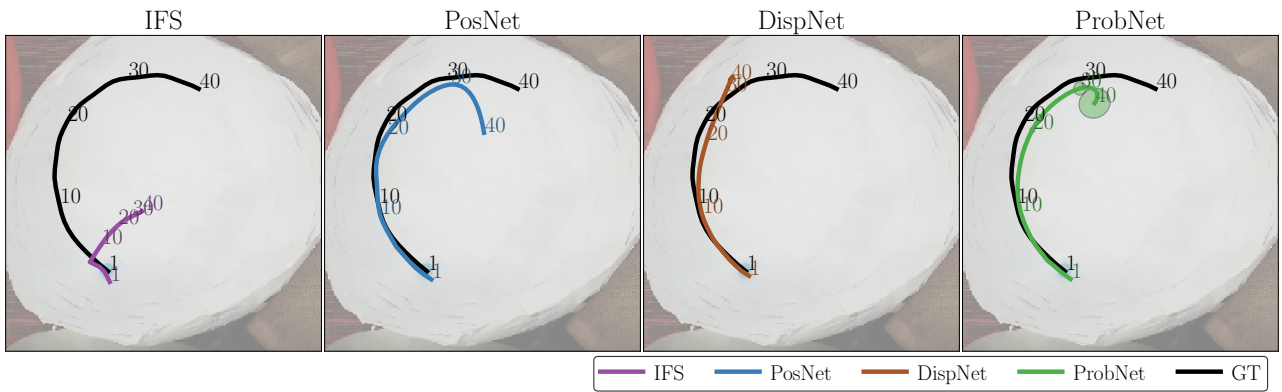
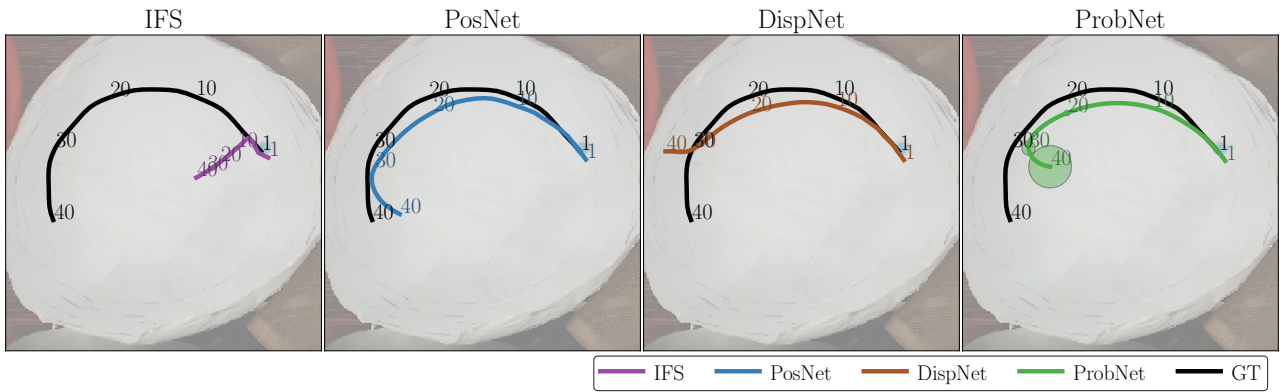
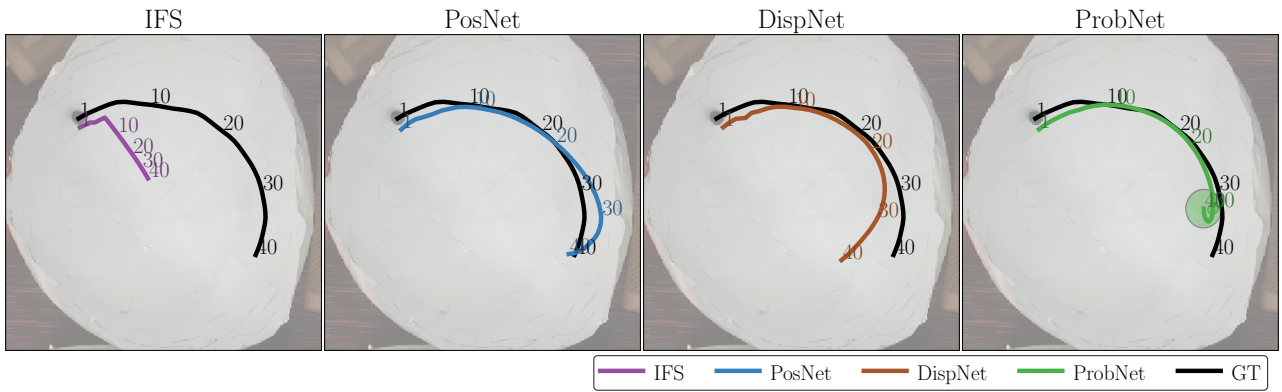
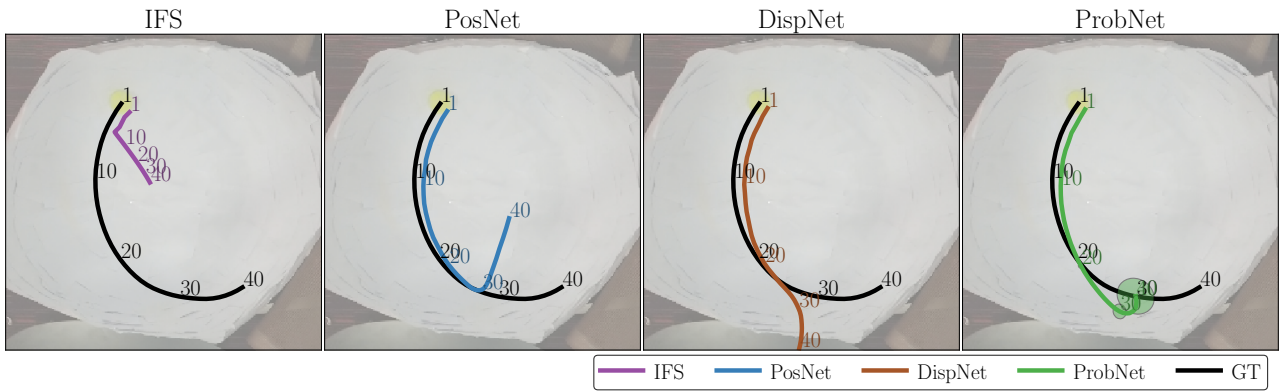
### 3 Real ellipse 1ball (BOWLR 1b.)

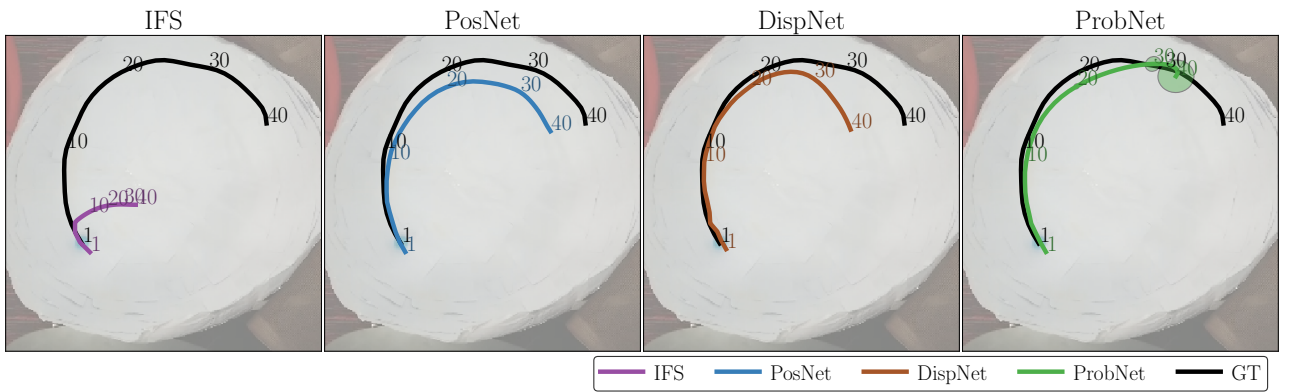
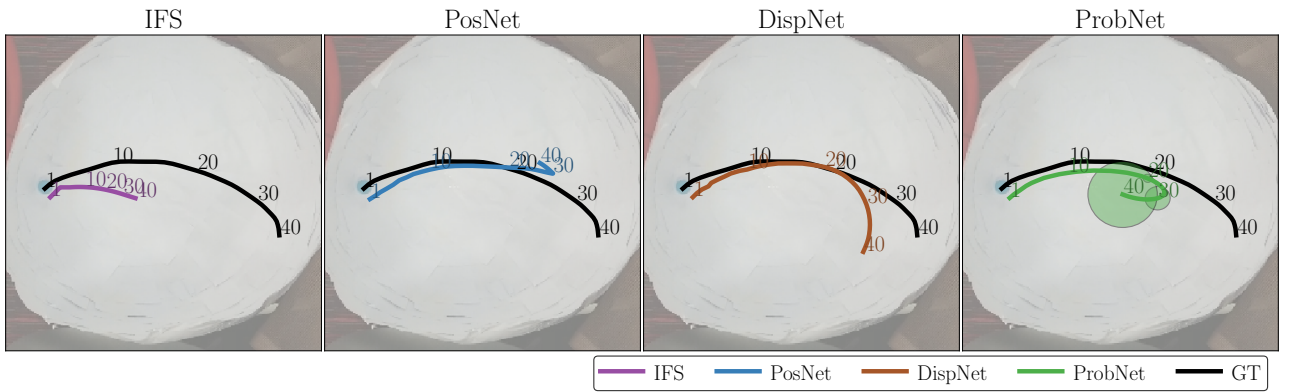
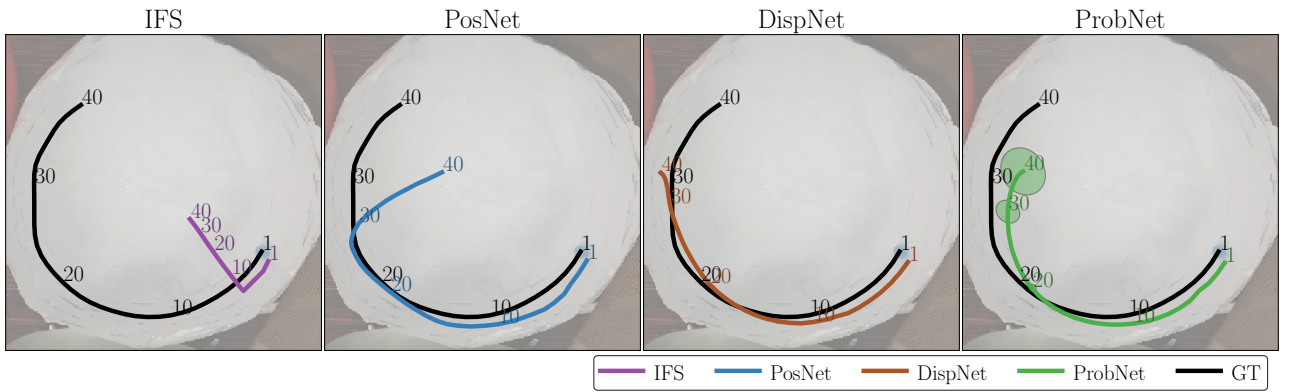
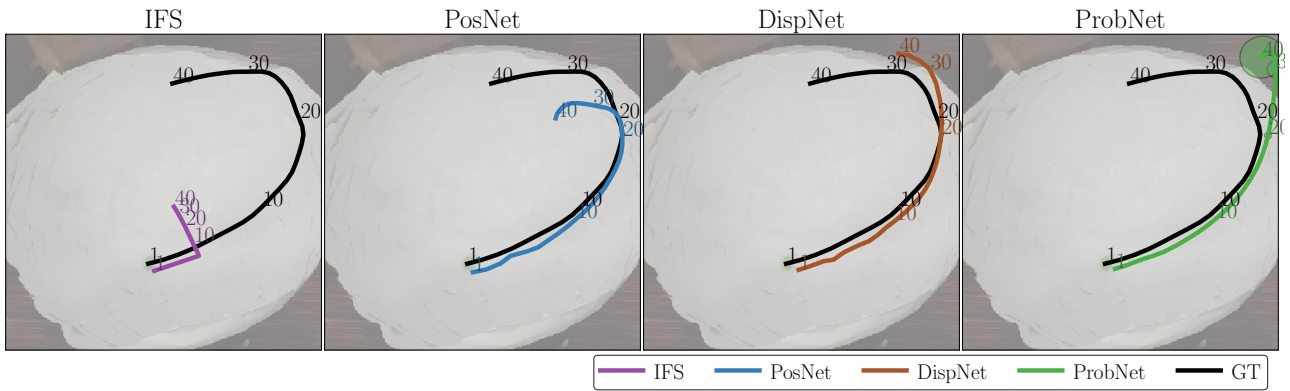


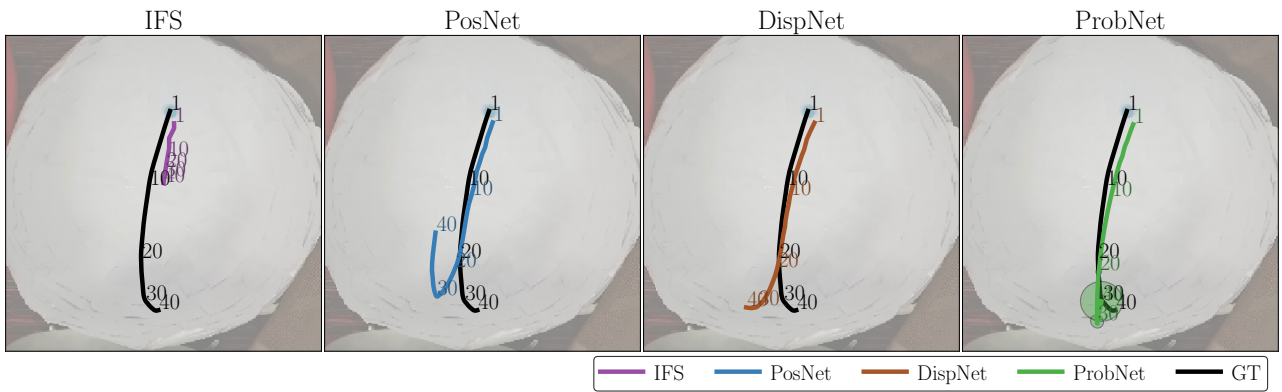
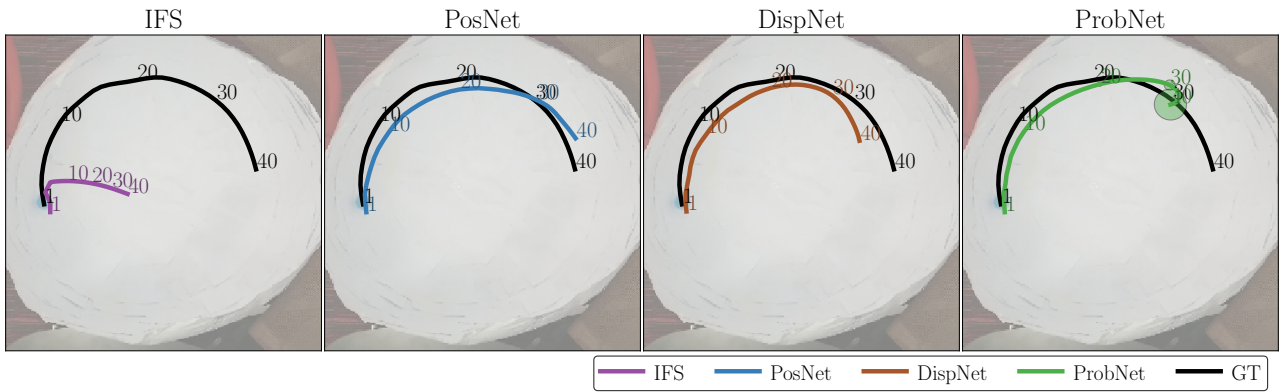
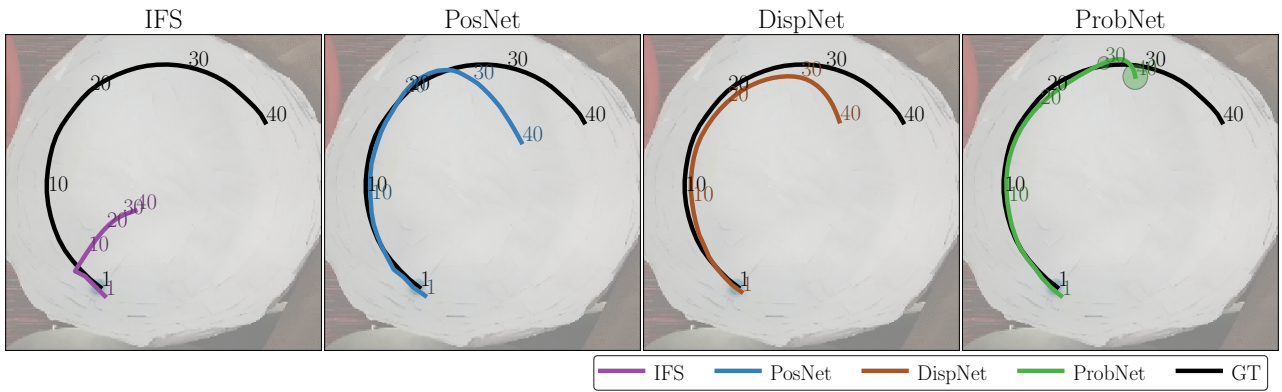
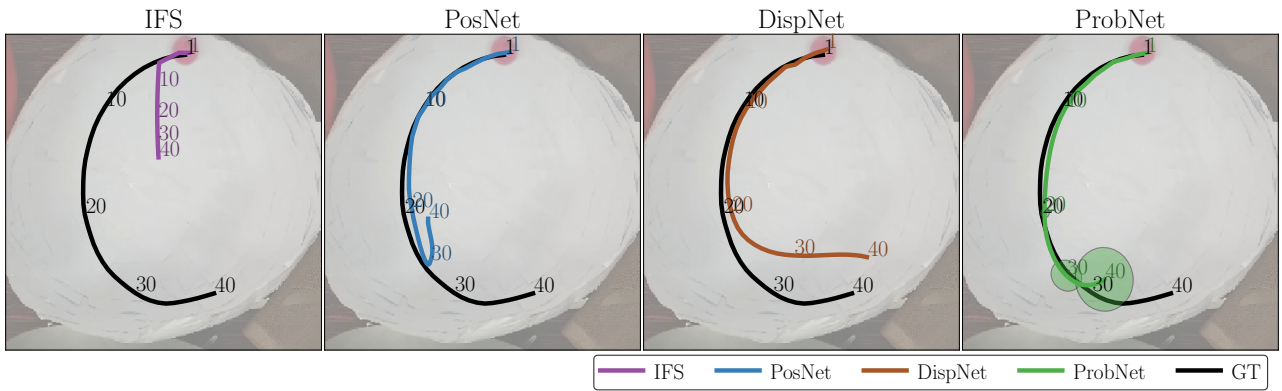


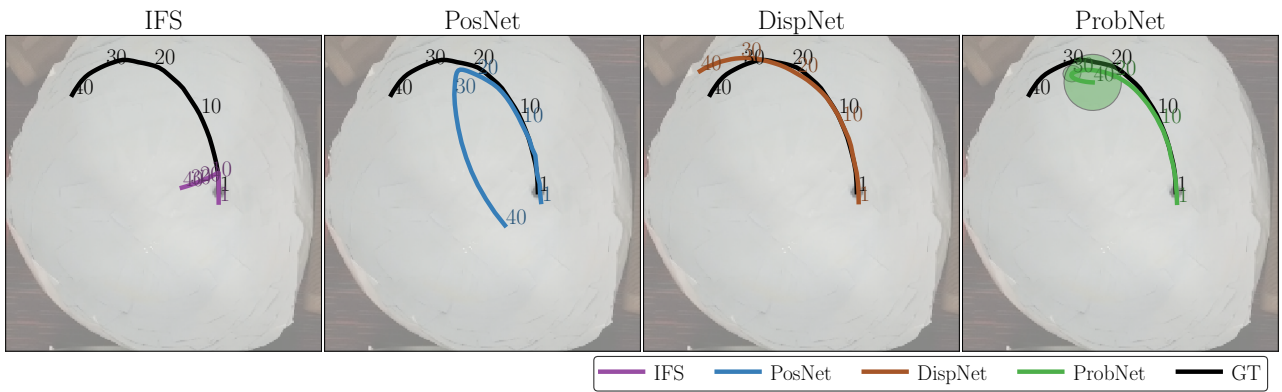
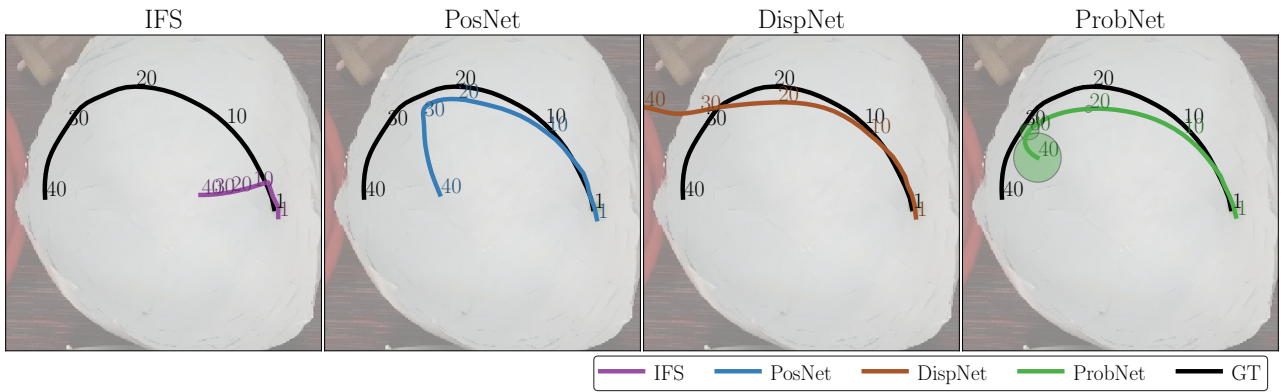
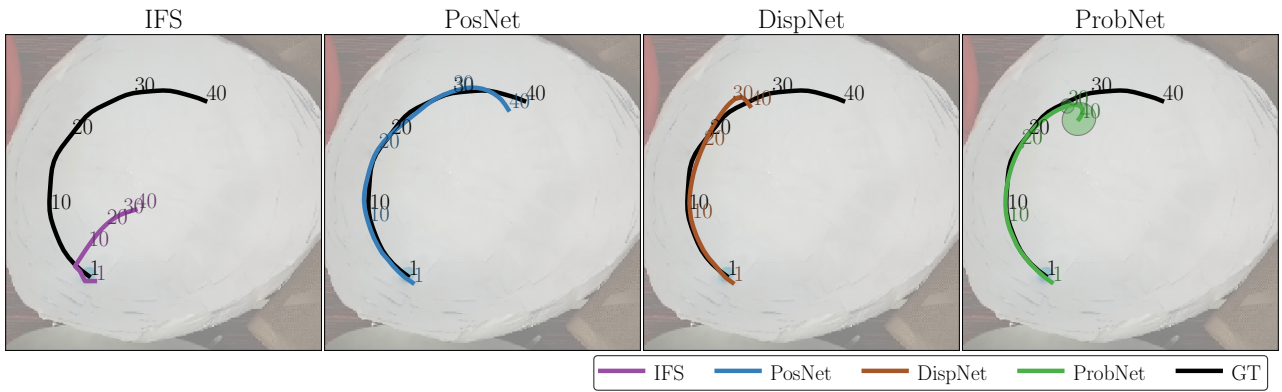
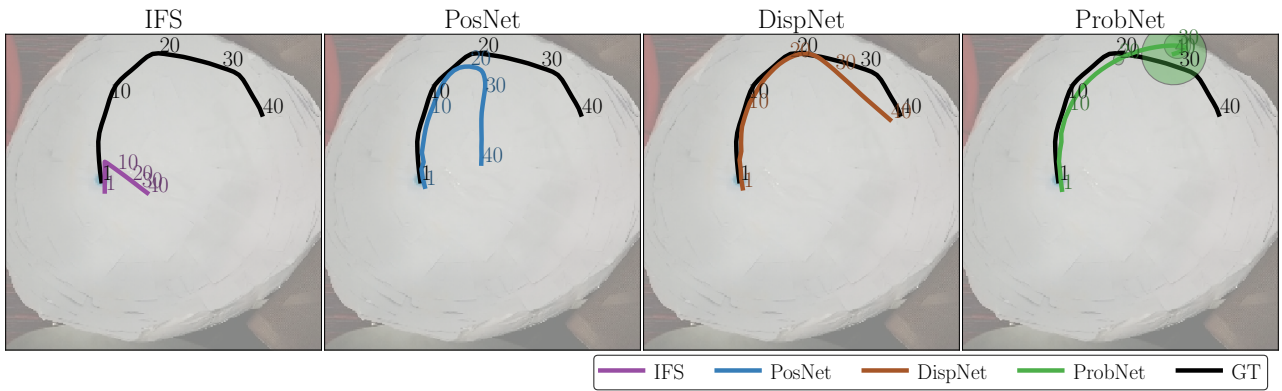






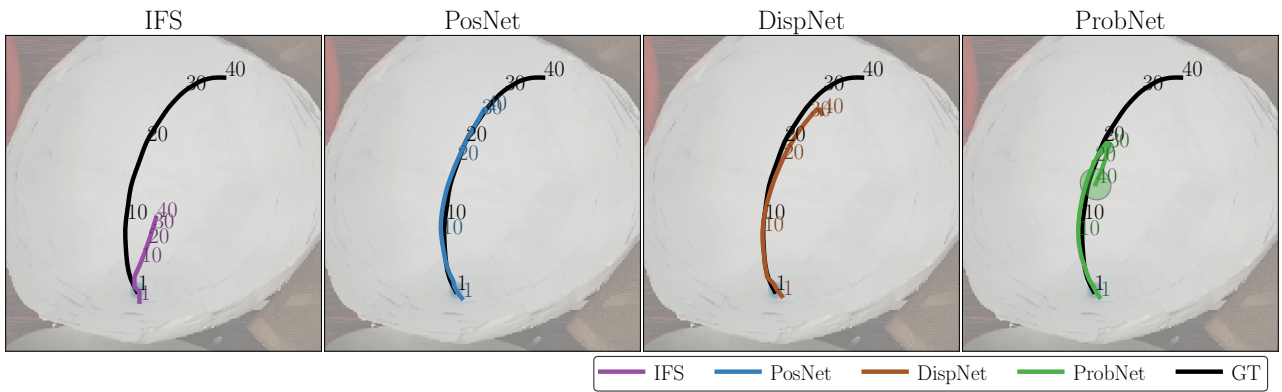
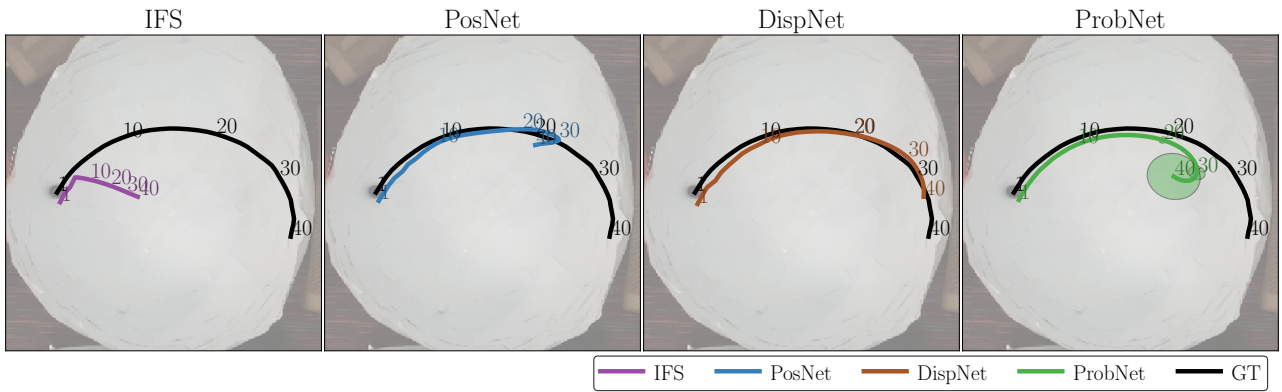
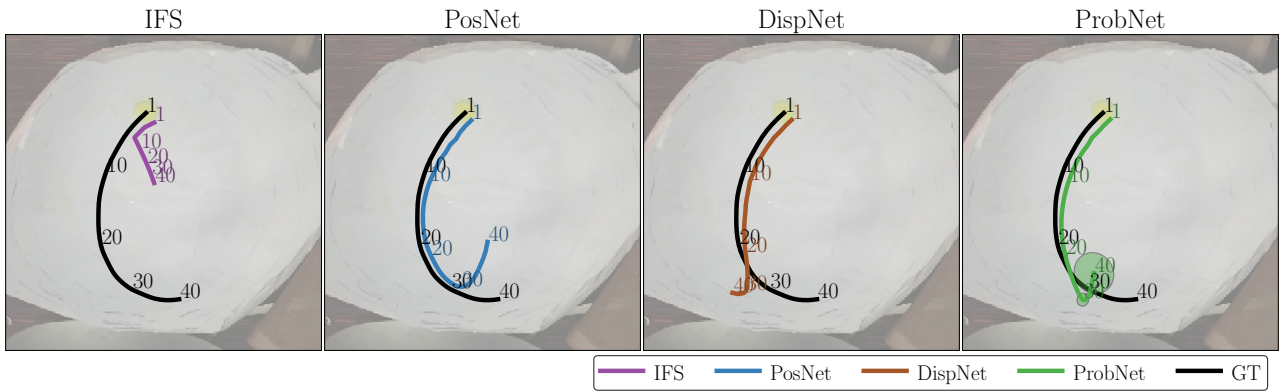
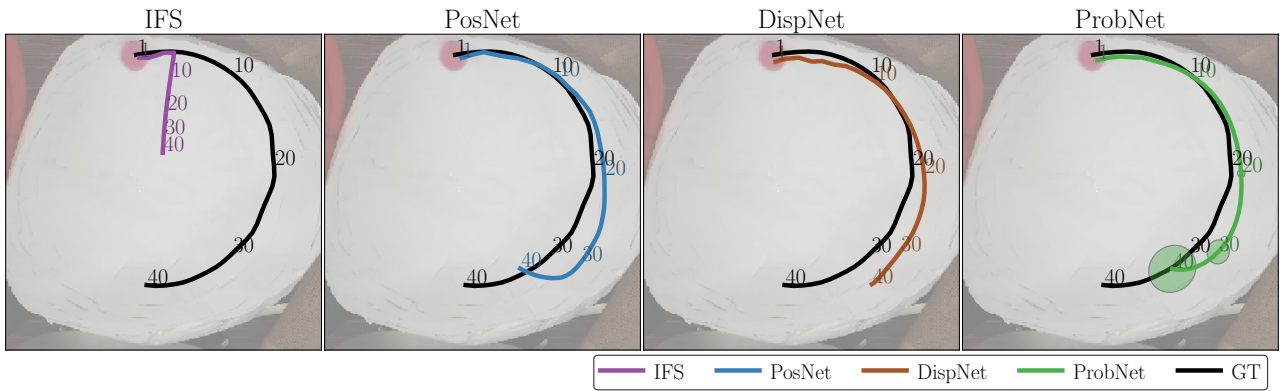




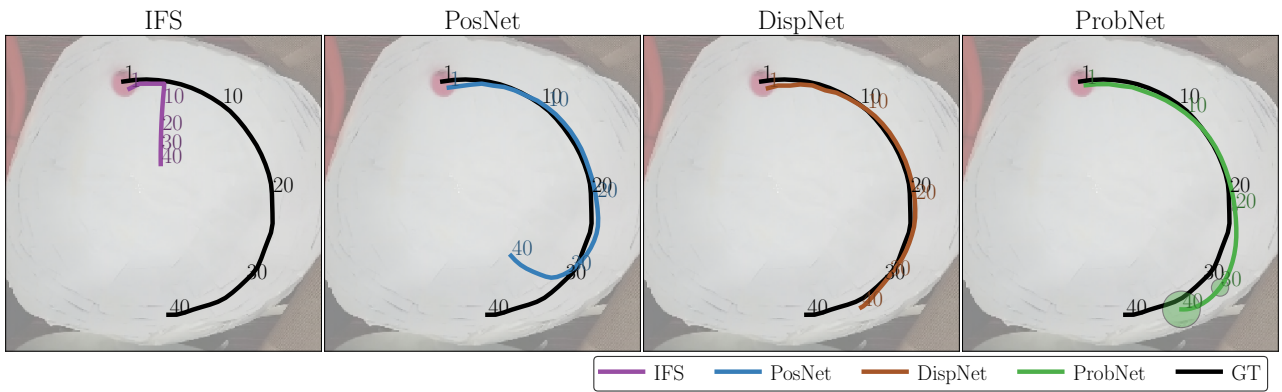
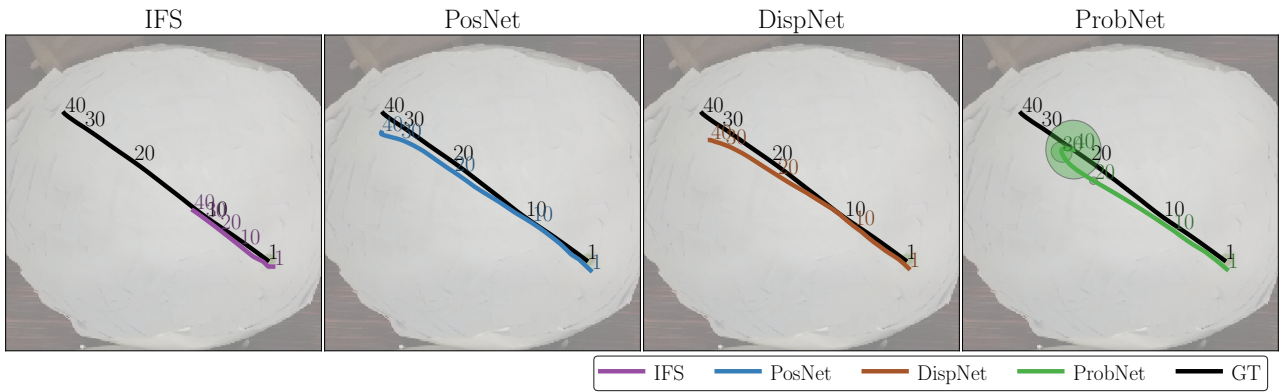
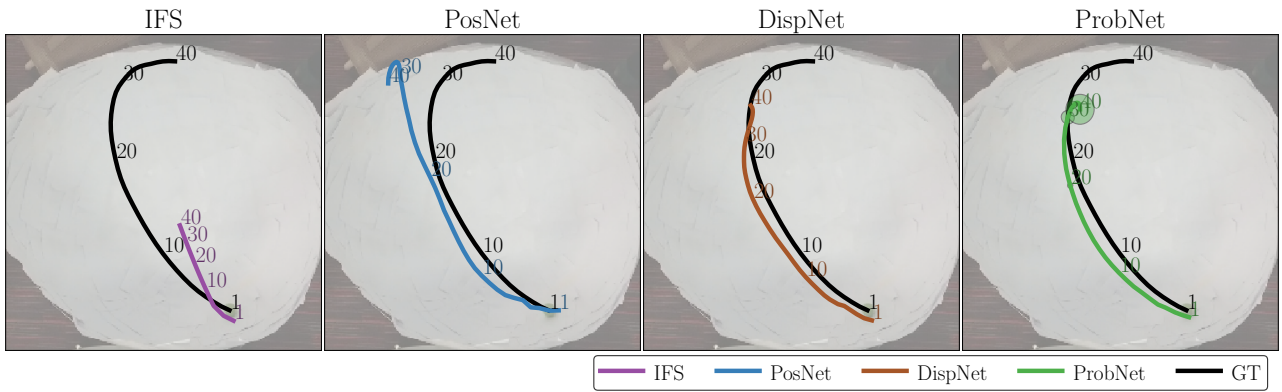
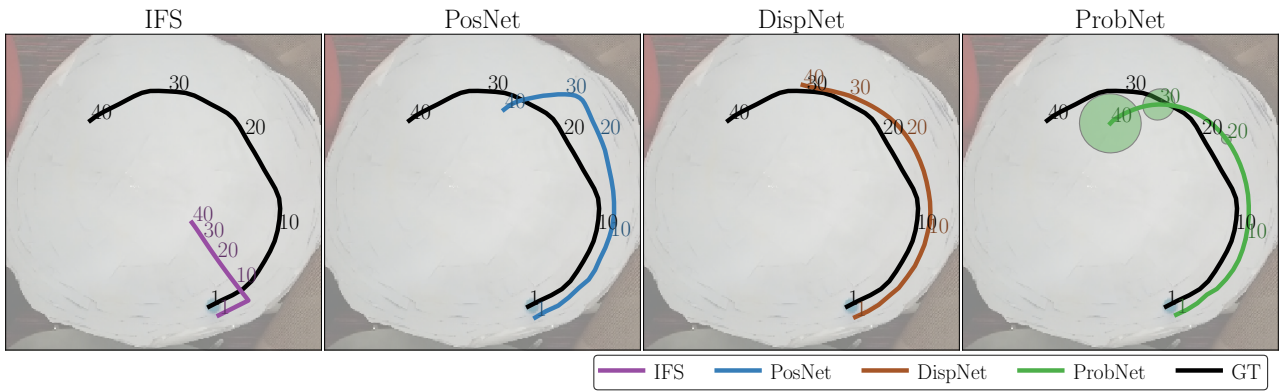


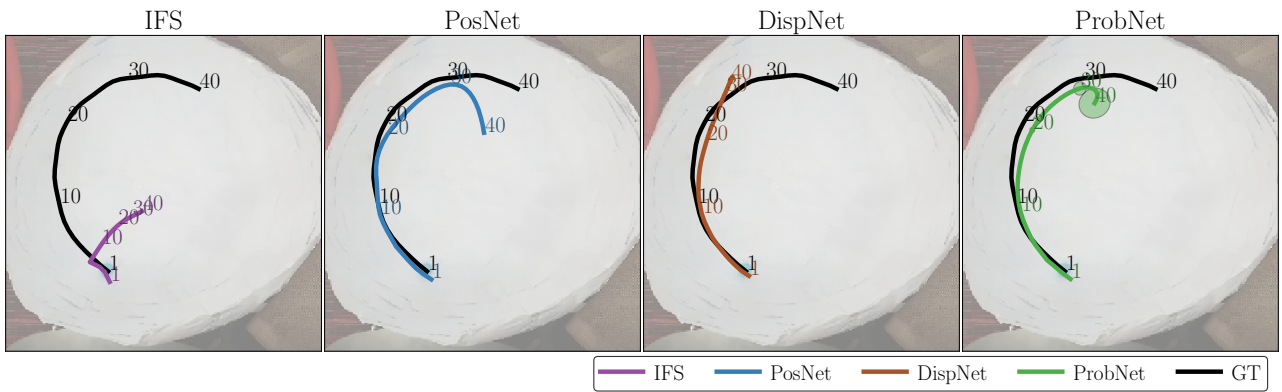
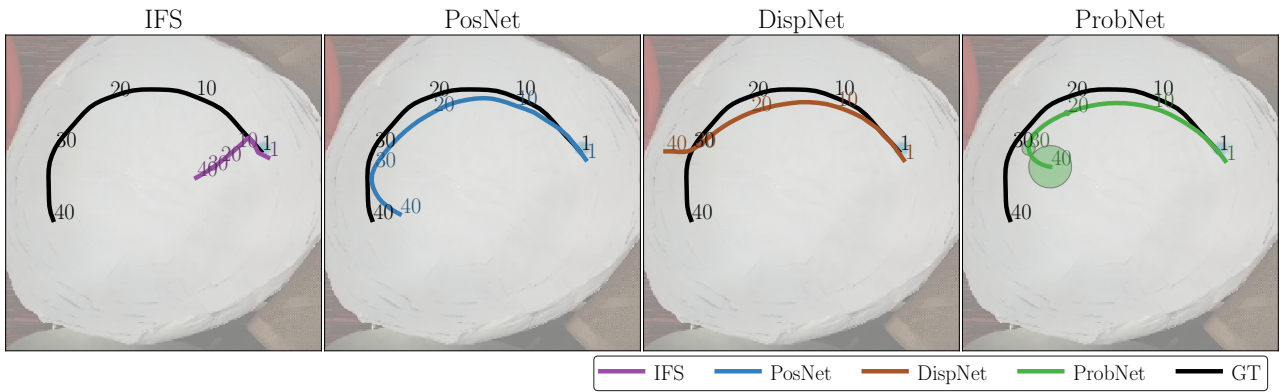
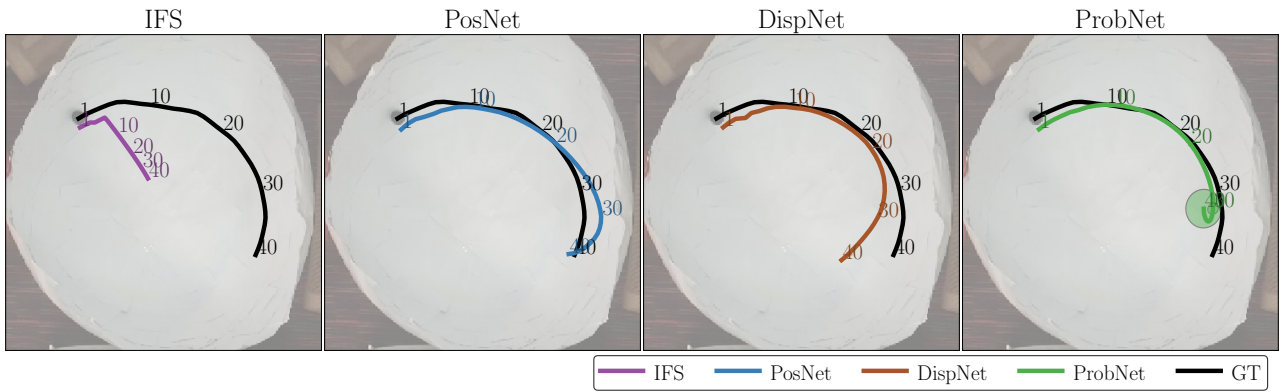
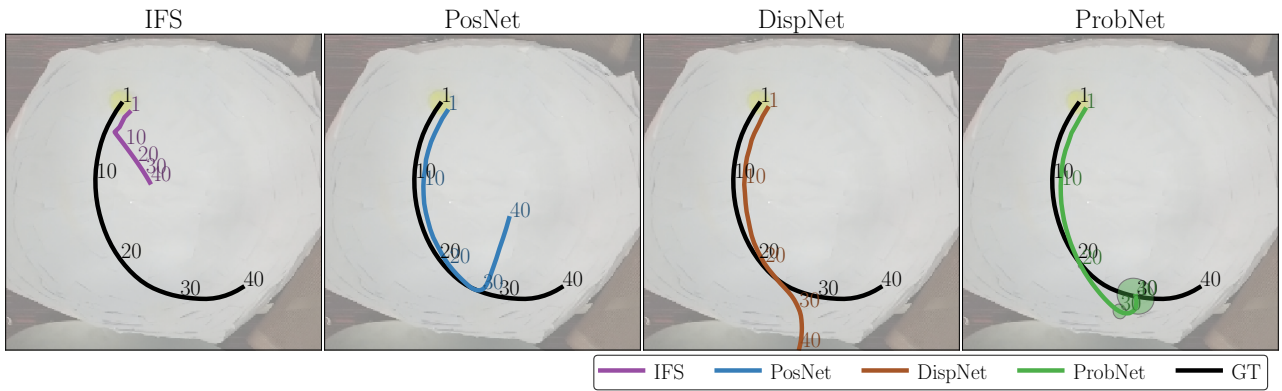
## 4 Real ellipsoid 1ball (BOWLR 1b.)

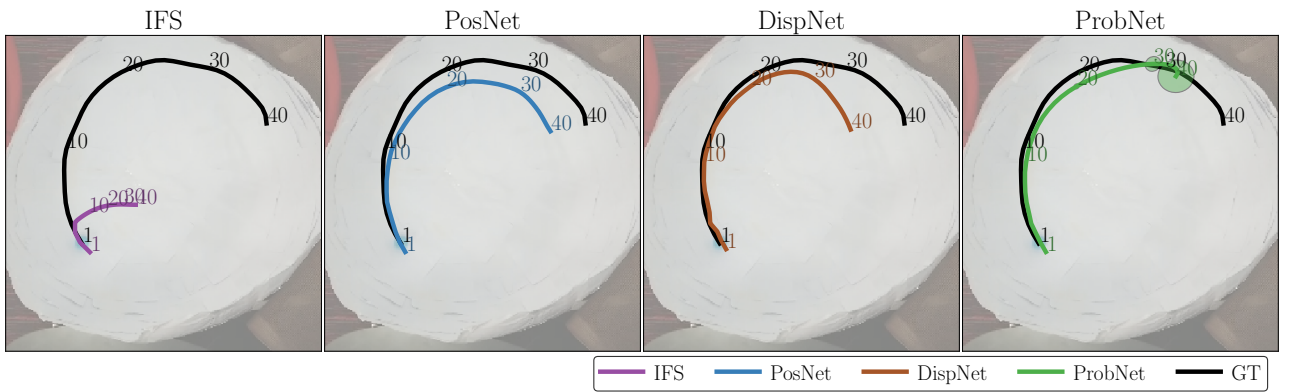
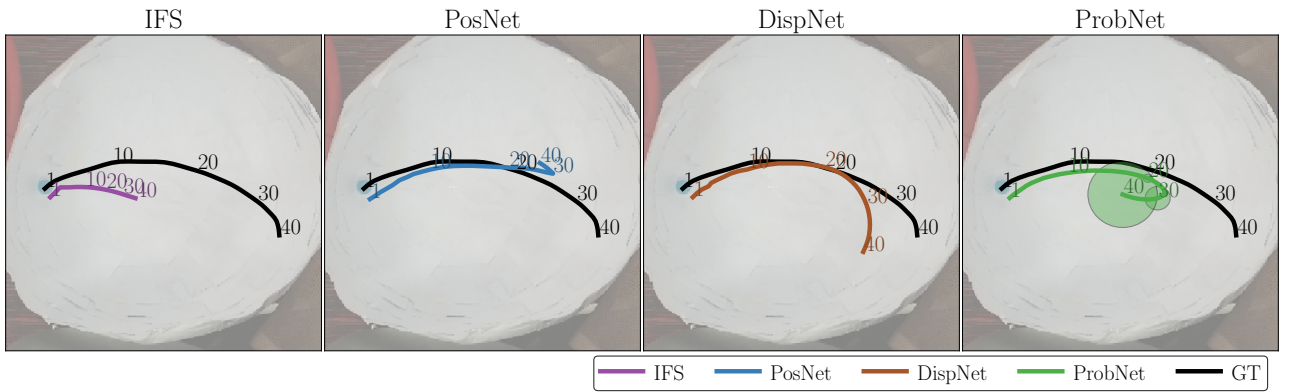
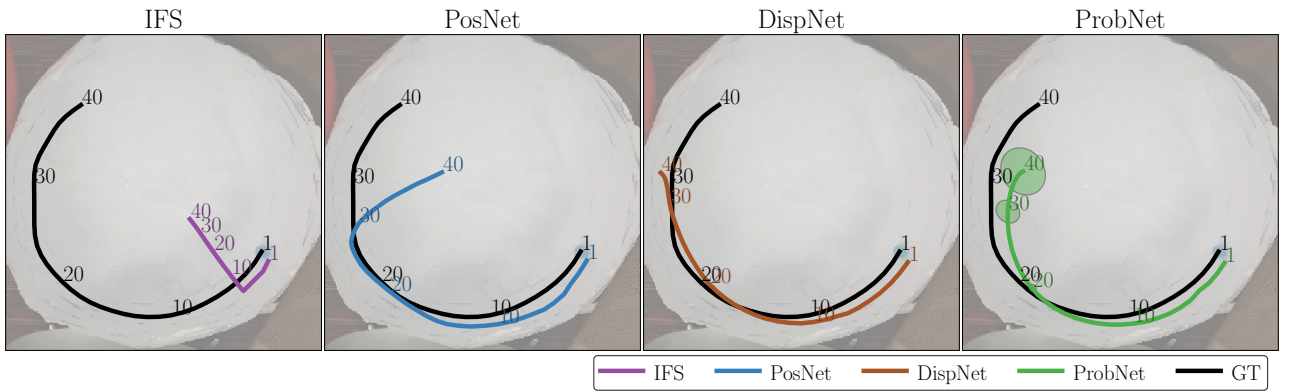
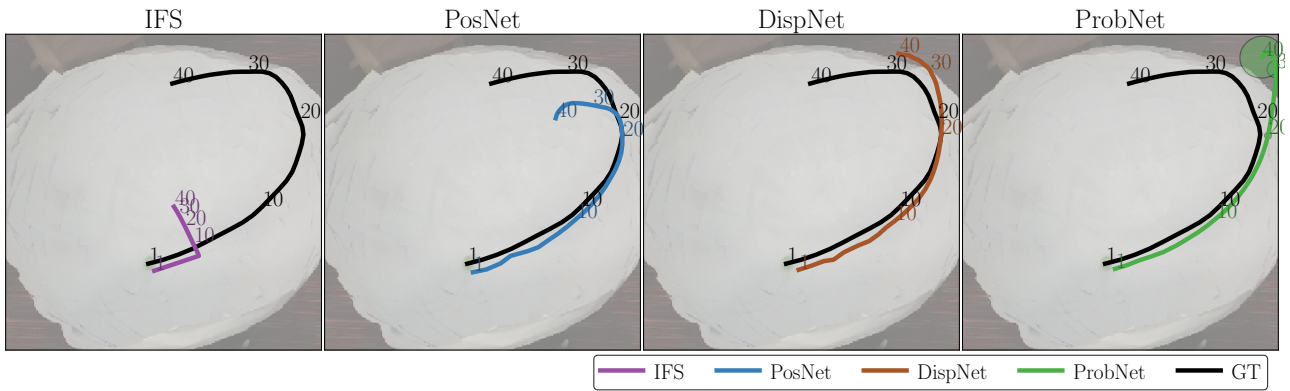


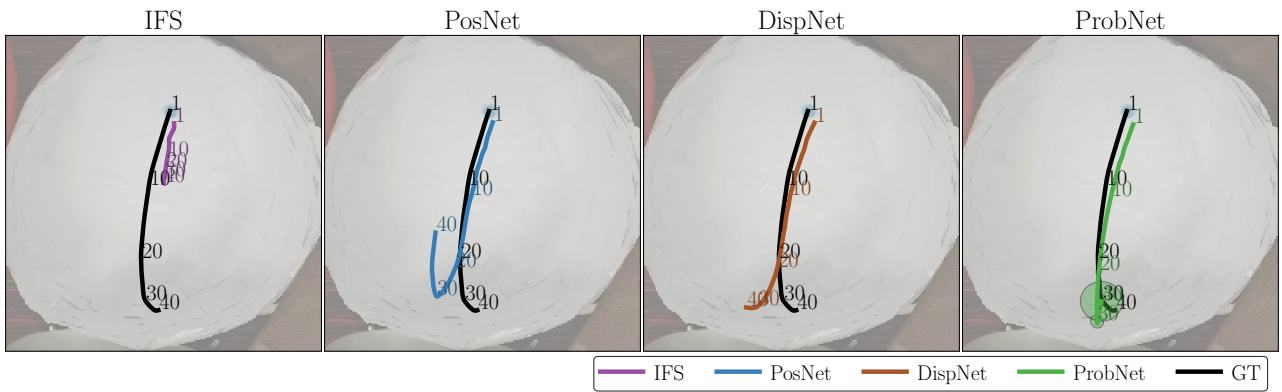
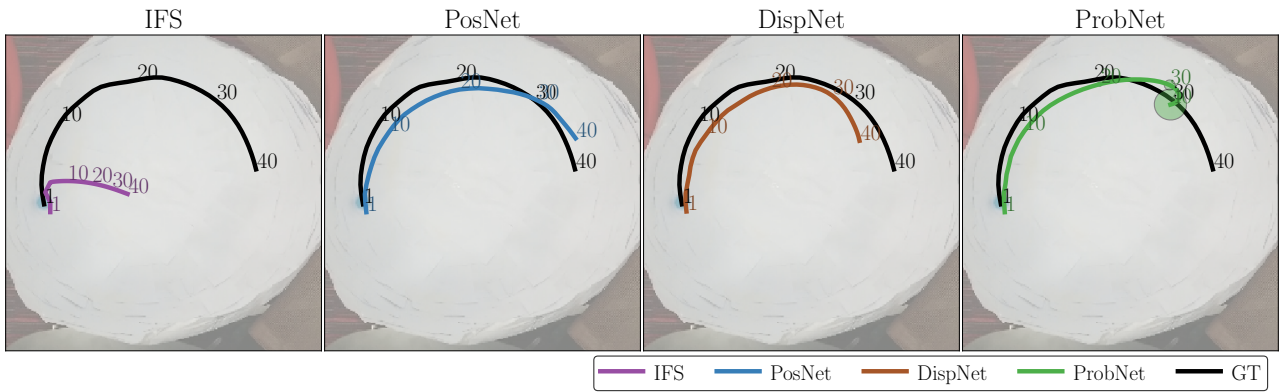
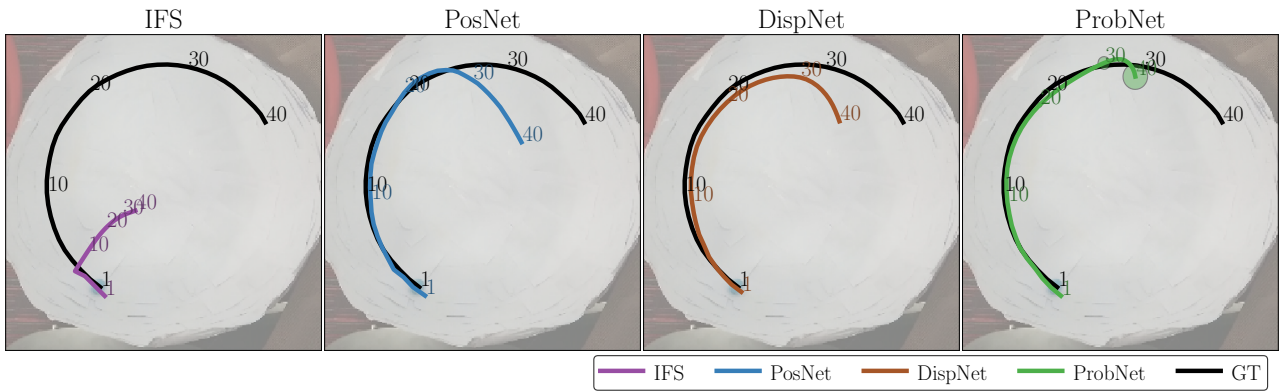
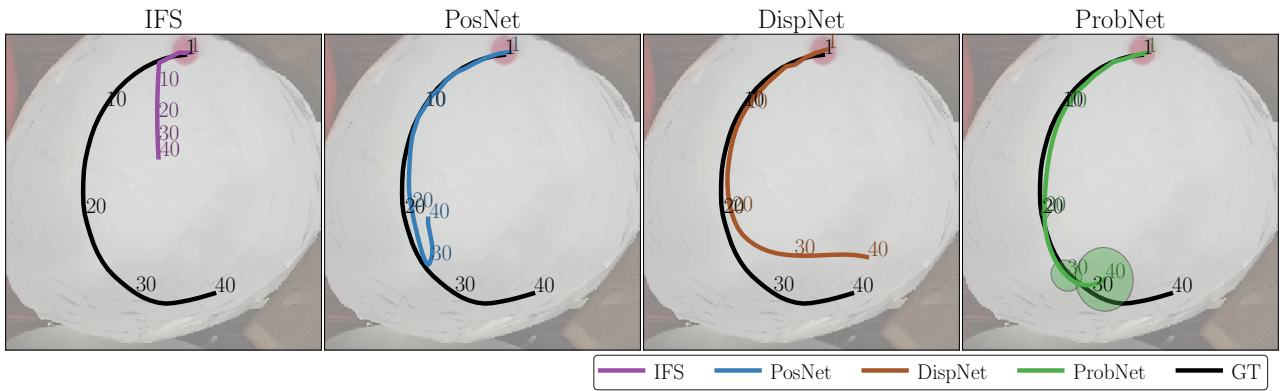


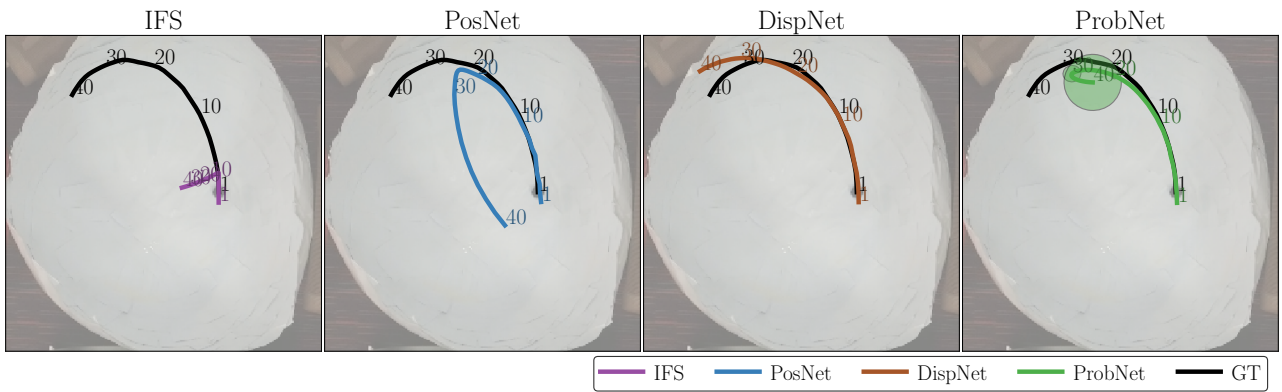
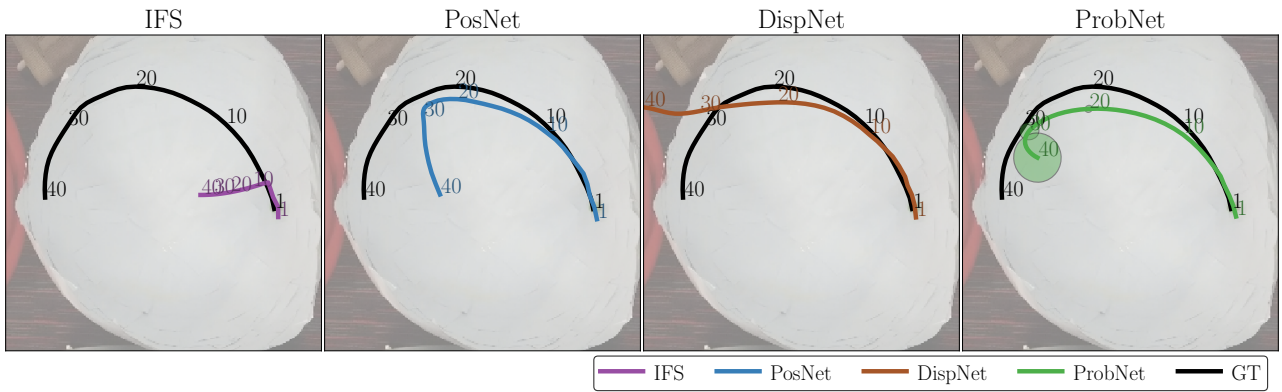
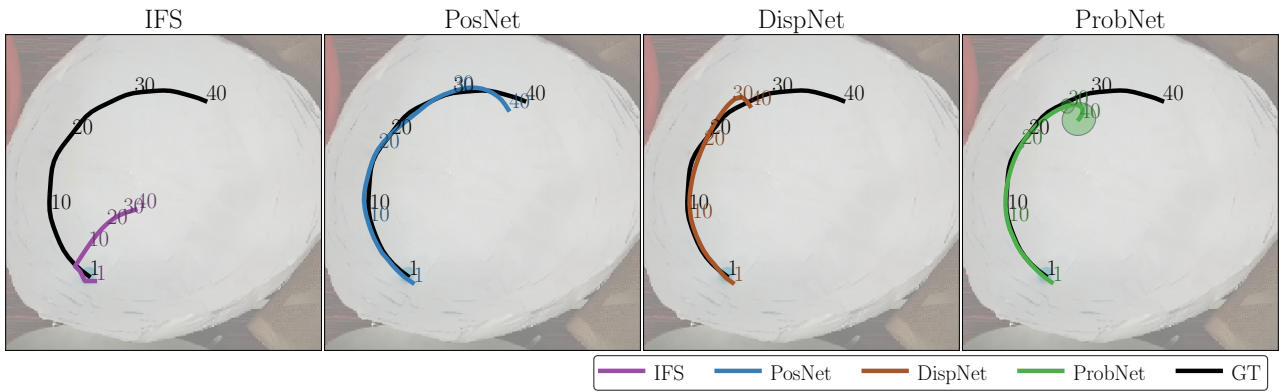
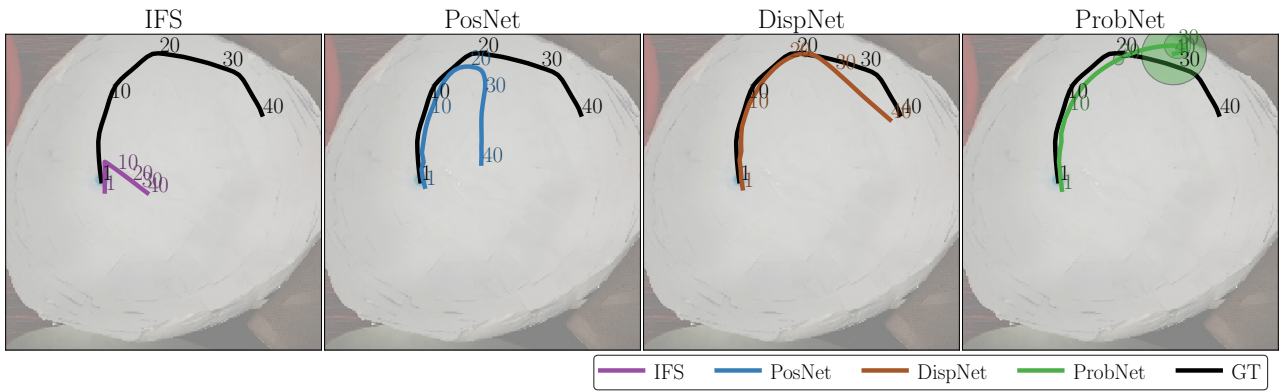




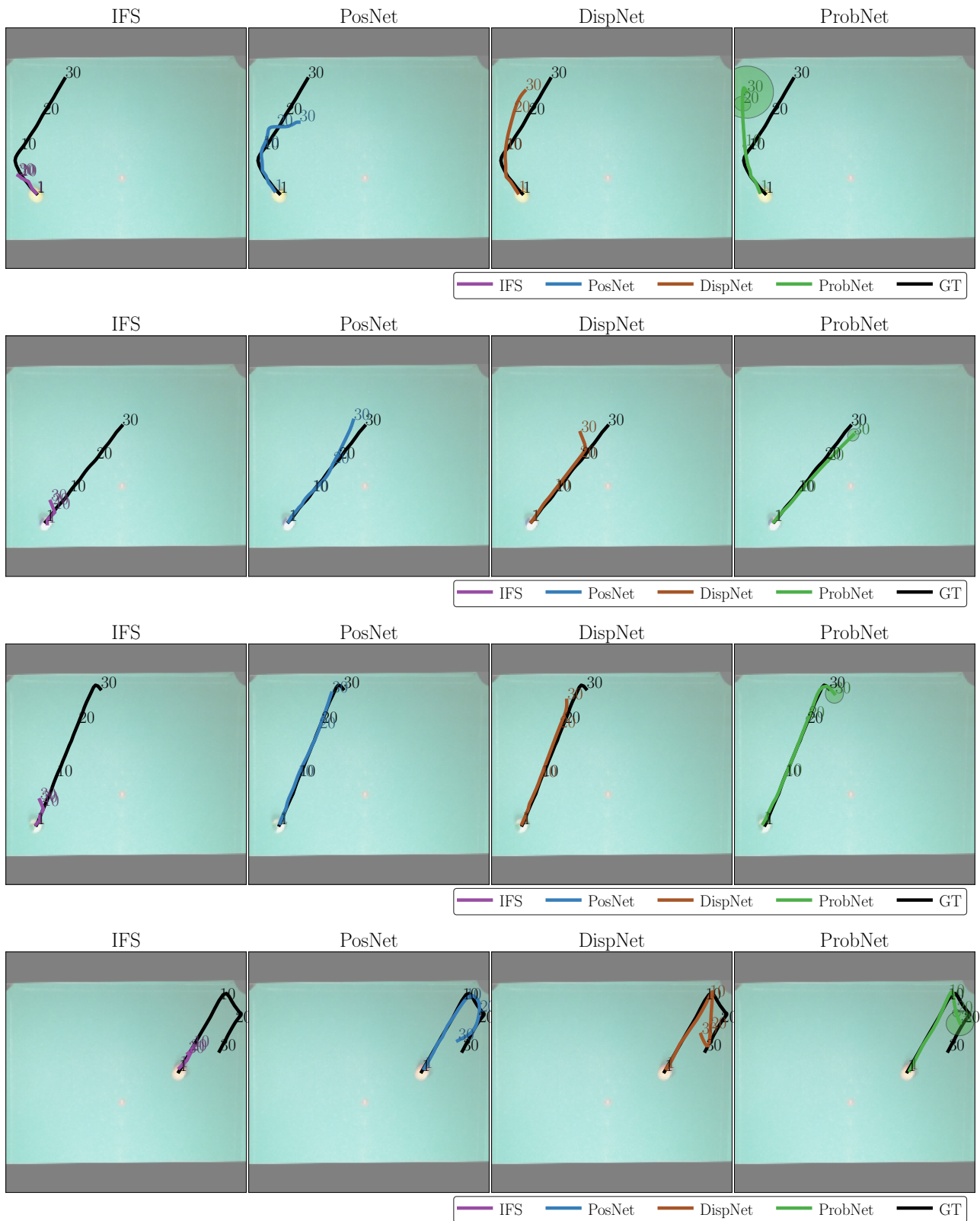


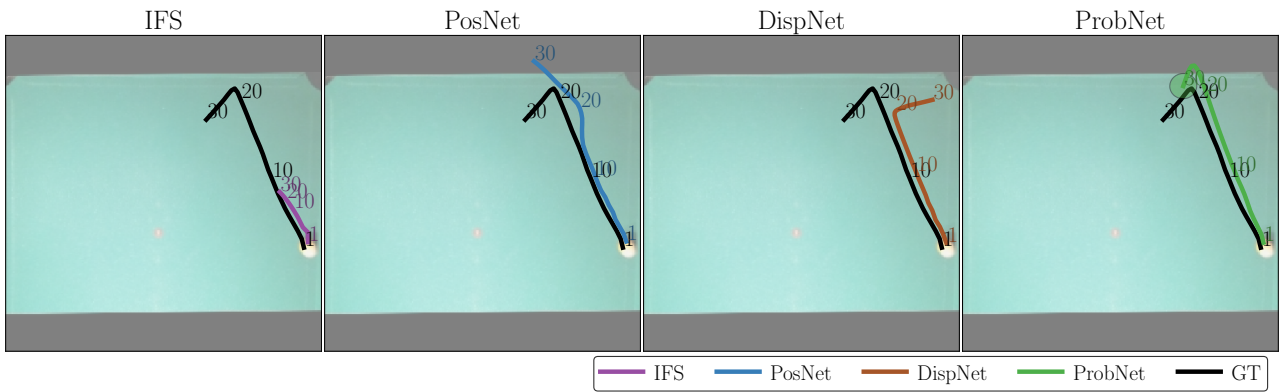
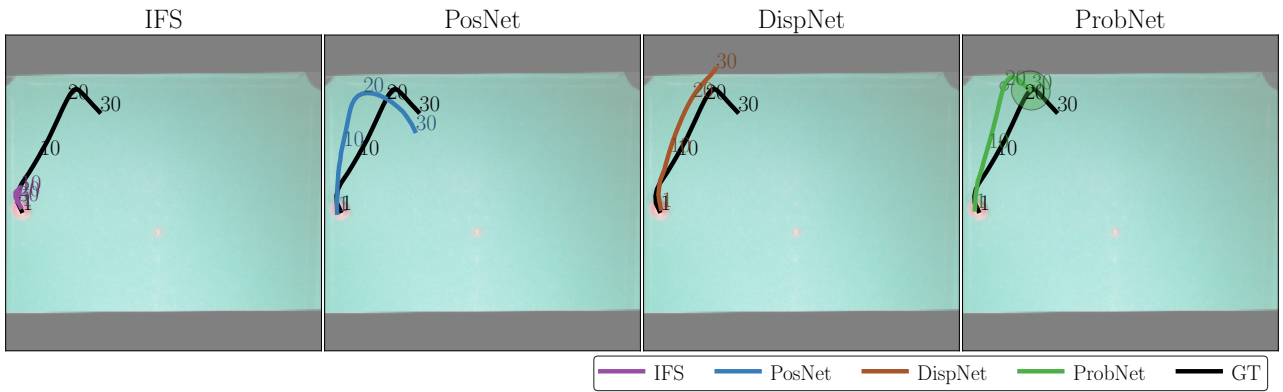
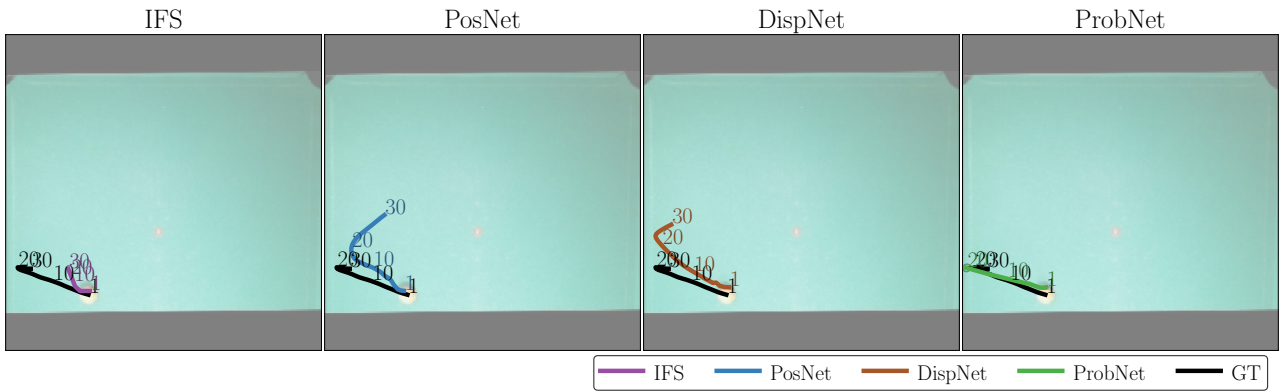
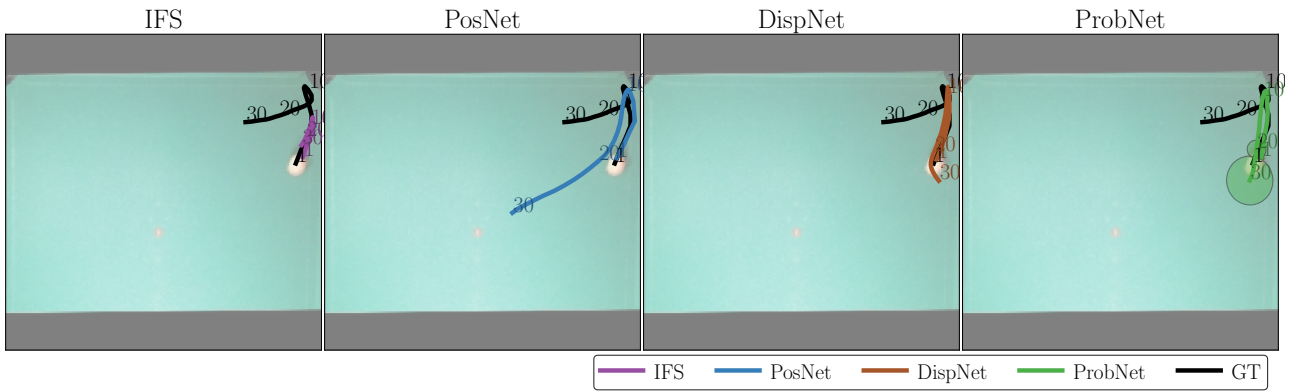


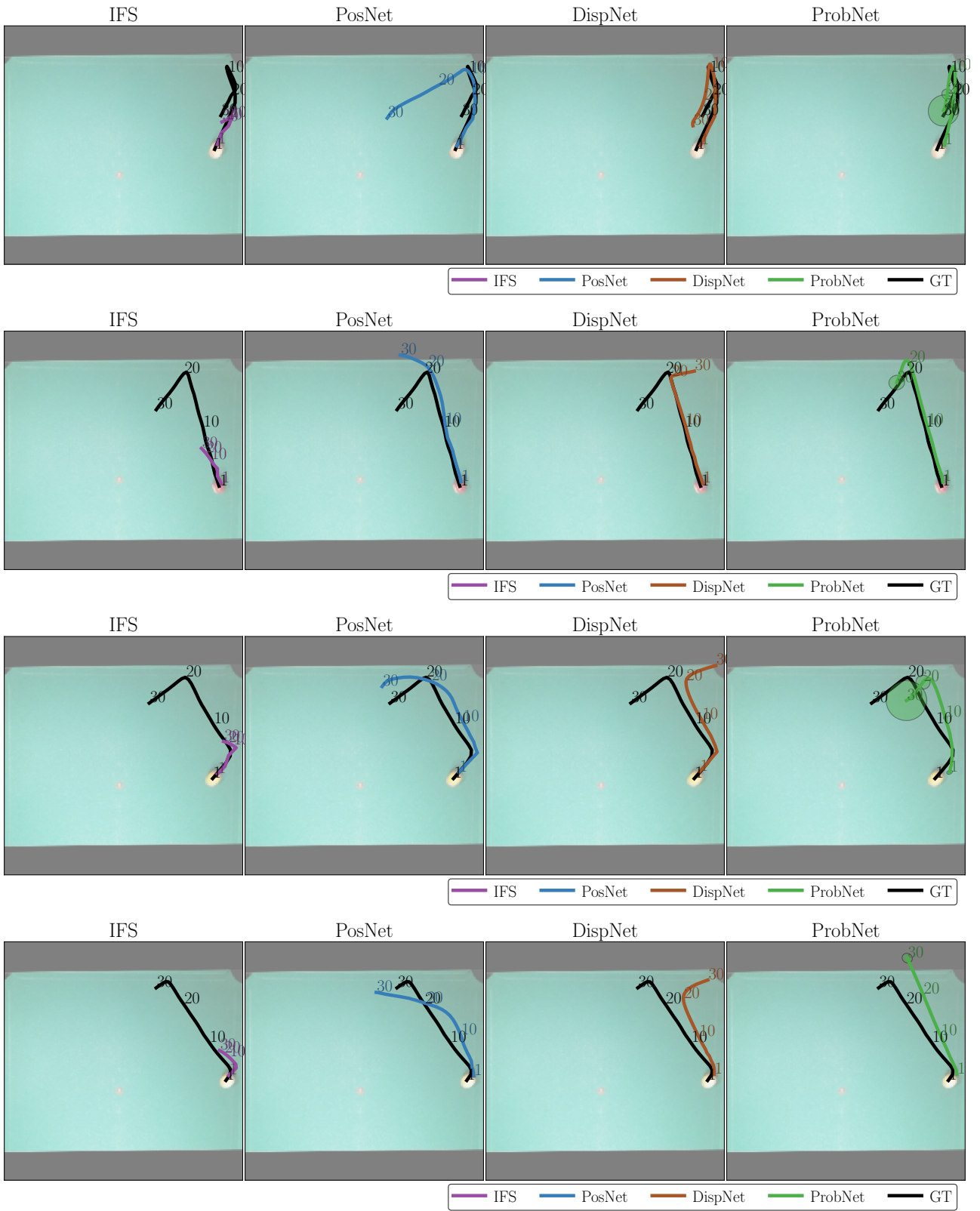




## 5 Real pool 1ball (POOLR 1b.)

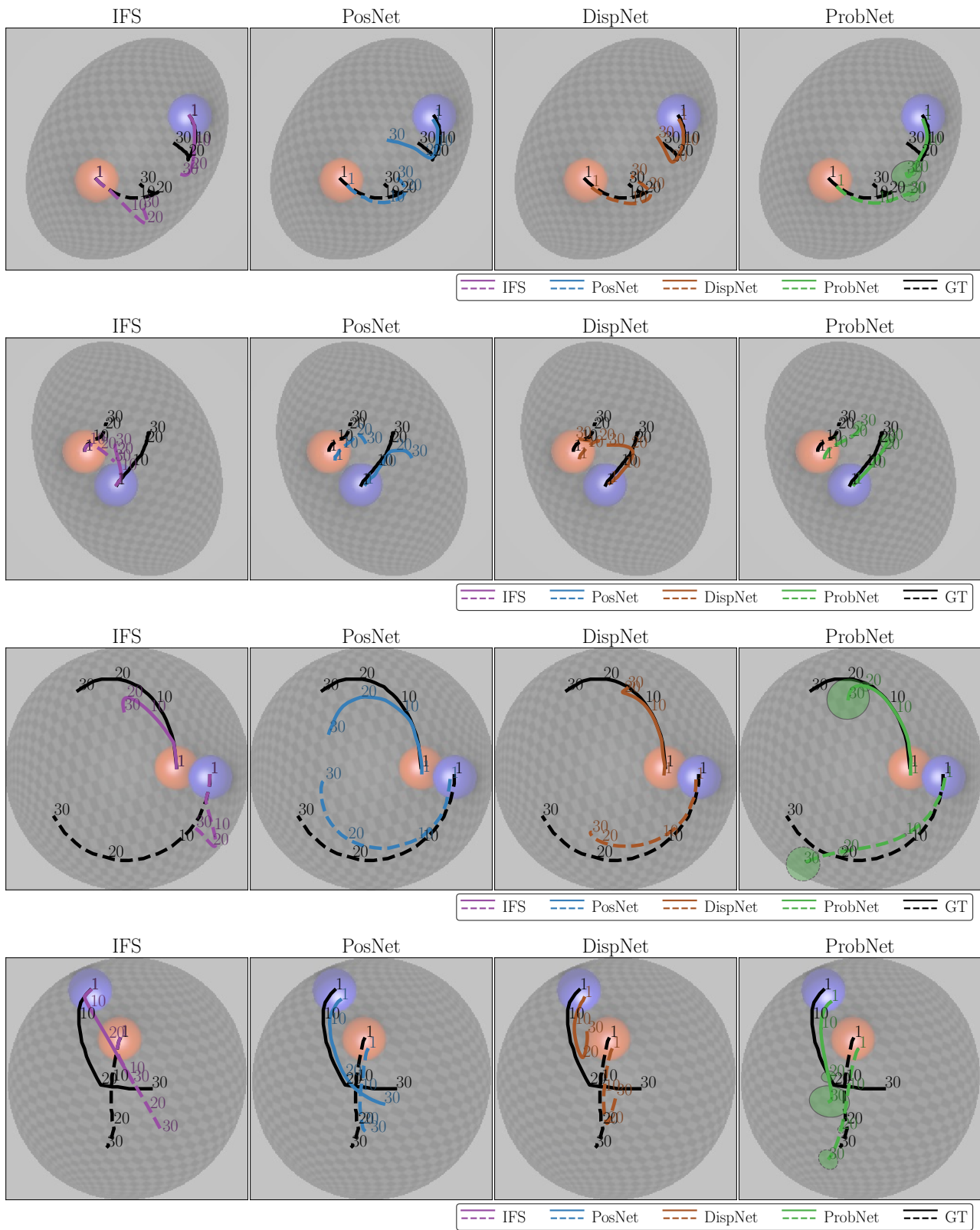


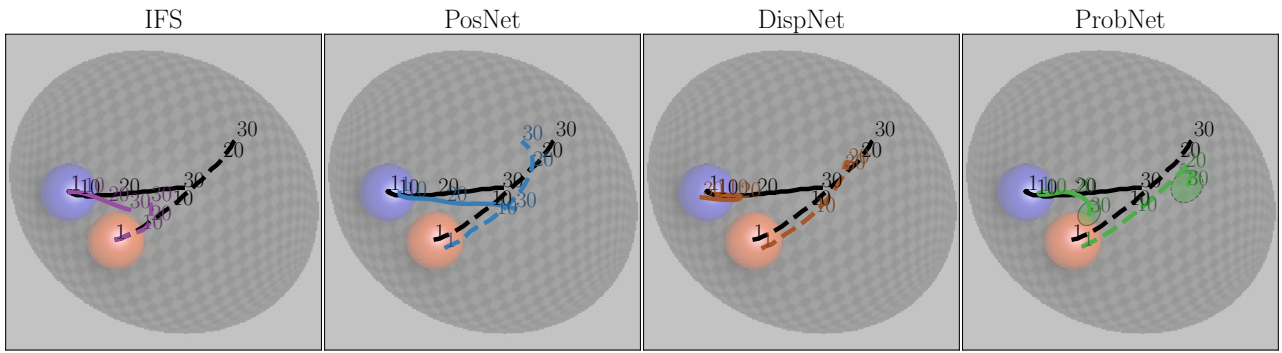




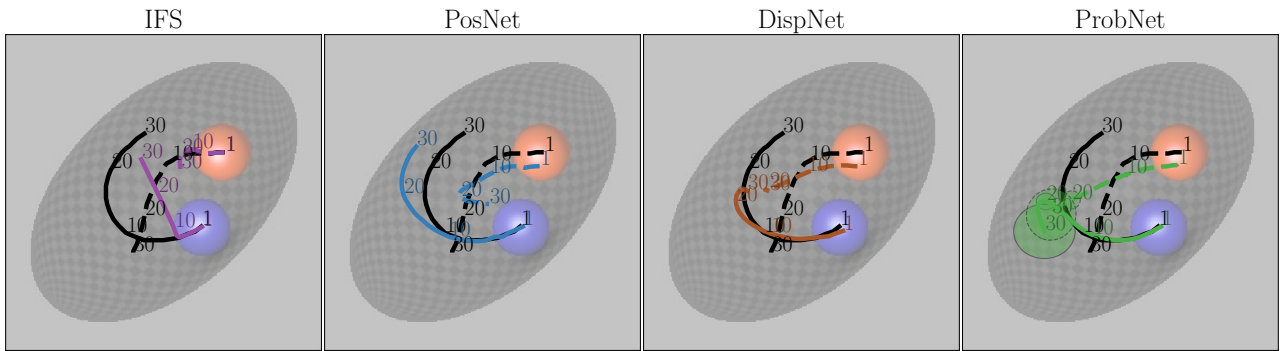


## 6 Synthetic ellipsoid 2balls (BOWLS 2b.)

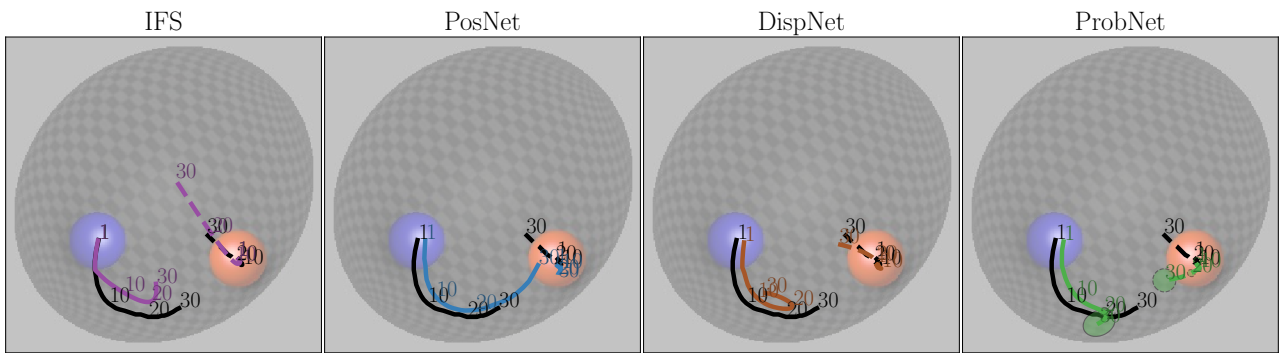




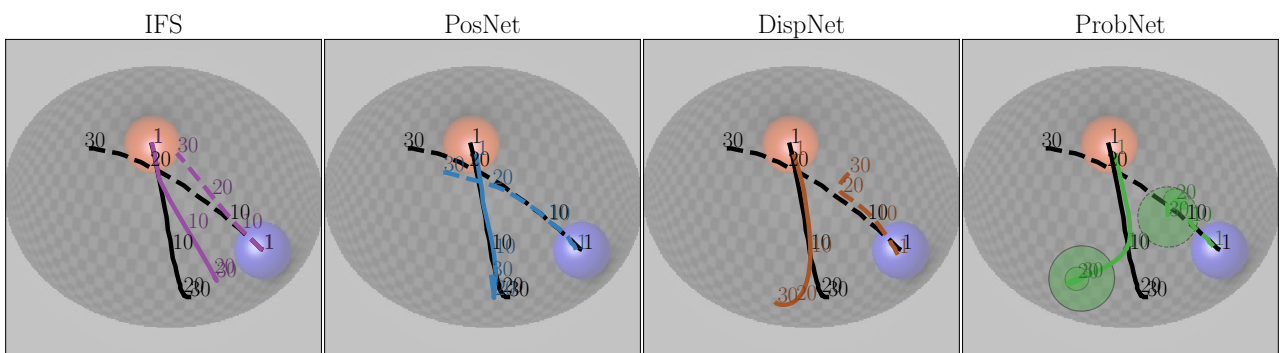
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



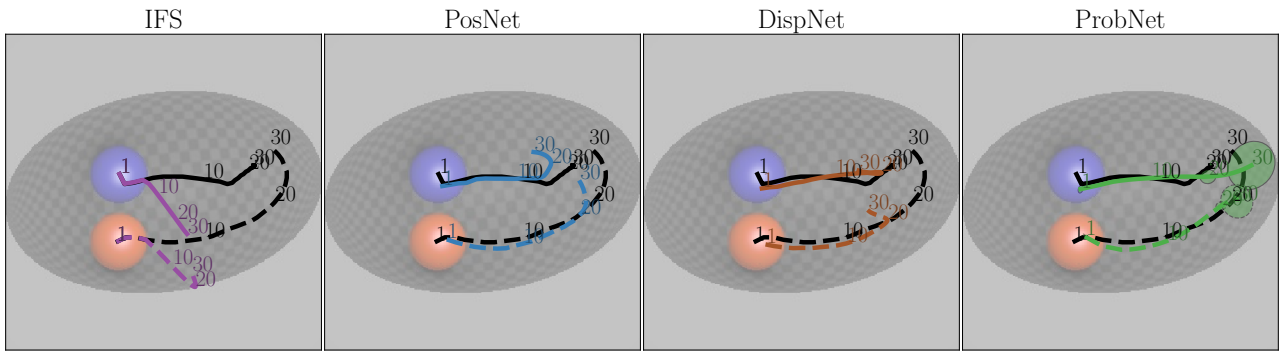
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



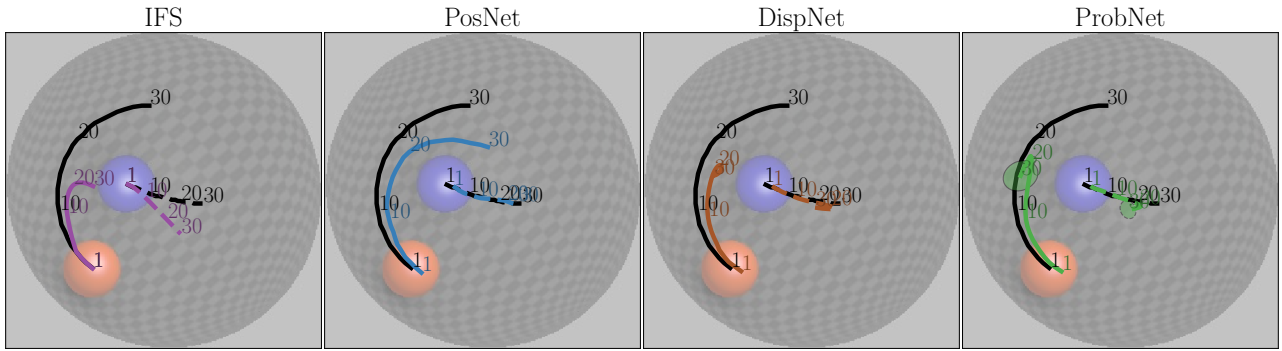
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



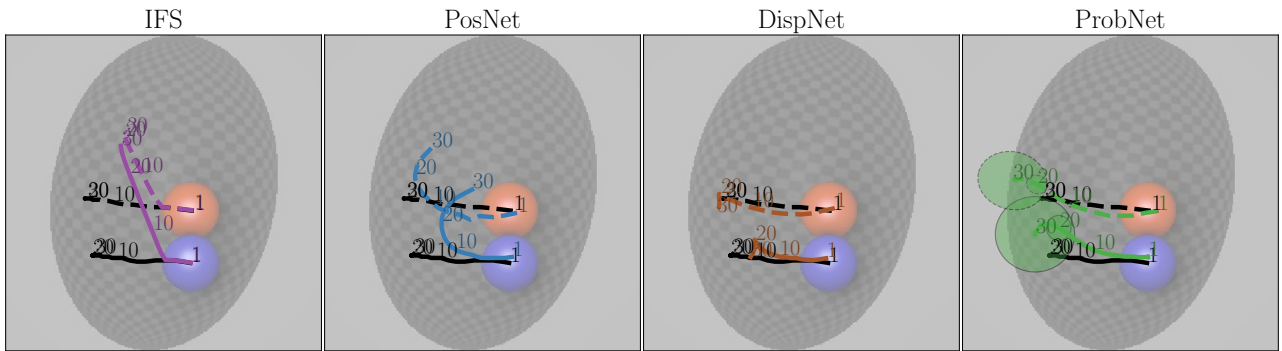
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



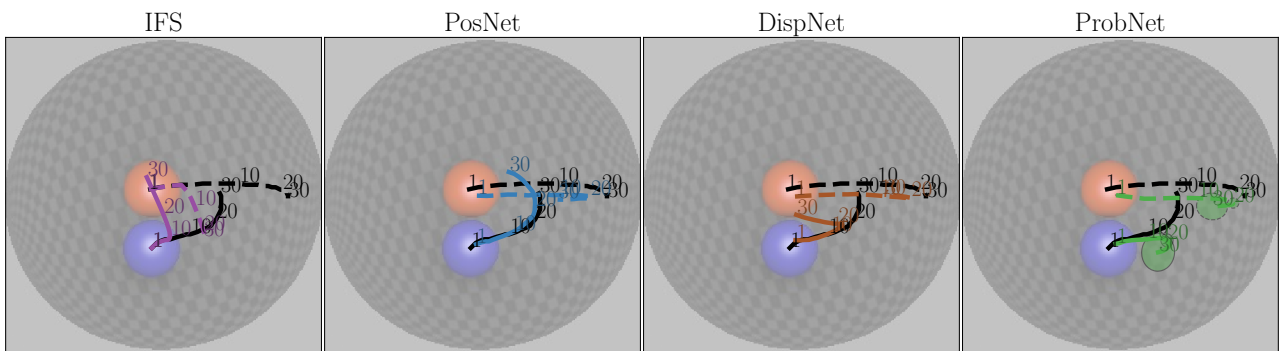
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



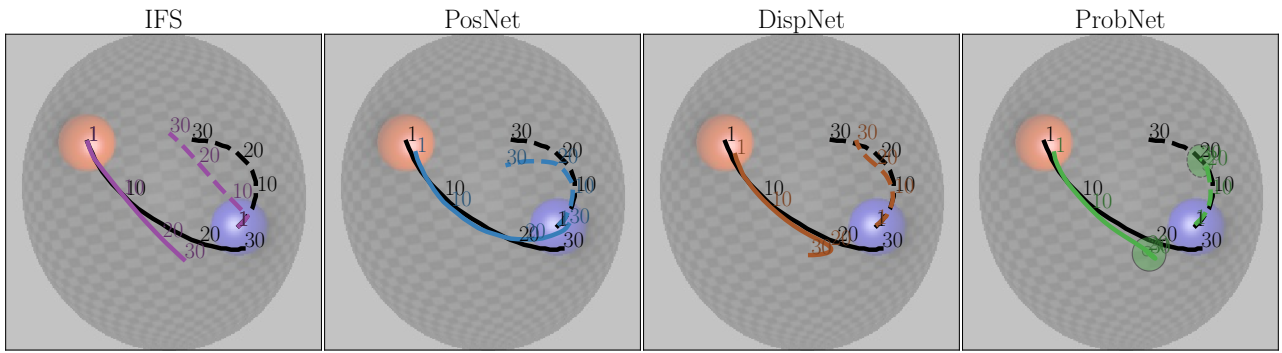
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



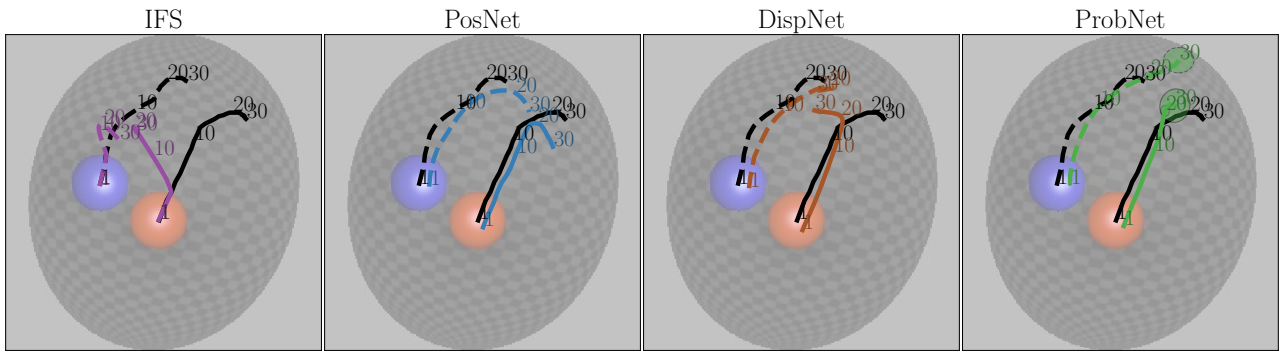
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



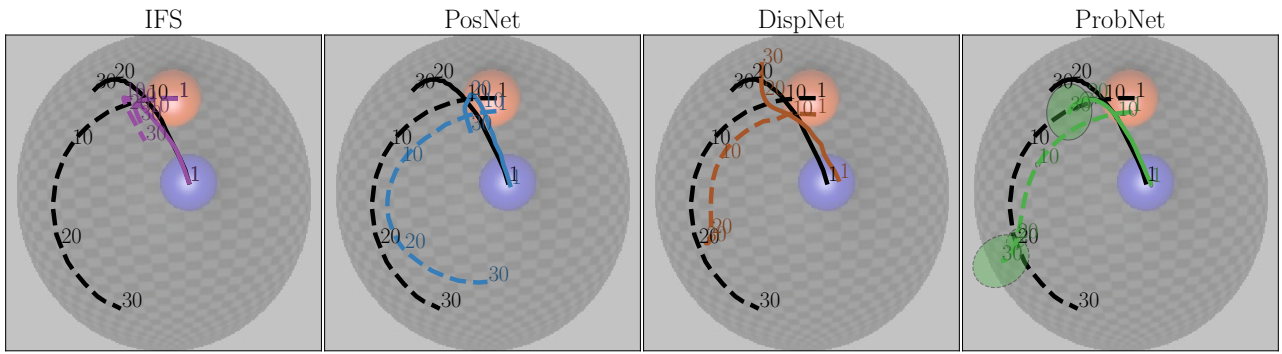
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



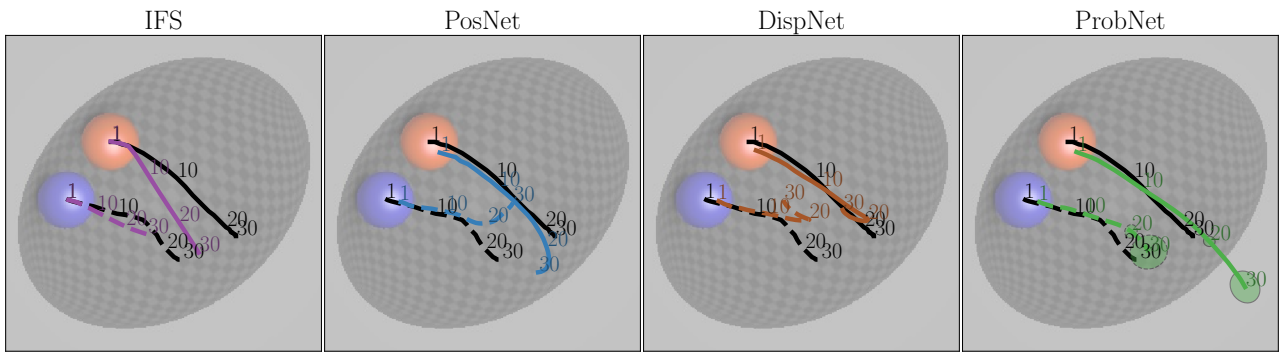
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT



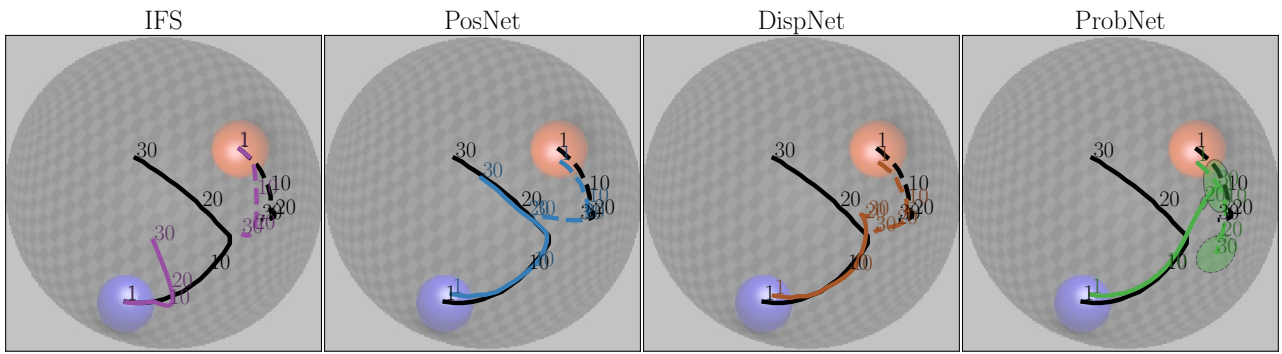
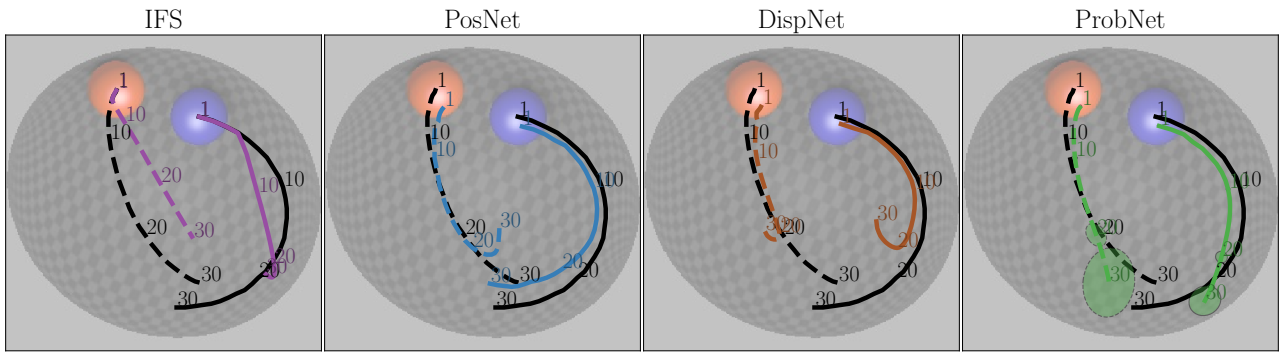
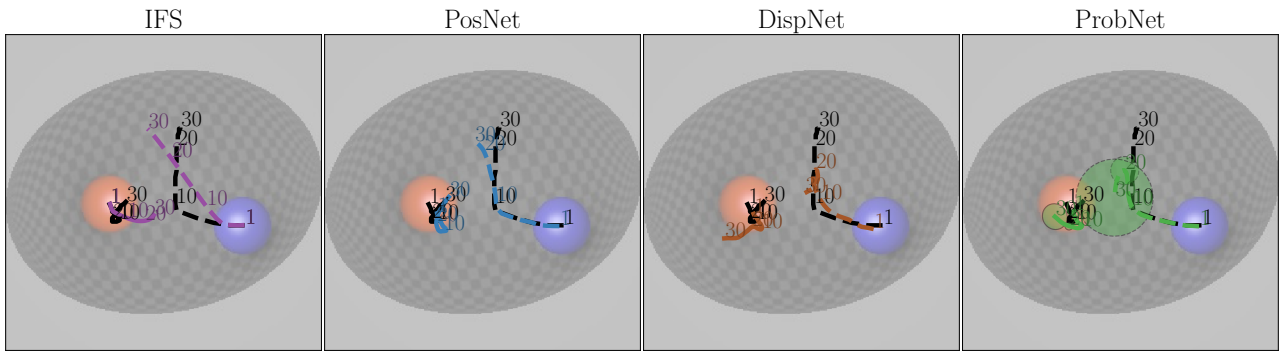
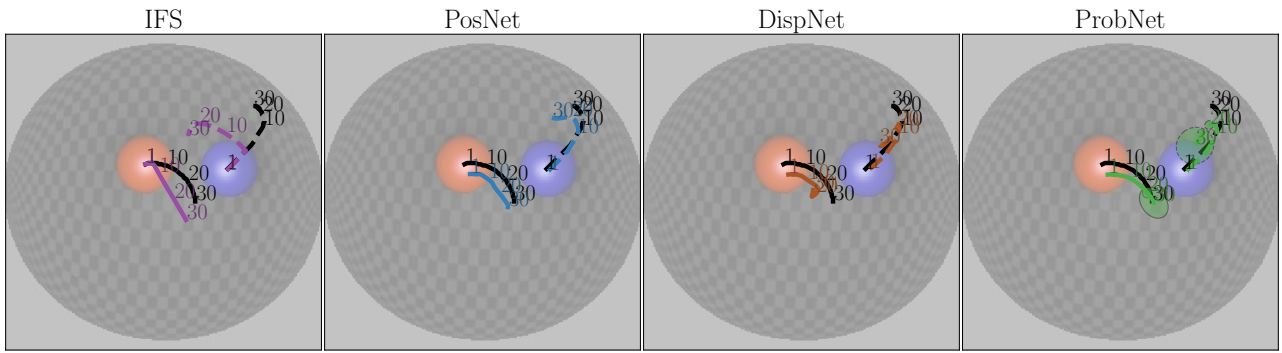
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT

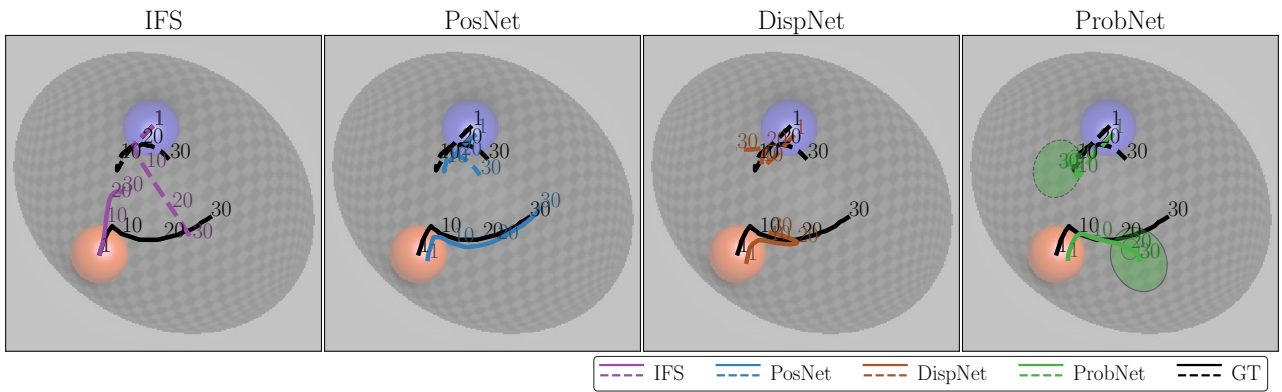
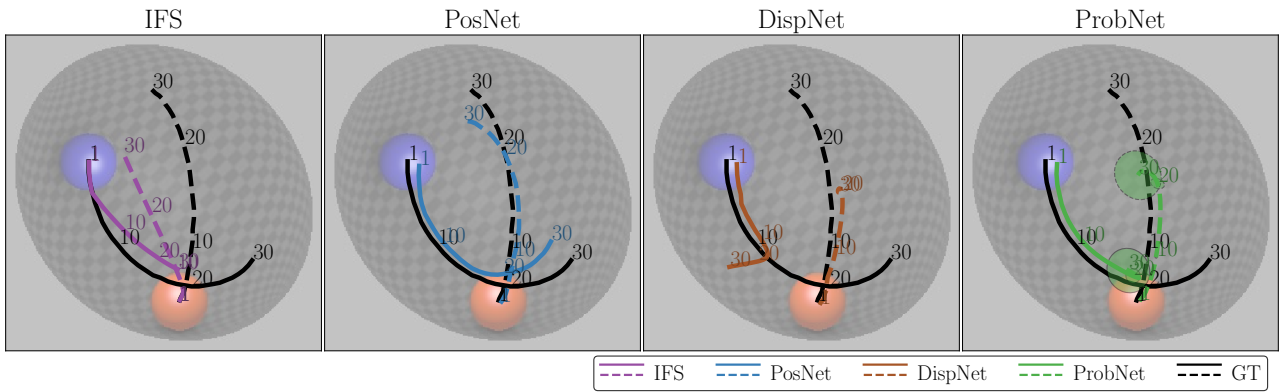
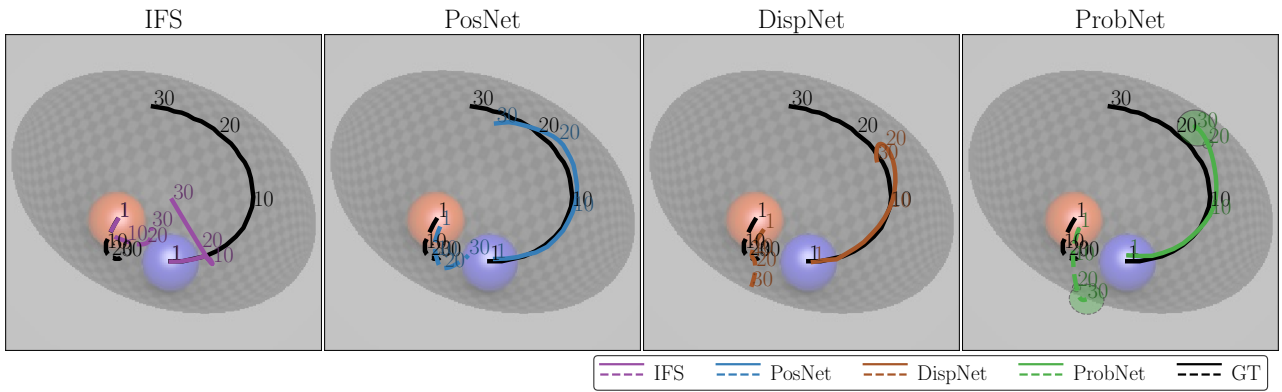
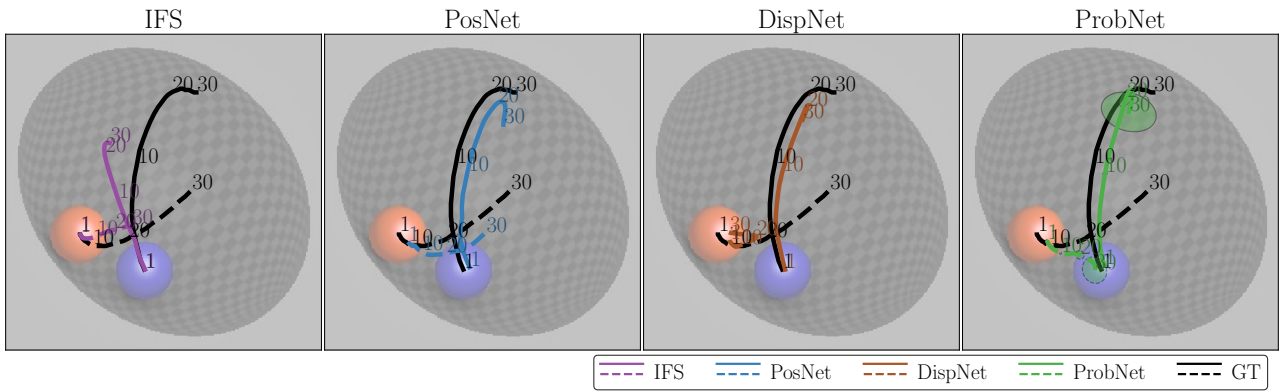


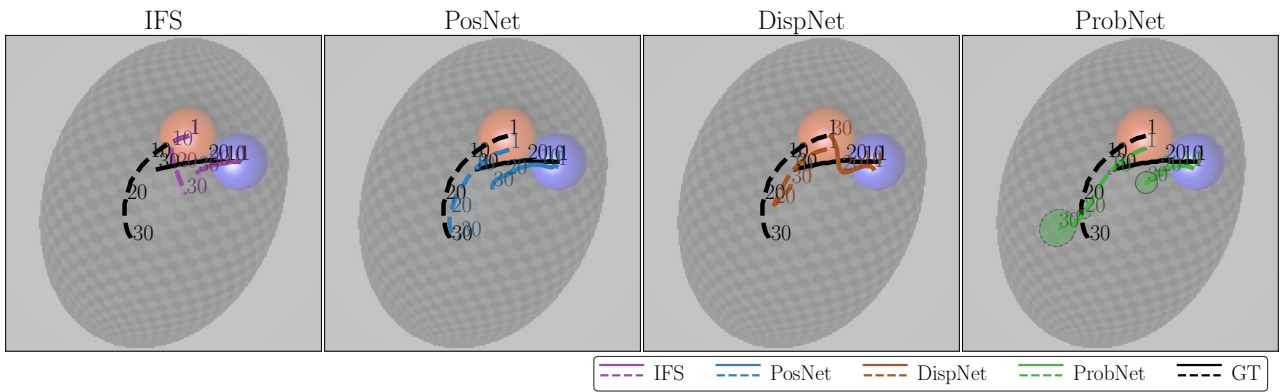
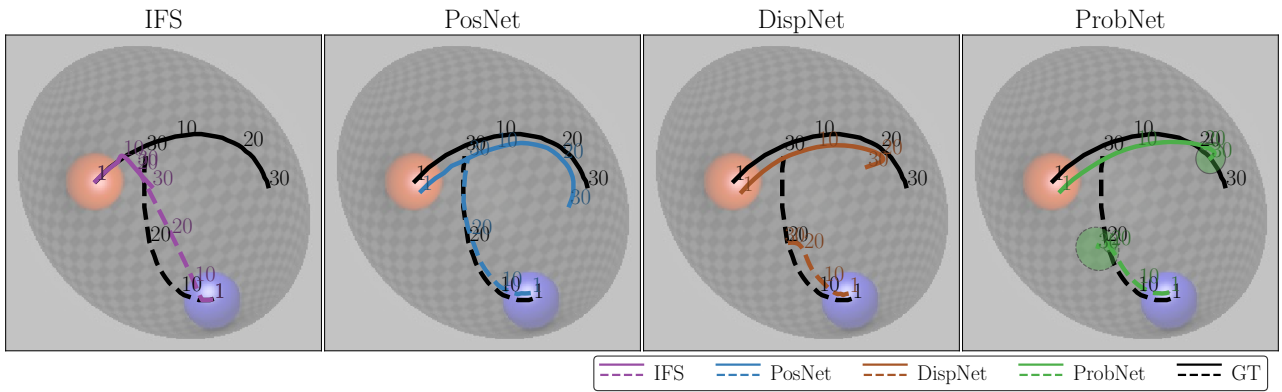
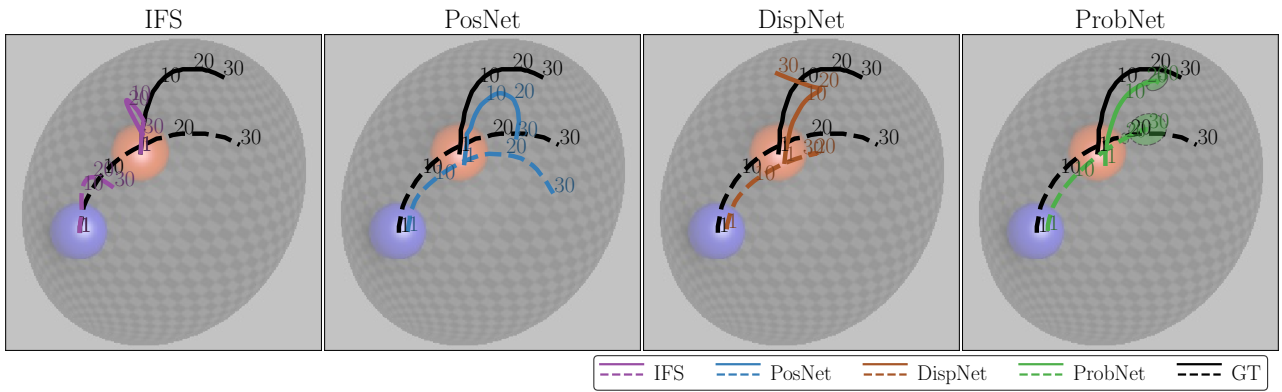
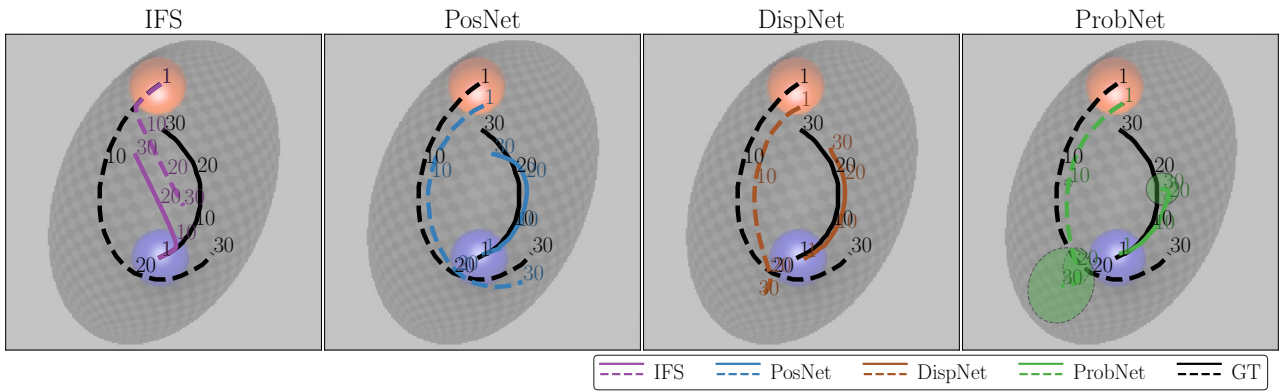
--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT

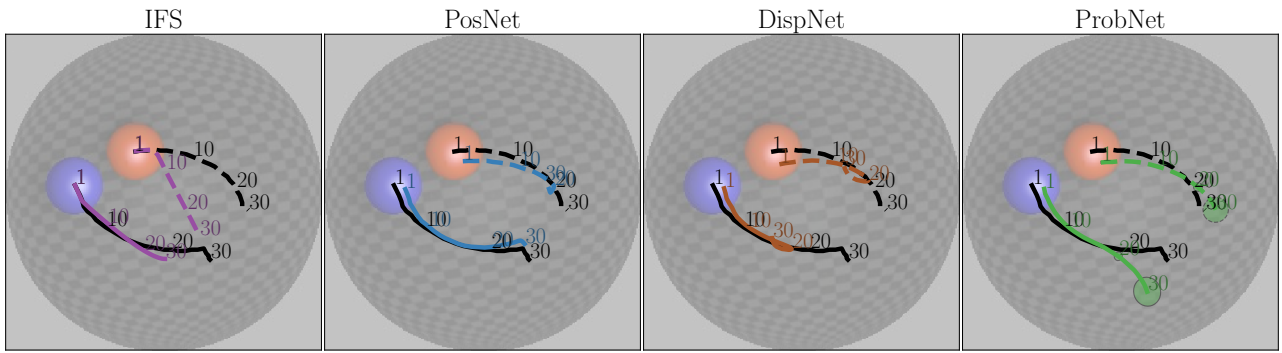


--- IFS    --- PosNet    --- DispNet    --- ProbNet    --- GT

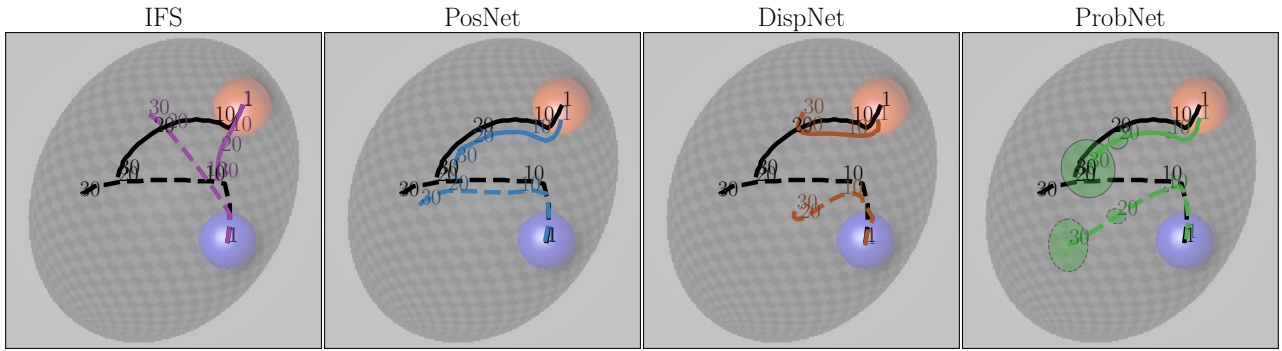




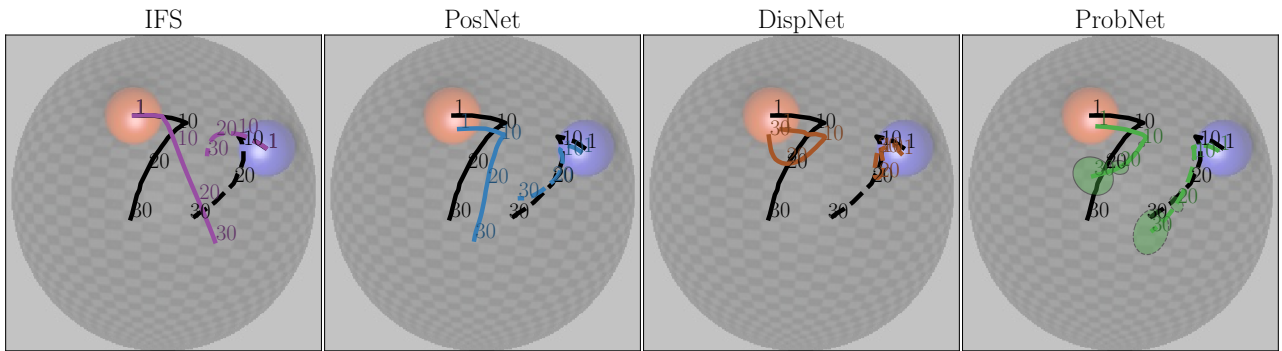




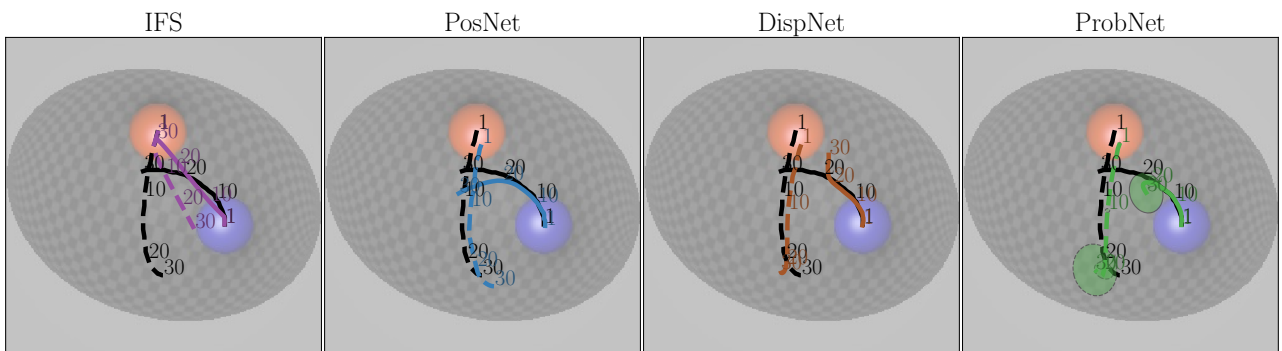
IFS PosNet DispNet ProbNet GT



IFS PosNet DispNet ProbNet GT

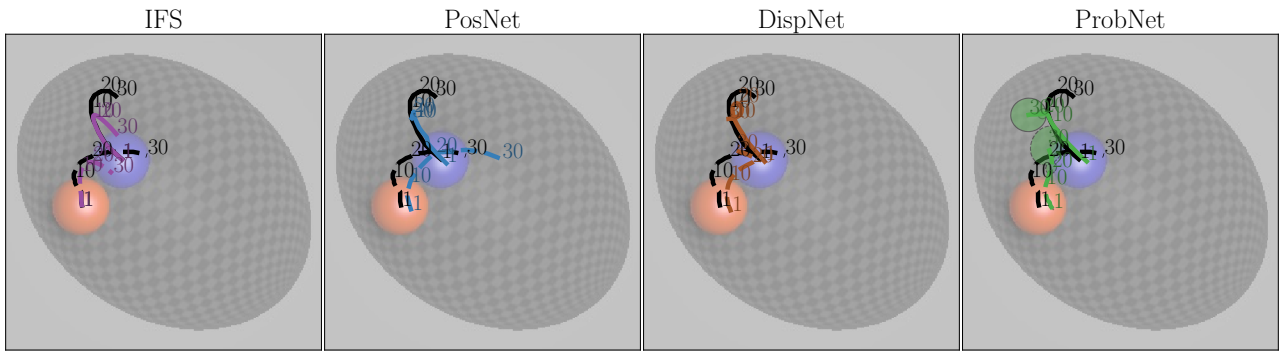


IFS PosNet DispNet ProbNet GT

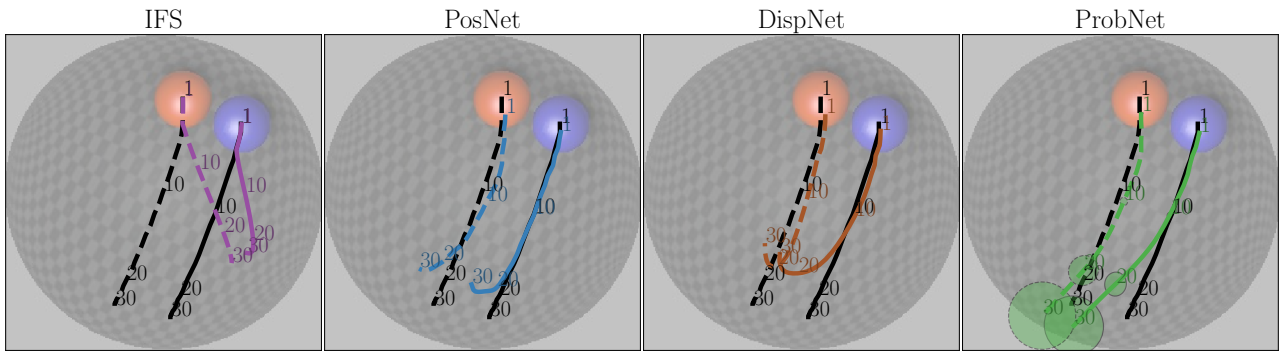


IFS PosNet DispNet ProbNet GT

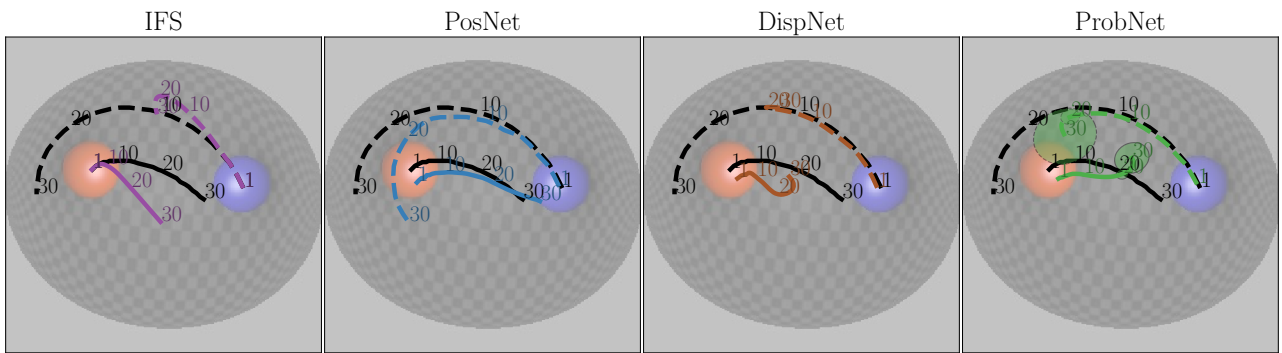




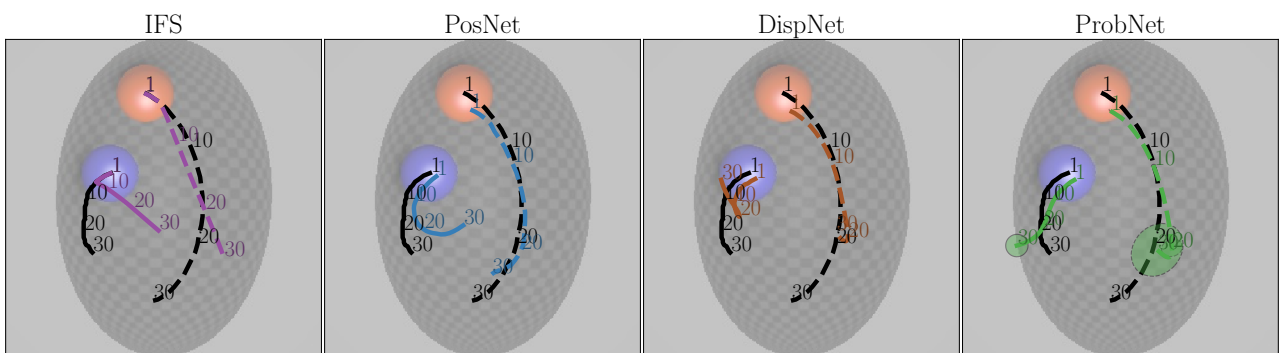
IFS PosNet DispNet ProbNet GT



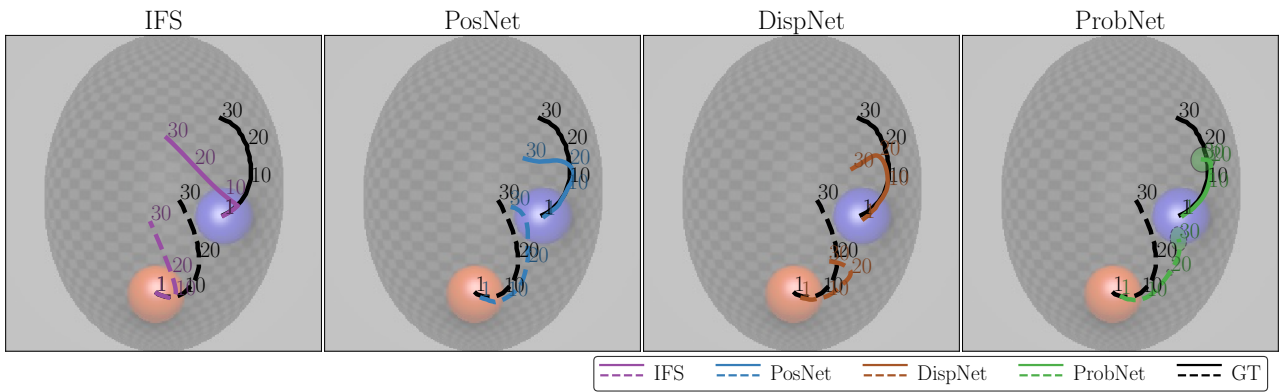
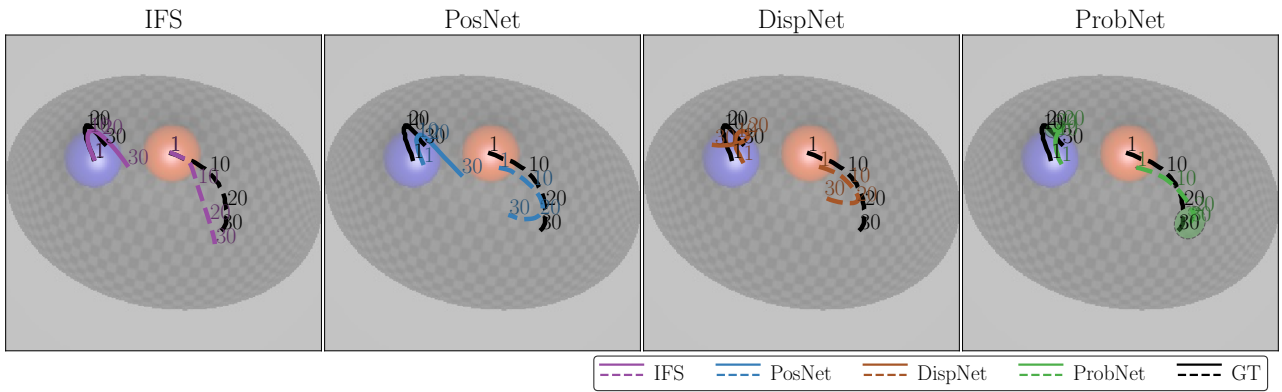
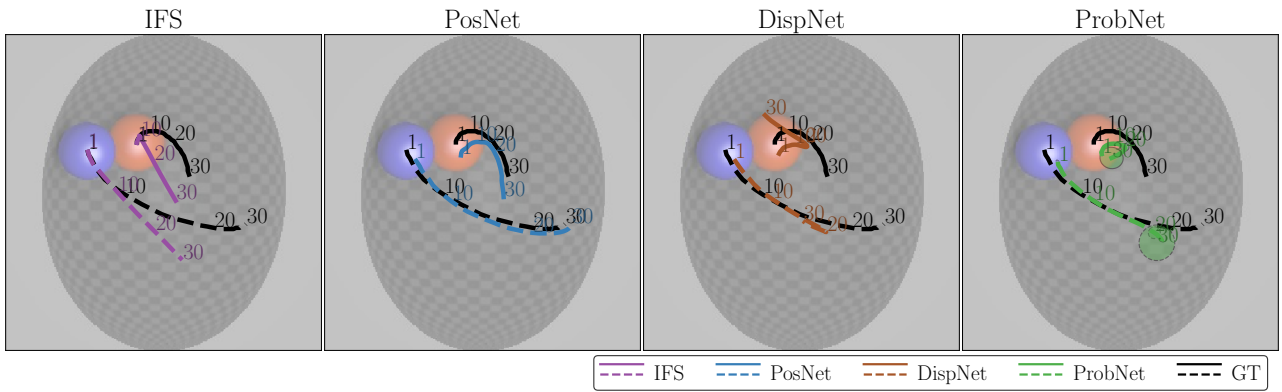
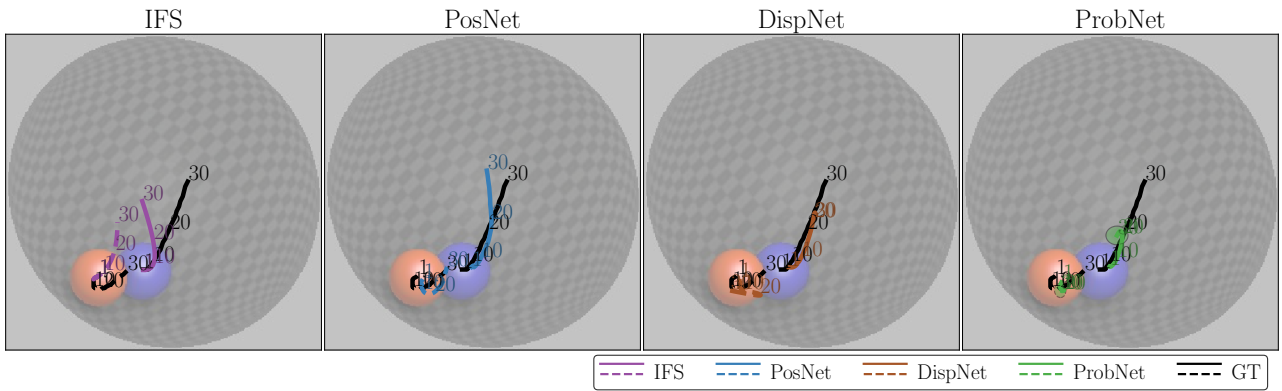
IFS PosNet DispNet ProbNet GT

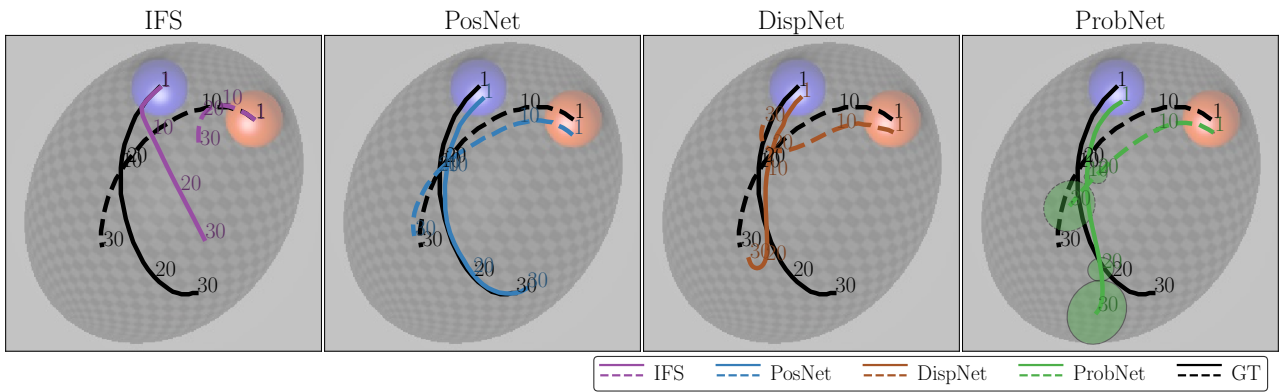
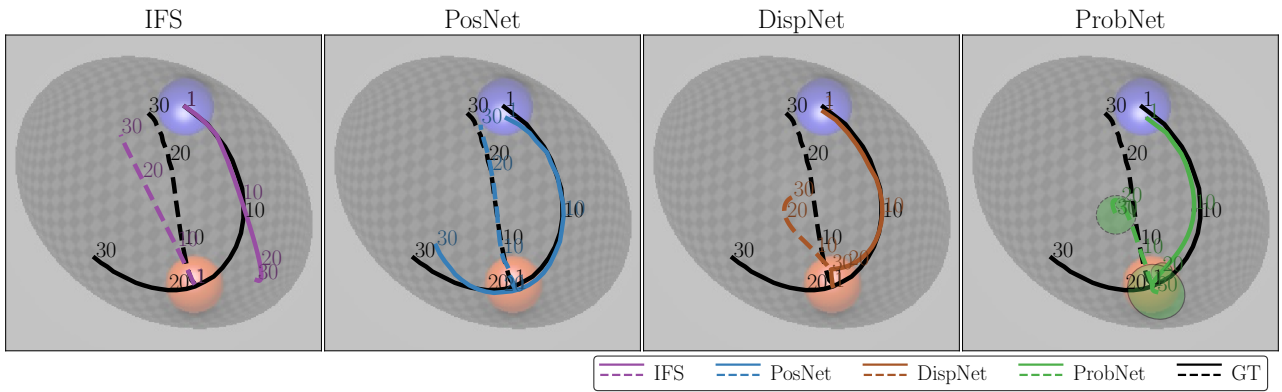
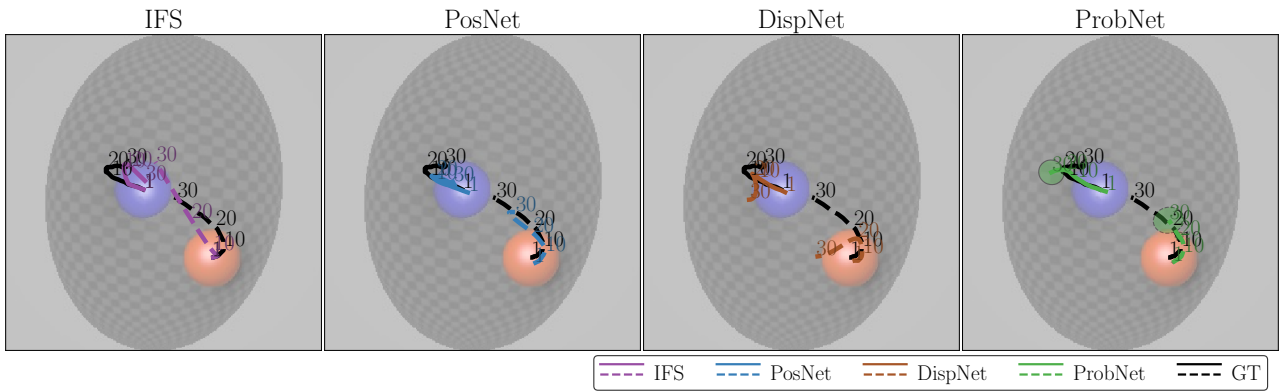
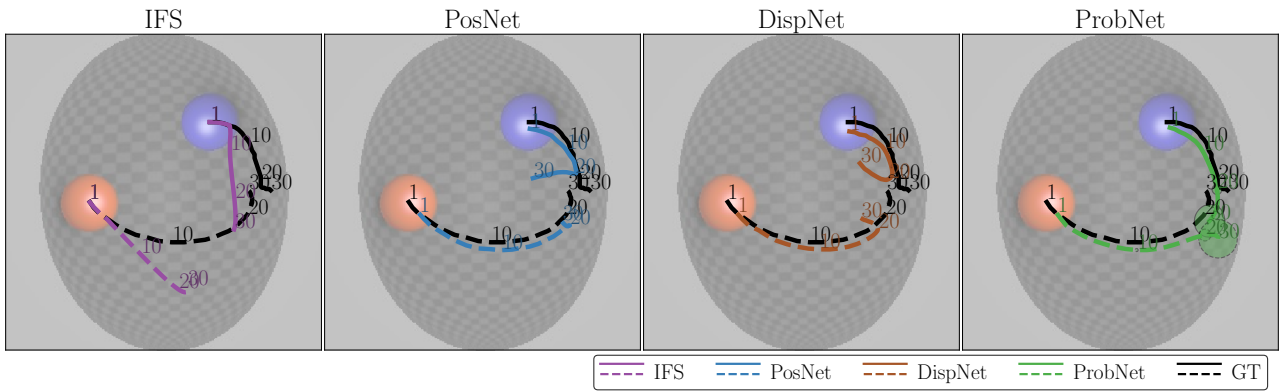


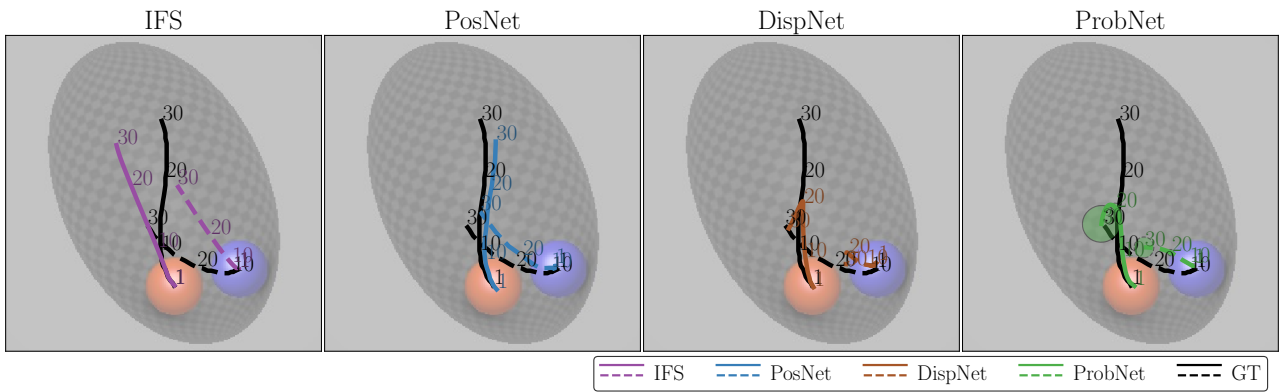
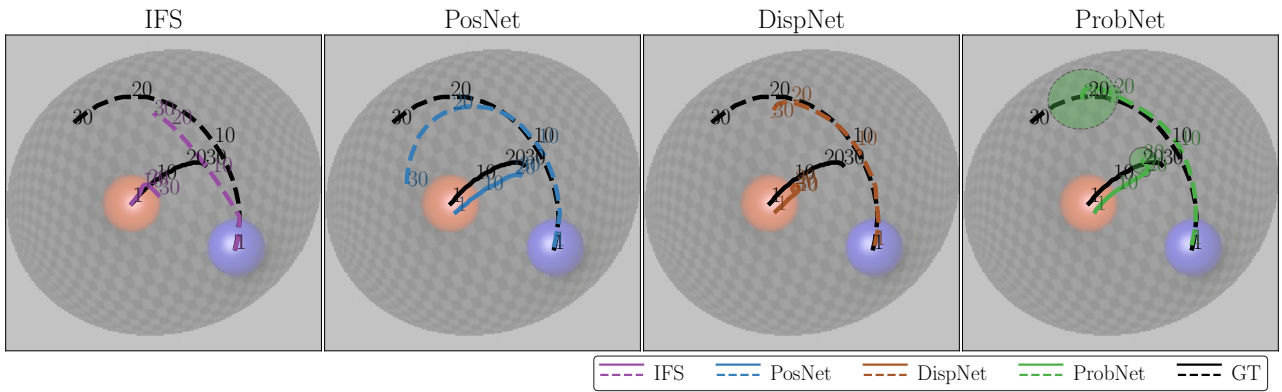
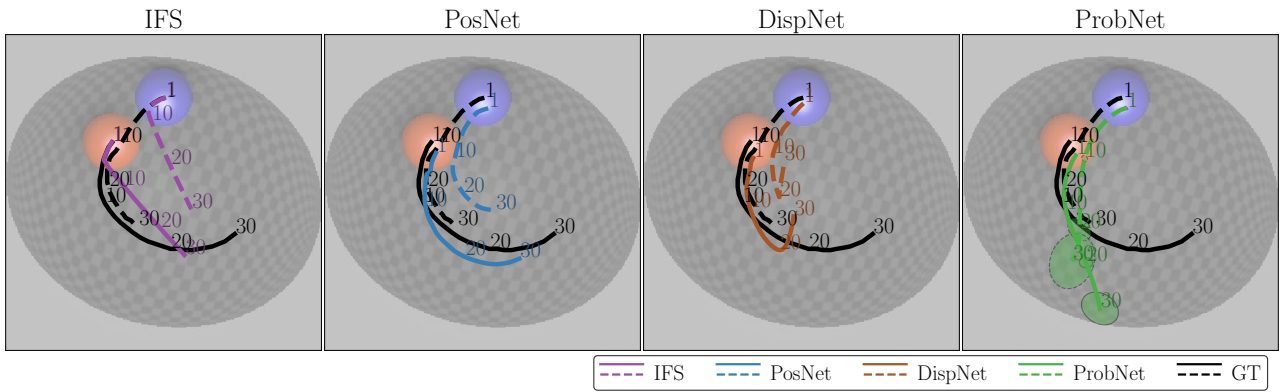
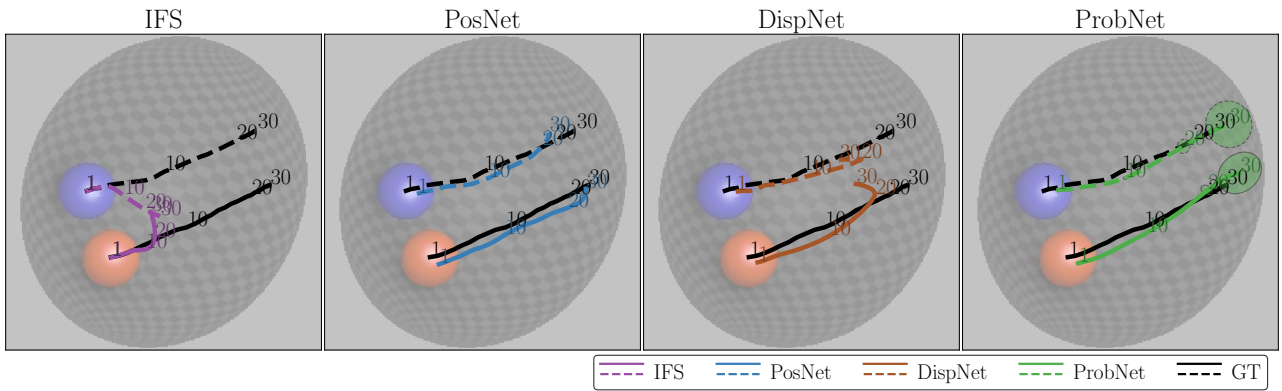
IFS PosNet DispNet ProbNet GT



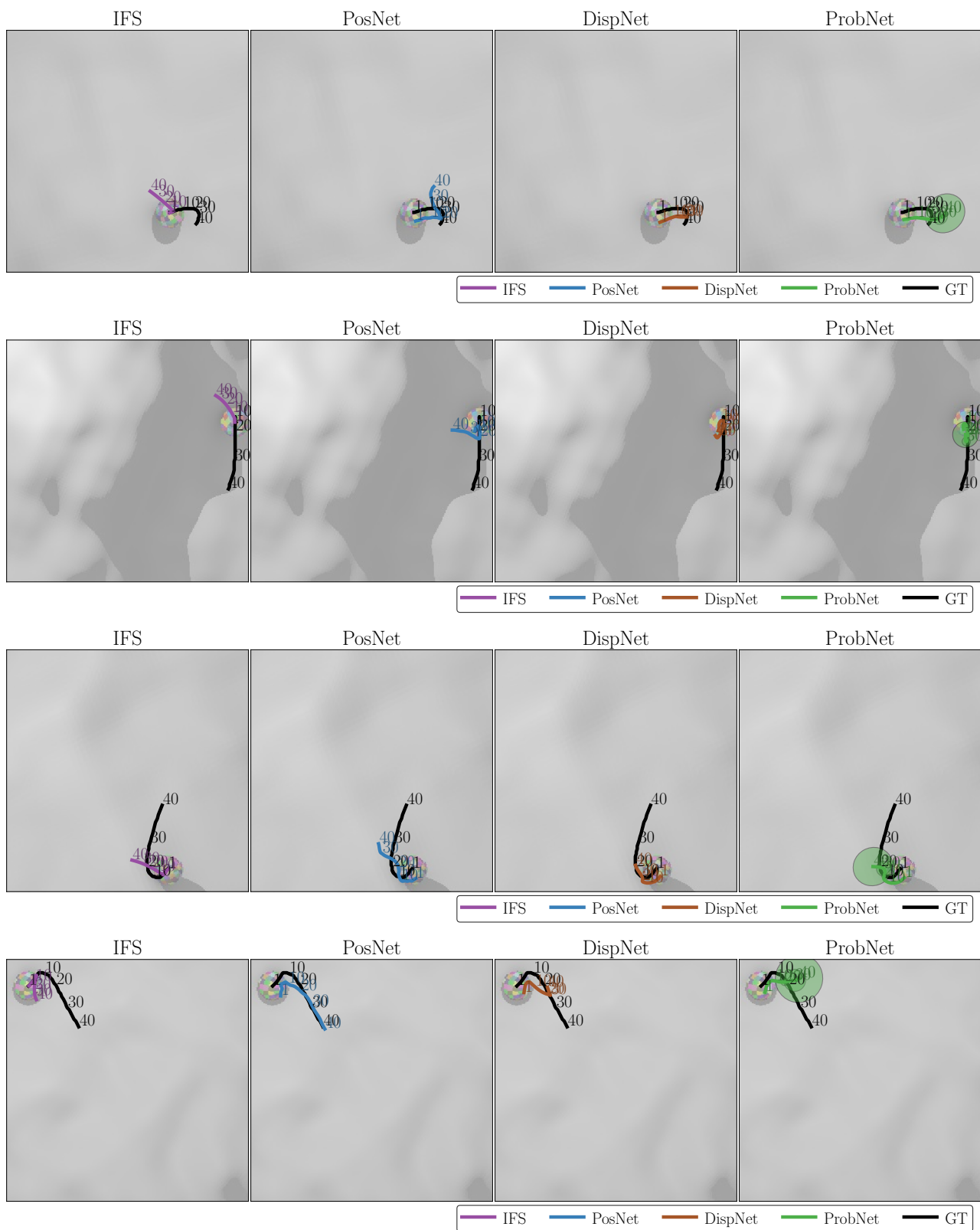
IFS PosNet DispNet ProbNet GT

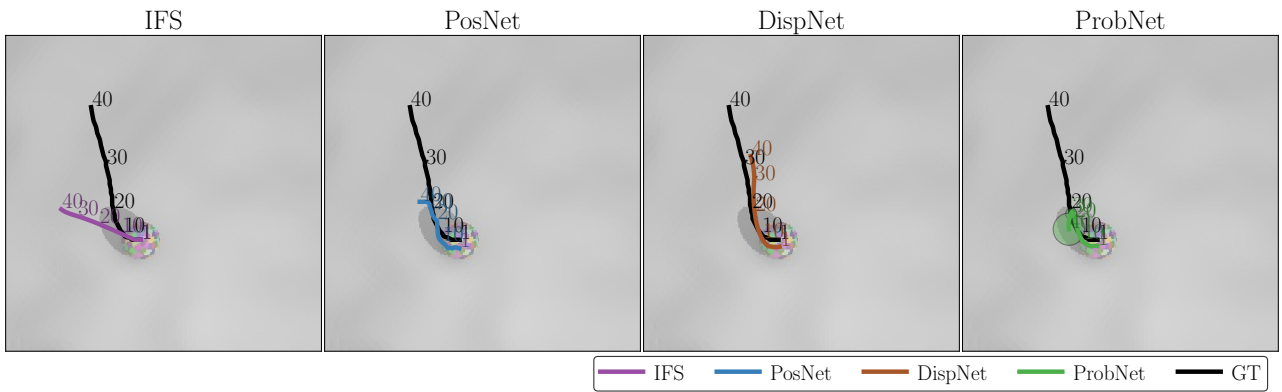
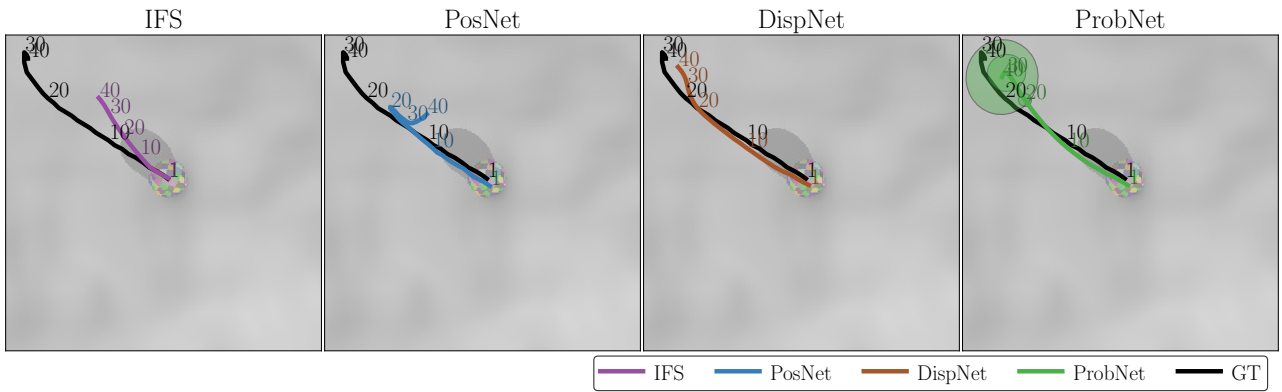
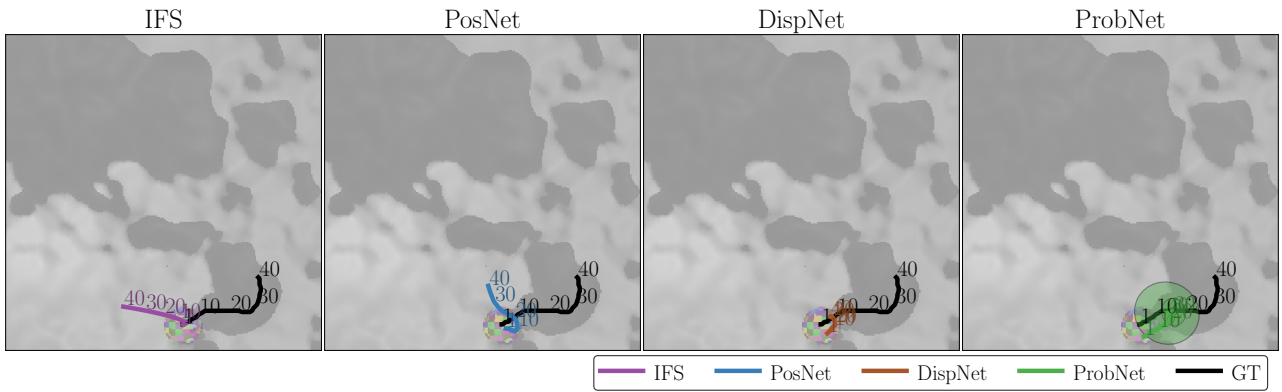
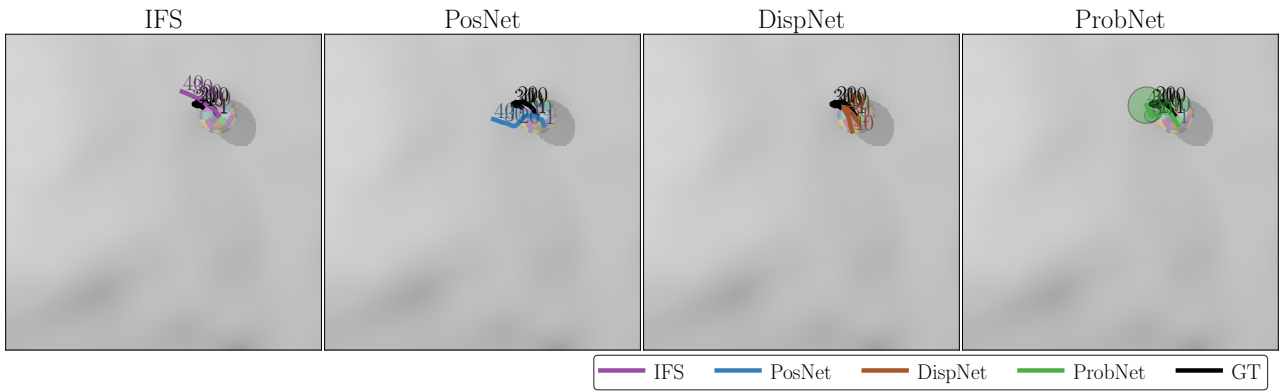


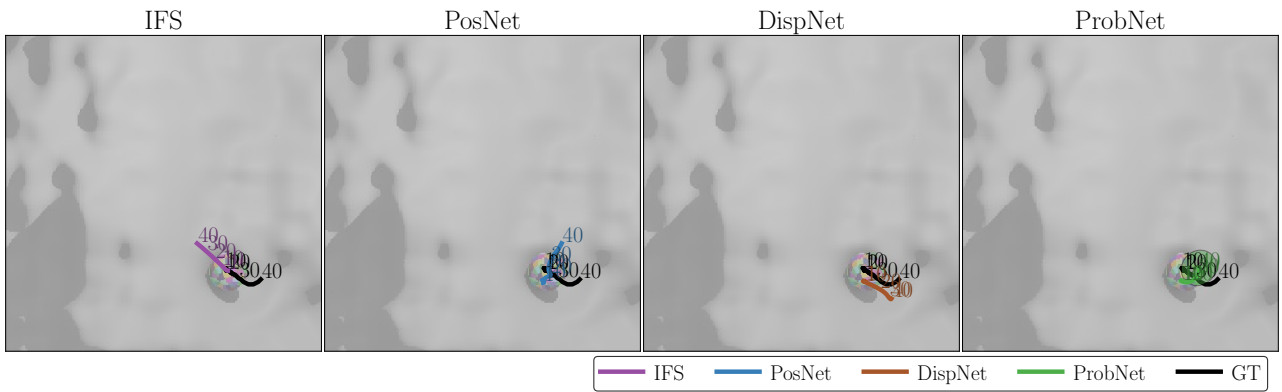
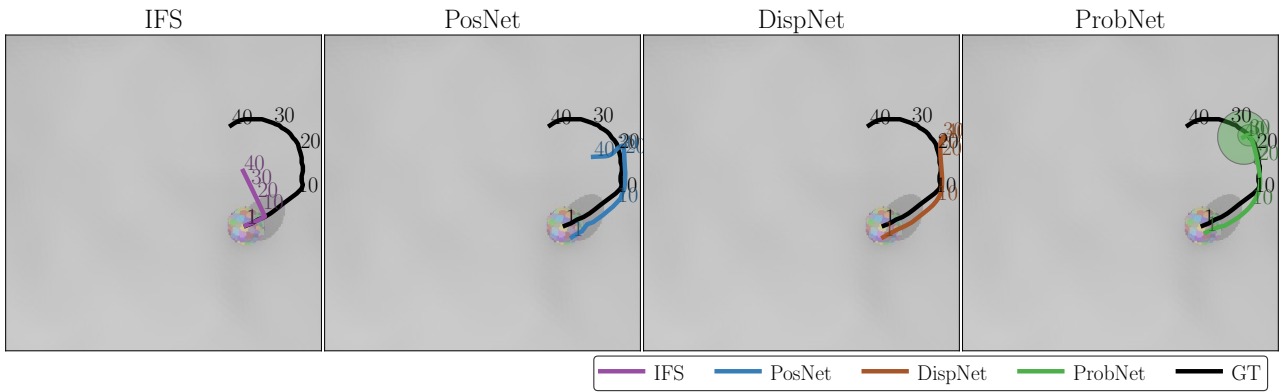
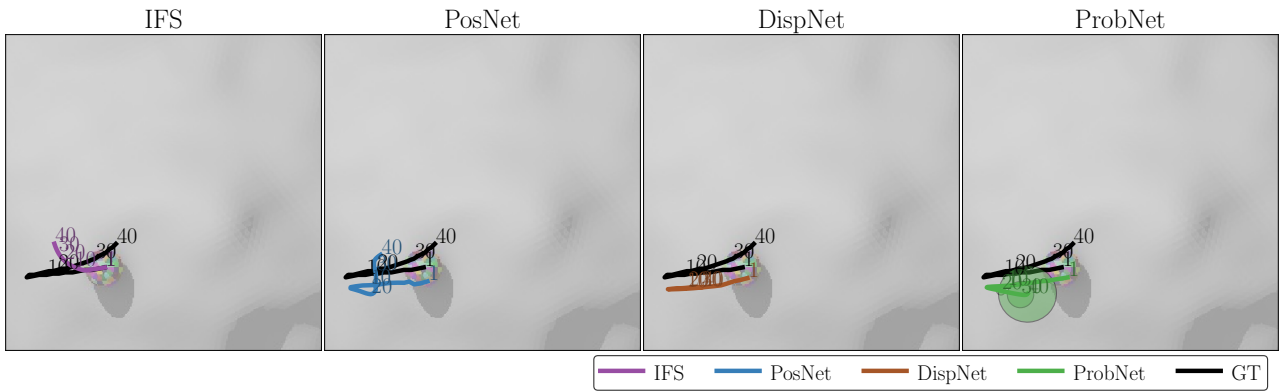
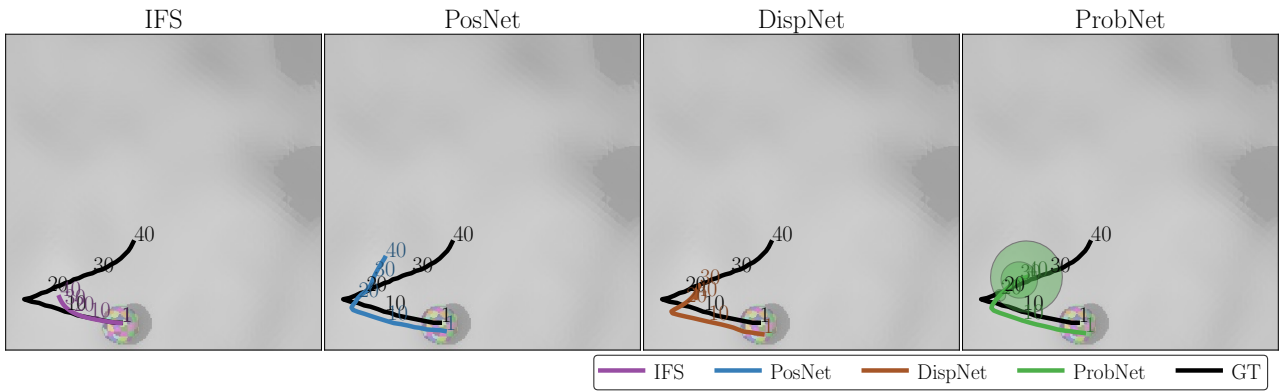


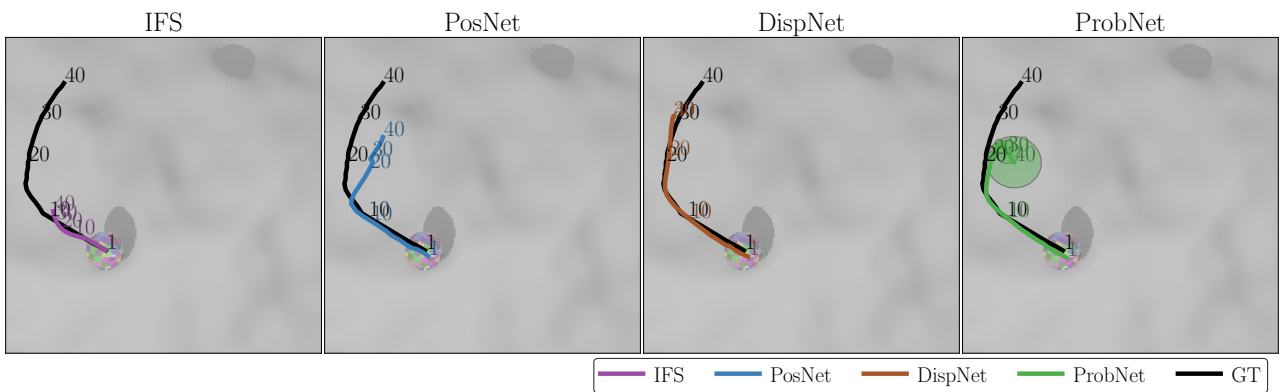
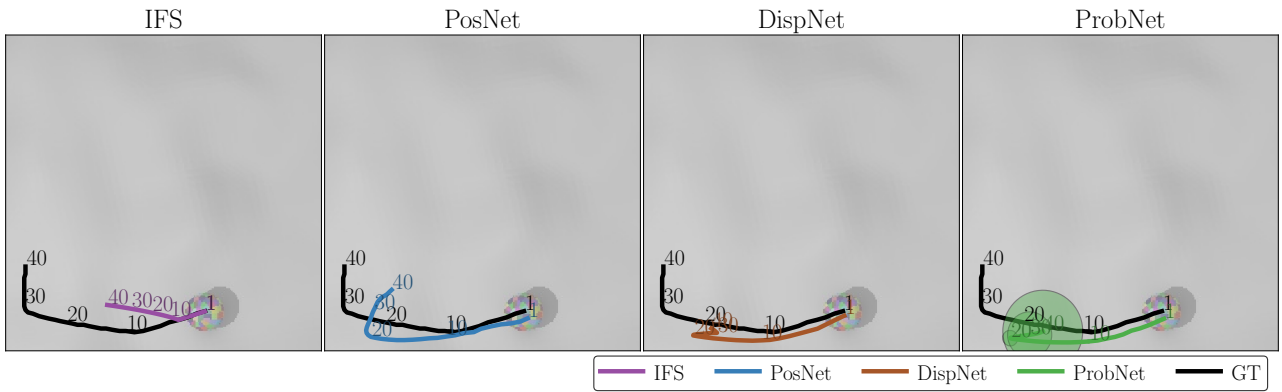
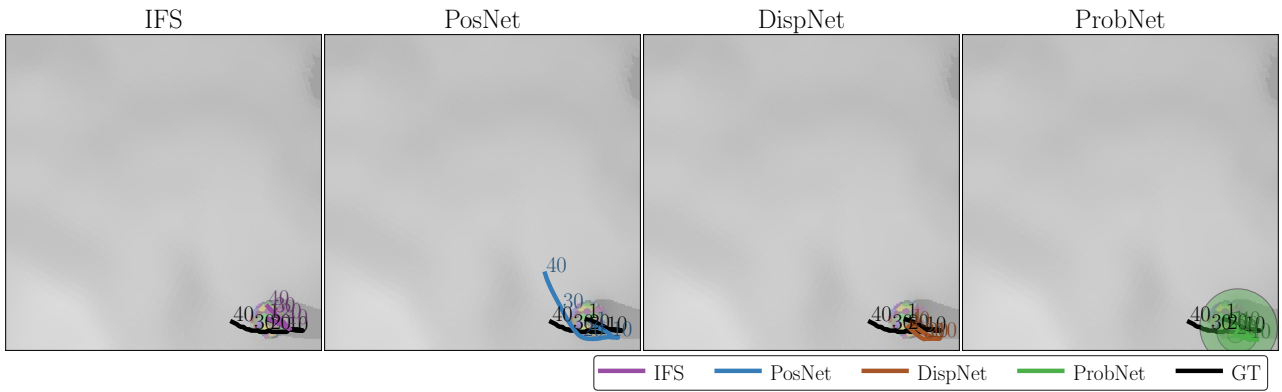
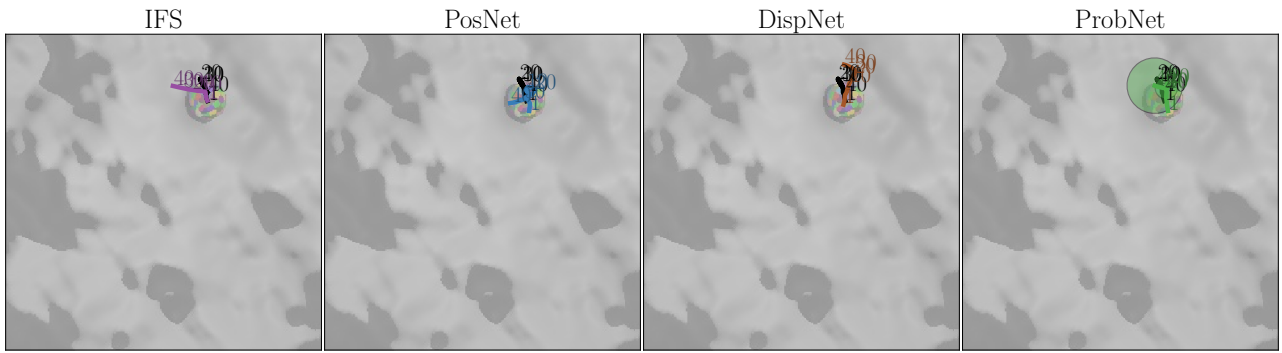


## 7 Synthetic heightfield 1ball (HEIGHTS 1b.)

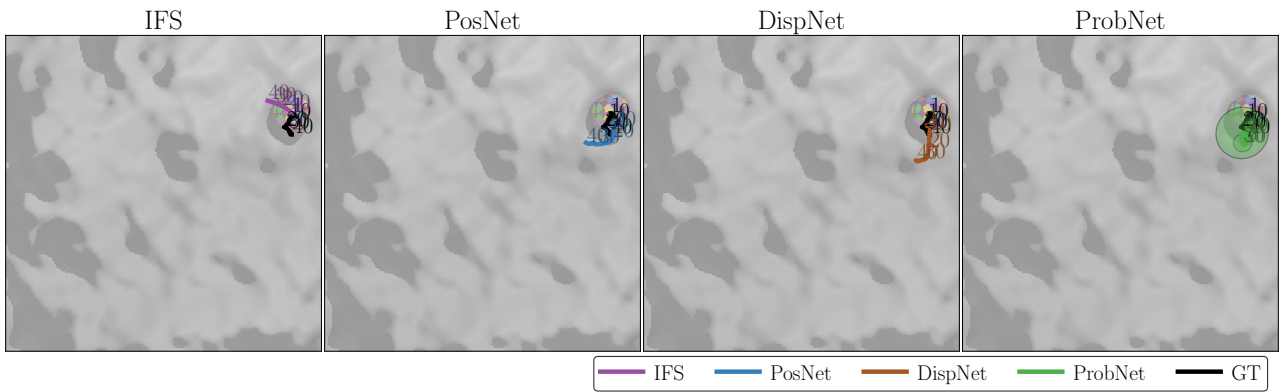
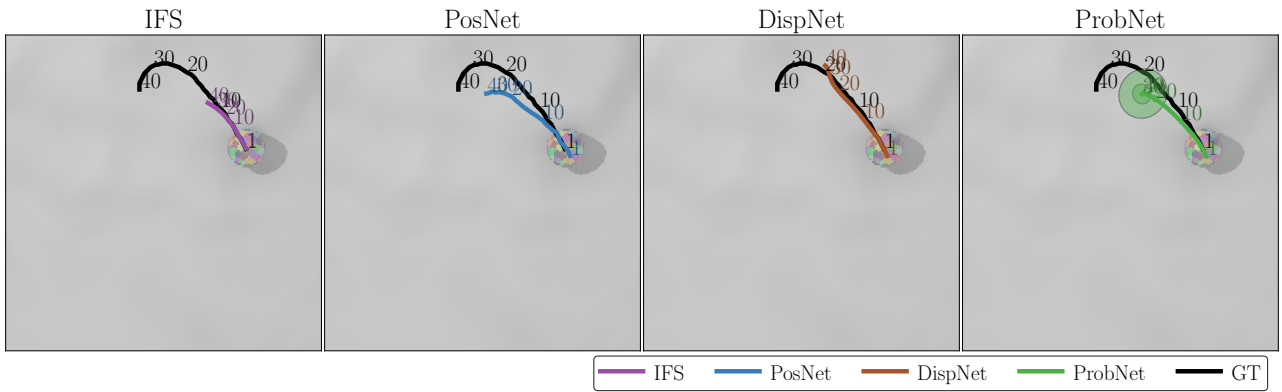
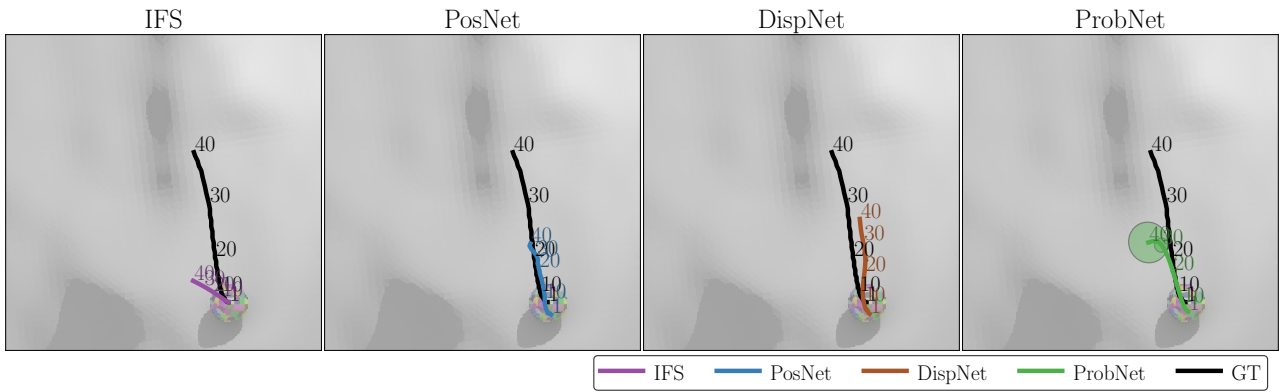
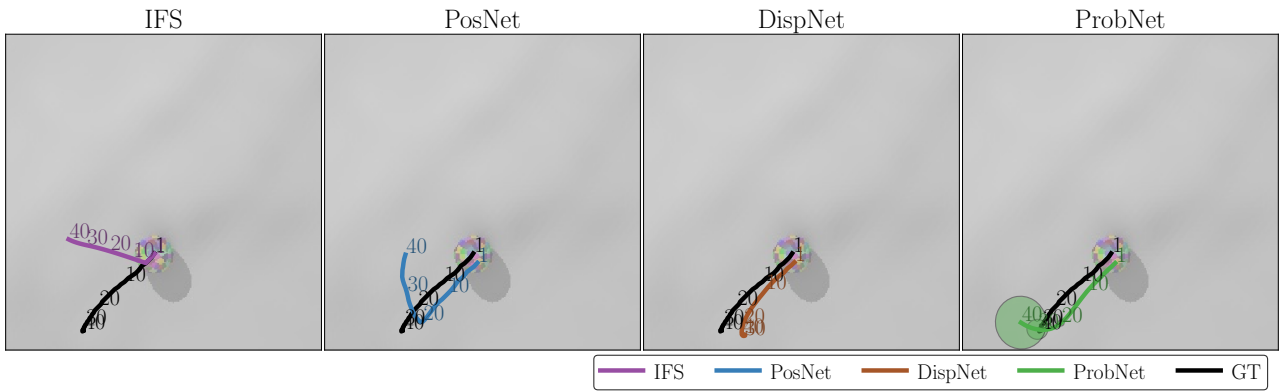


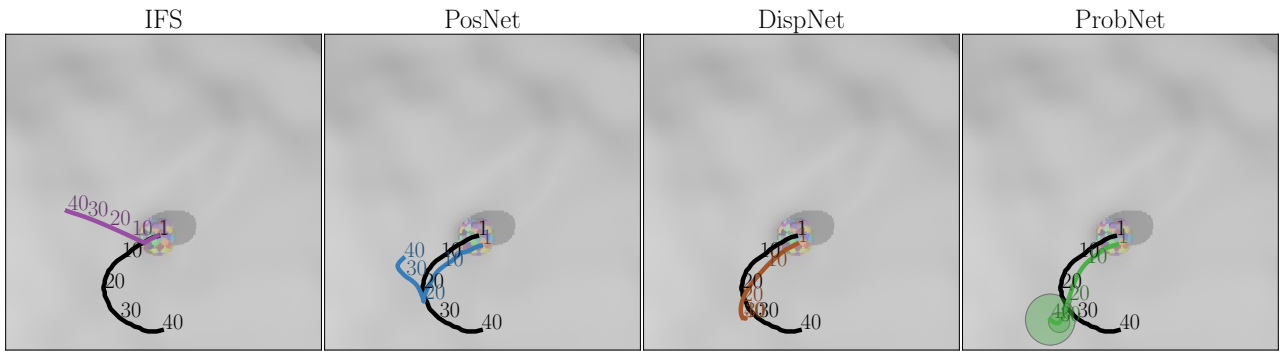




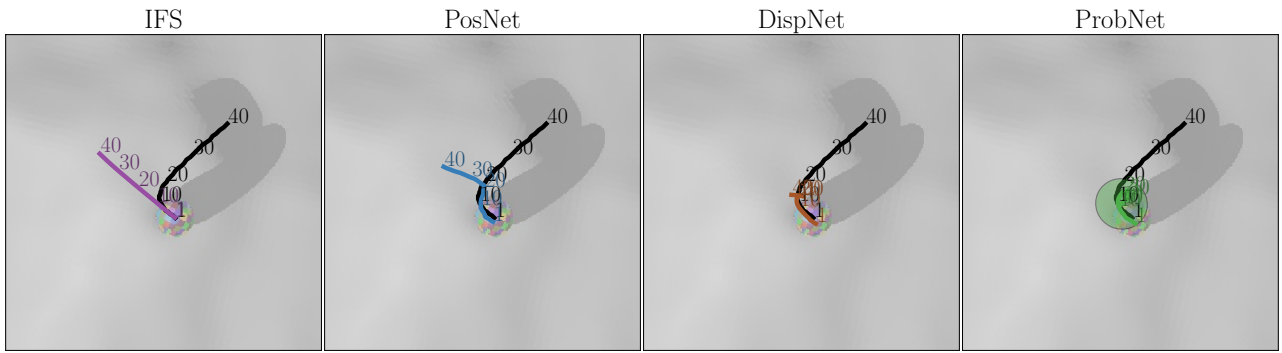




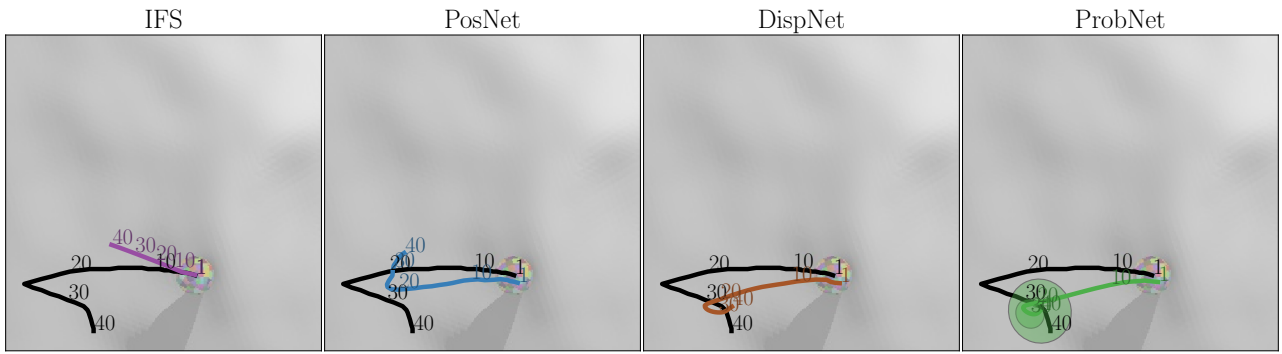




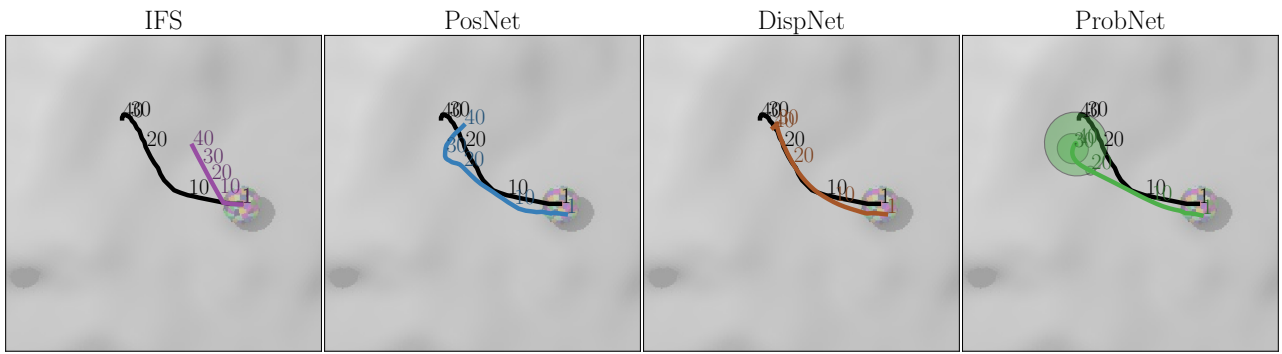
— IFS — PosNet — DispNet — ProbNet — GT



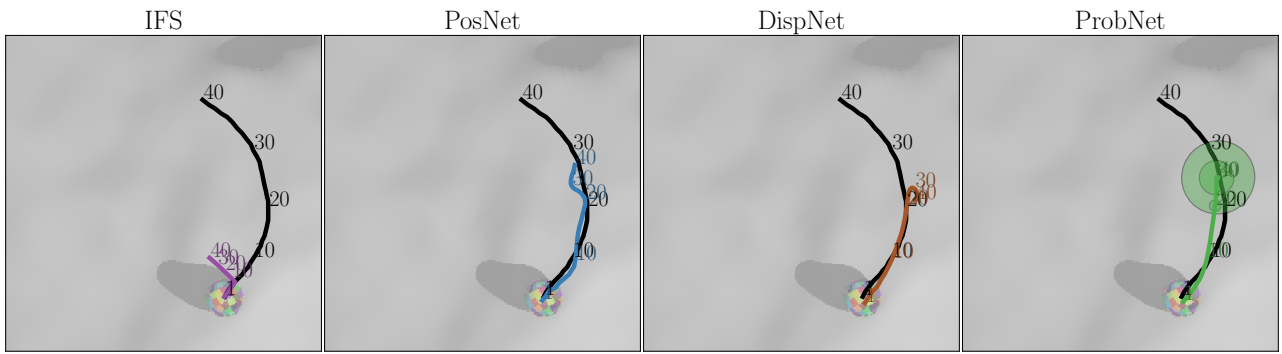
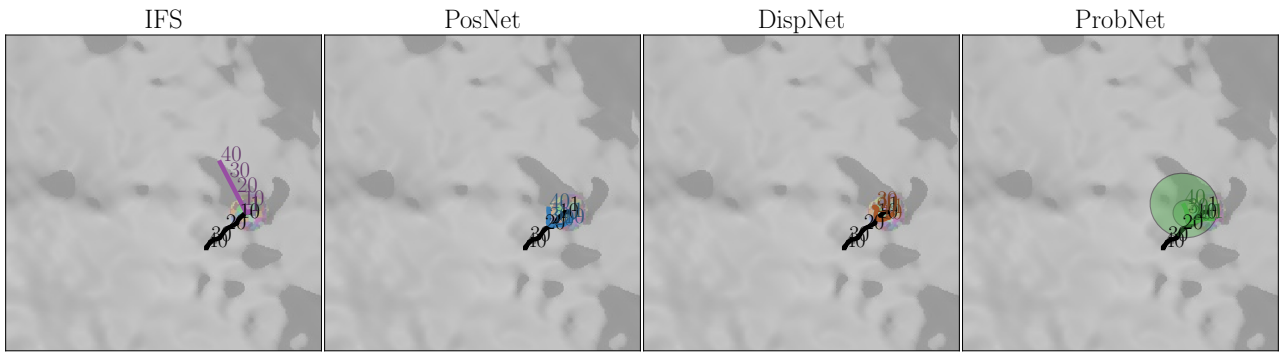
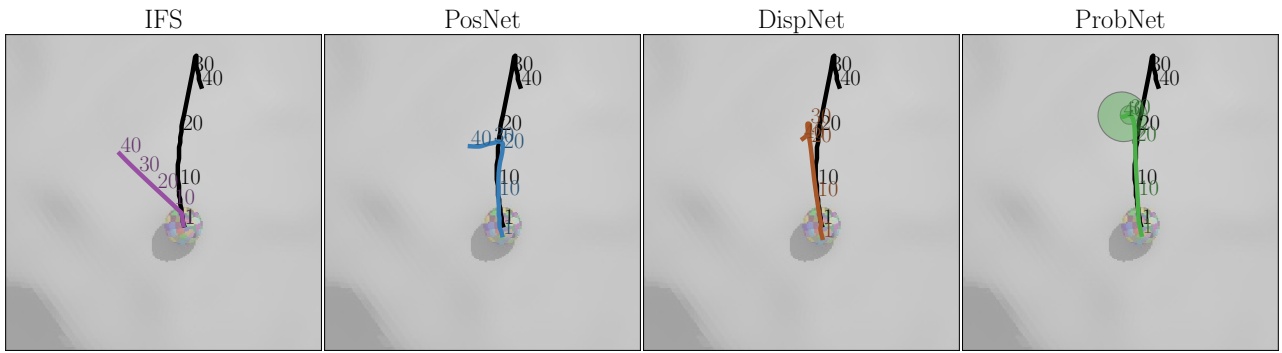
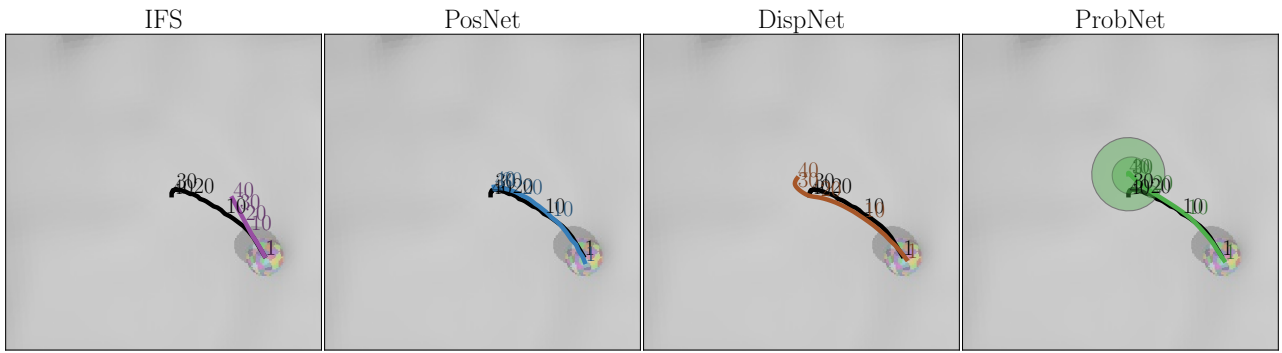
— IFS — PosNet — DispNet — ProbNet — GT

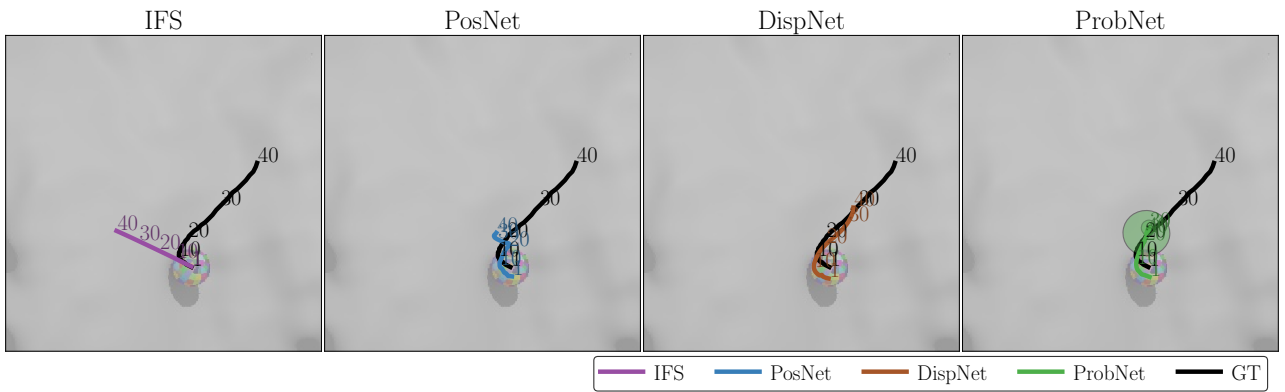
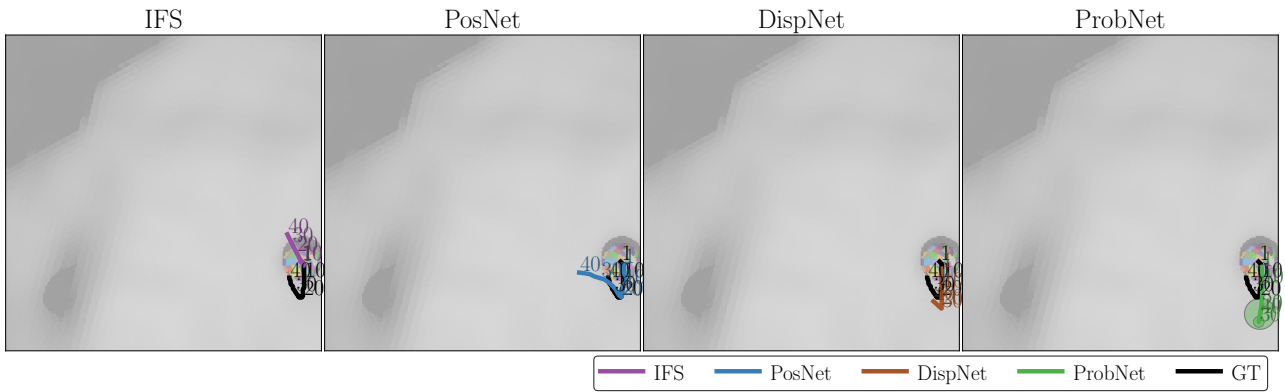
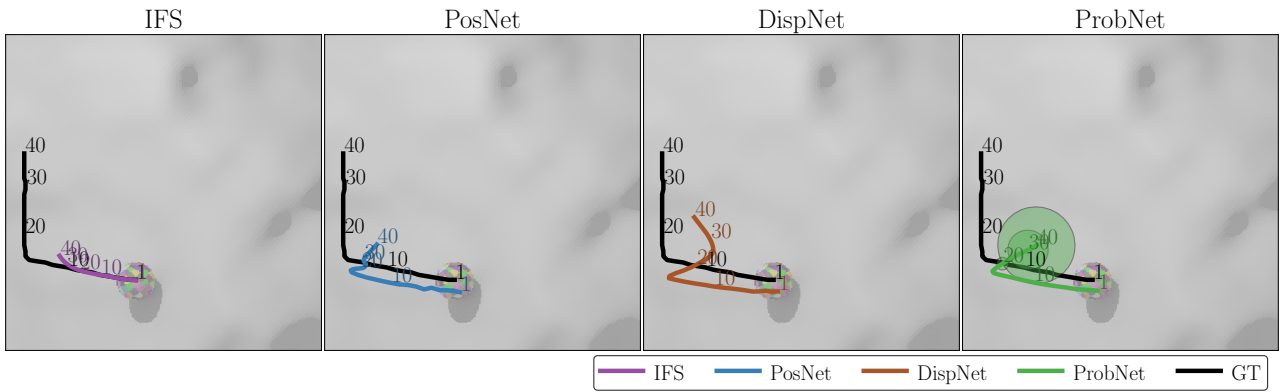
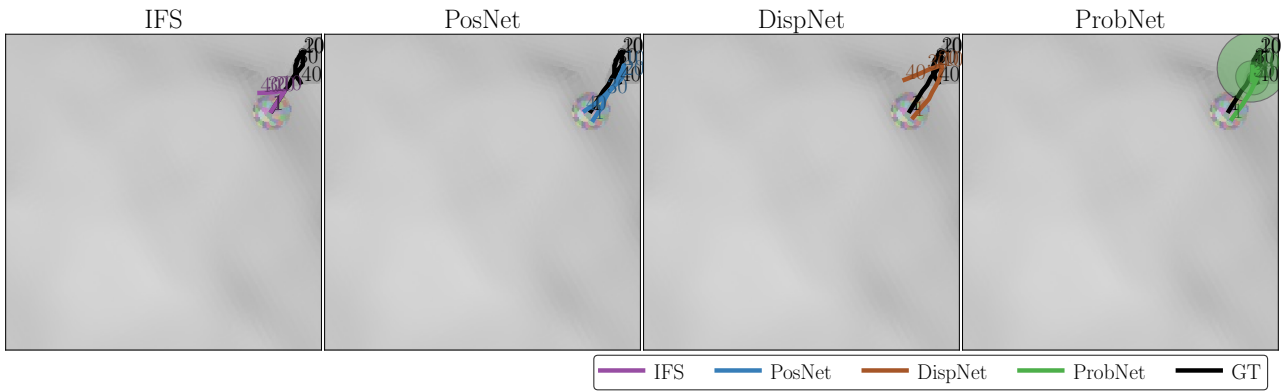


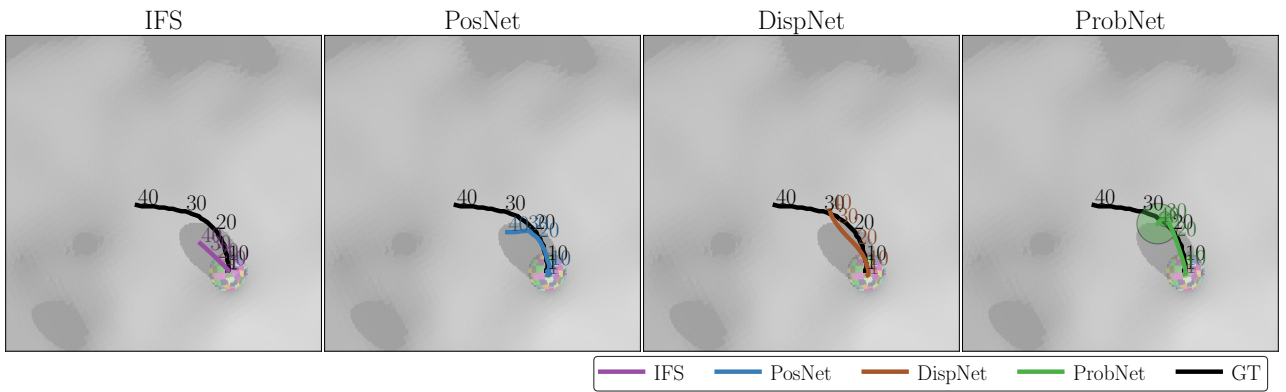
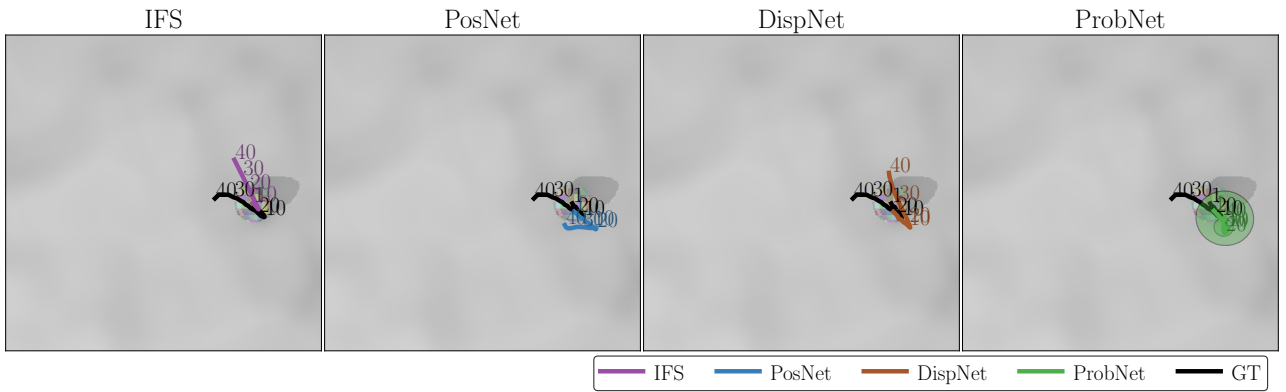
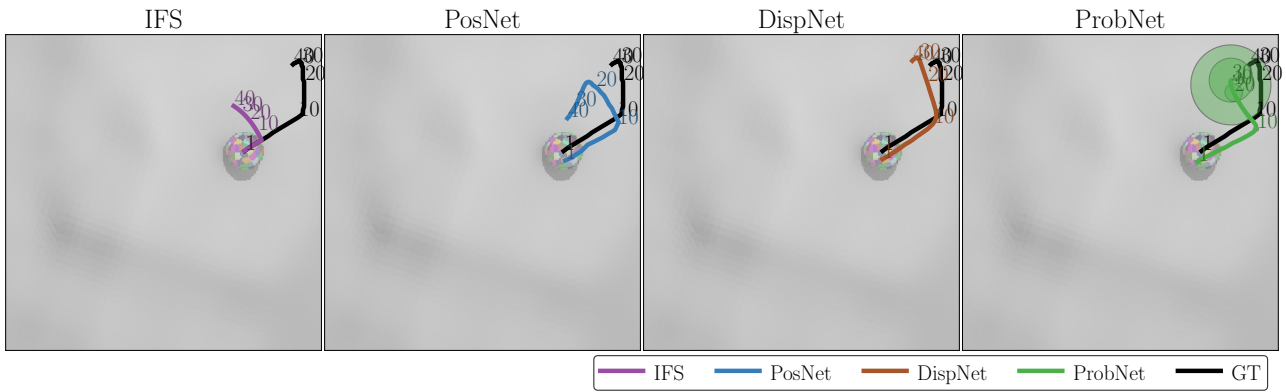
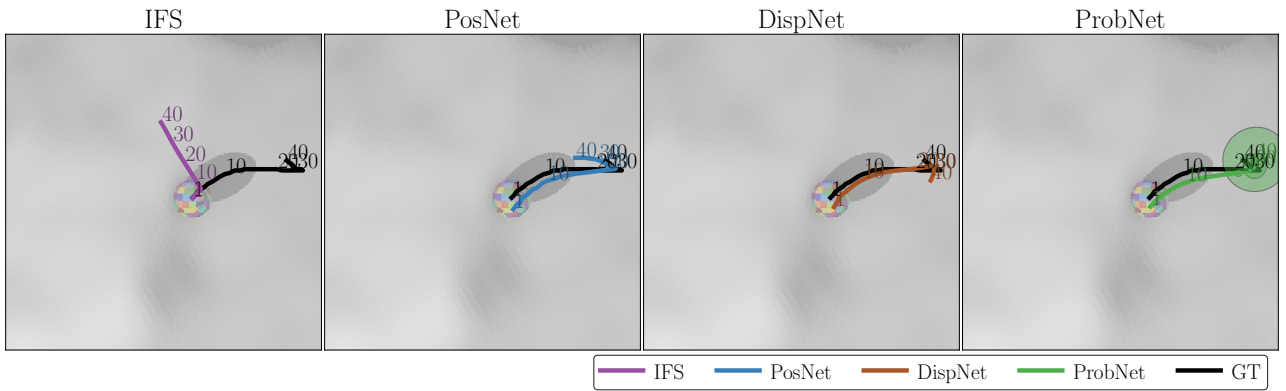
— IFS — PosNet — DispNet — ProbNet — GT

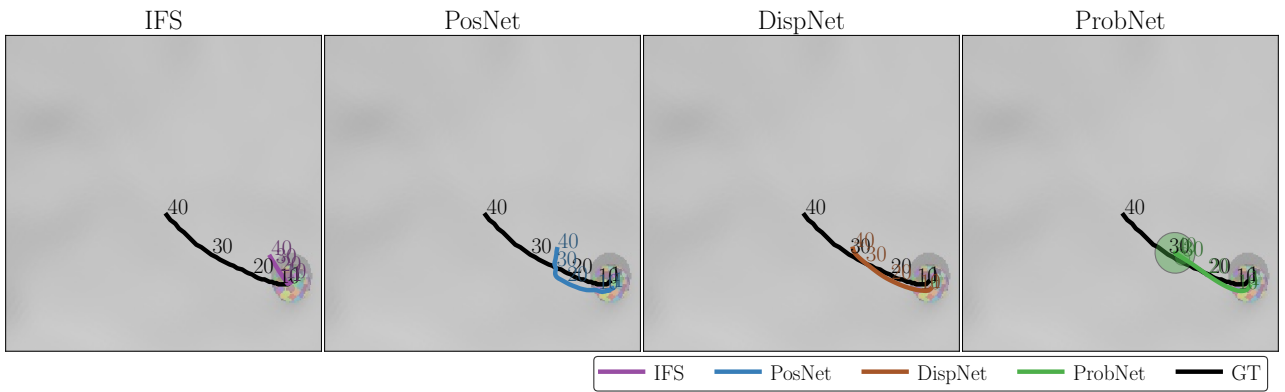
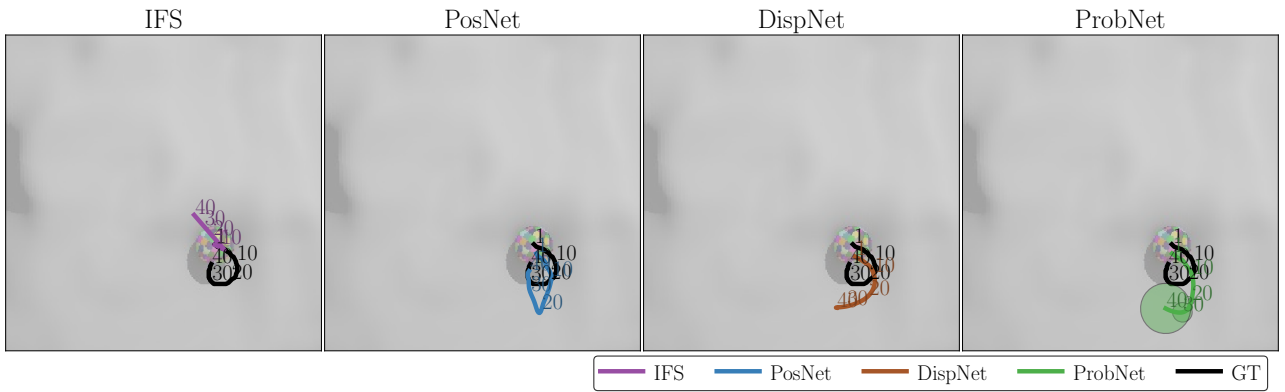
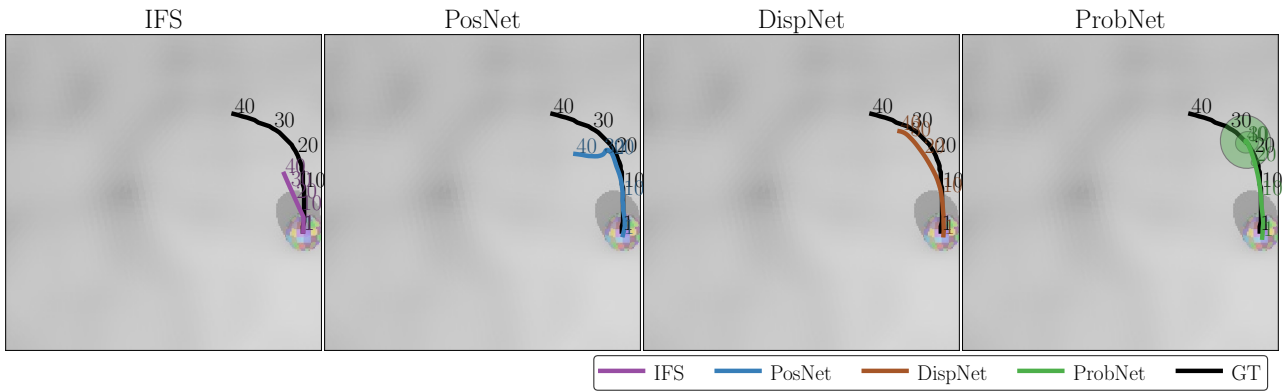
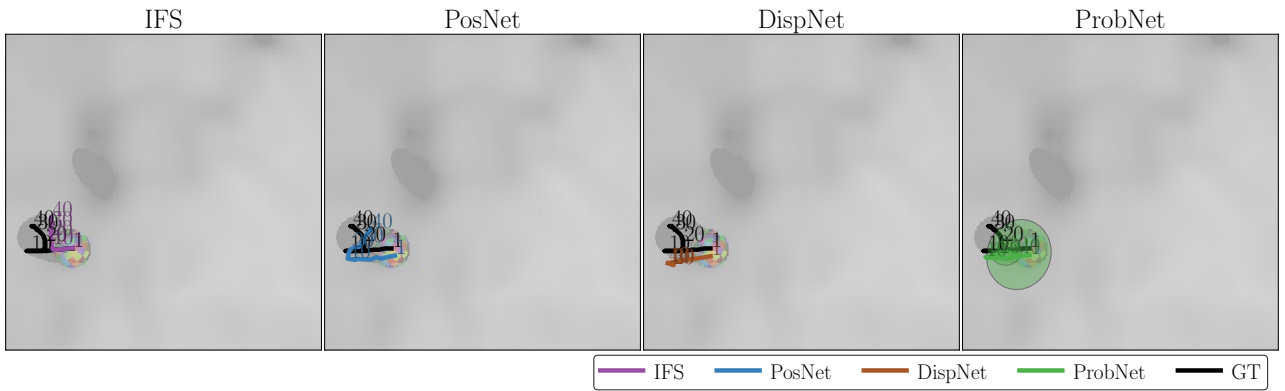


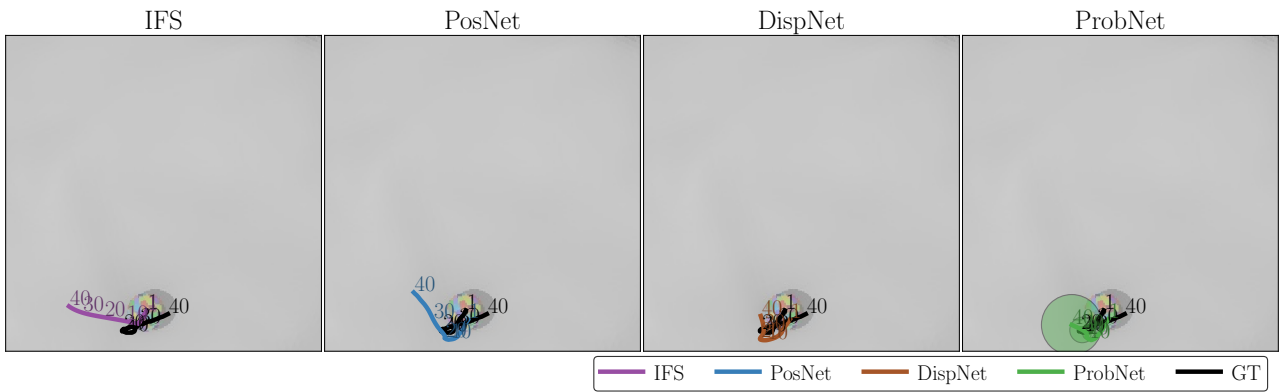
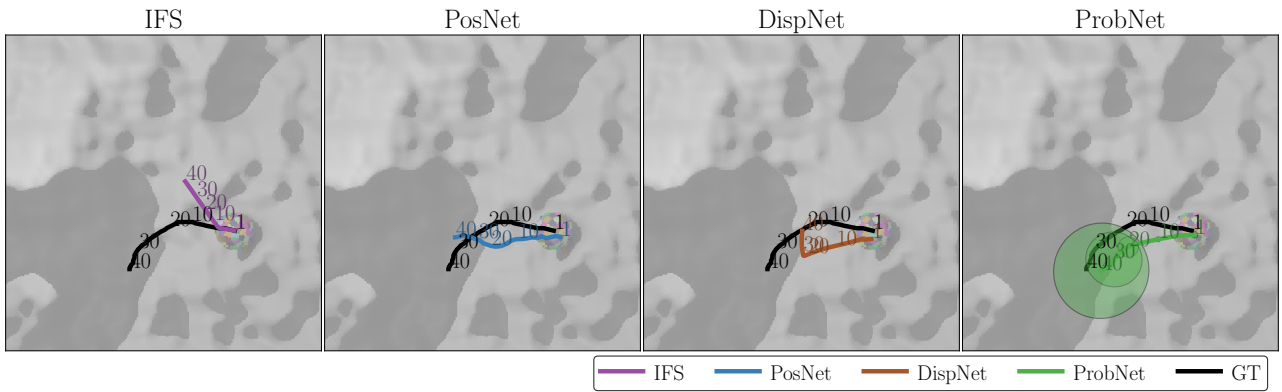
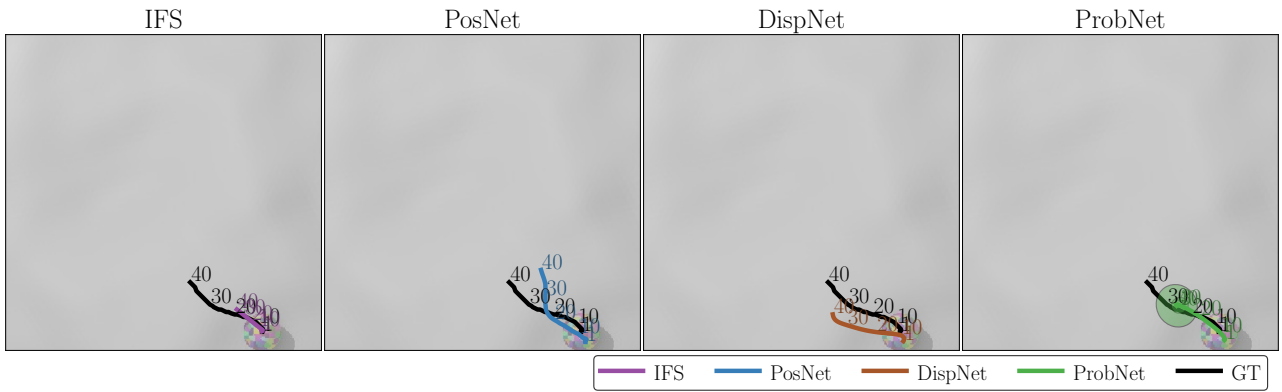
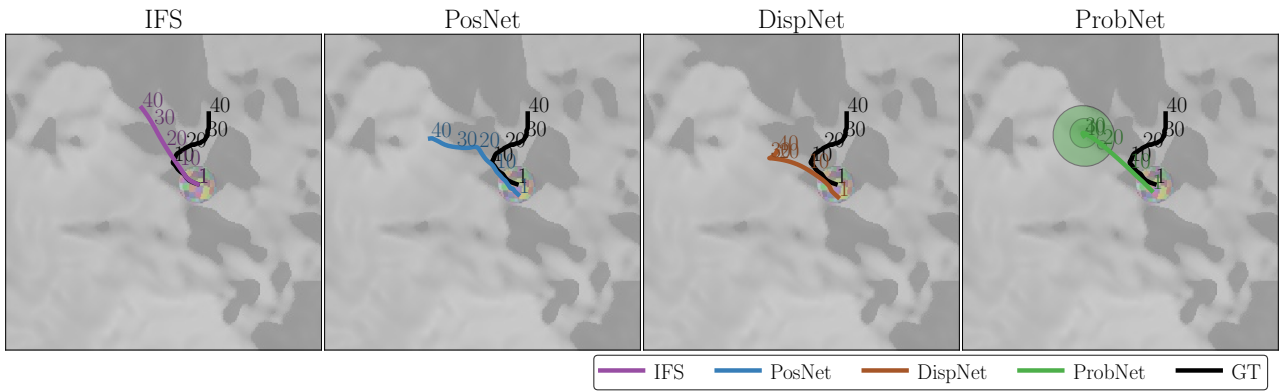
— IFS — PosNet — DispNet — ProbNet — GT

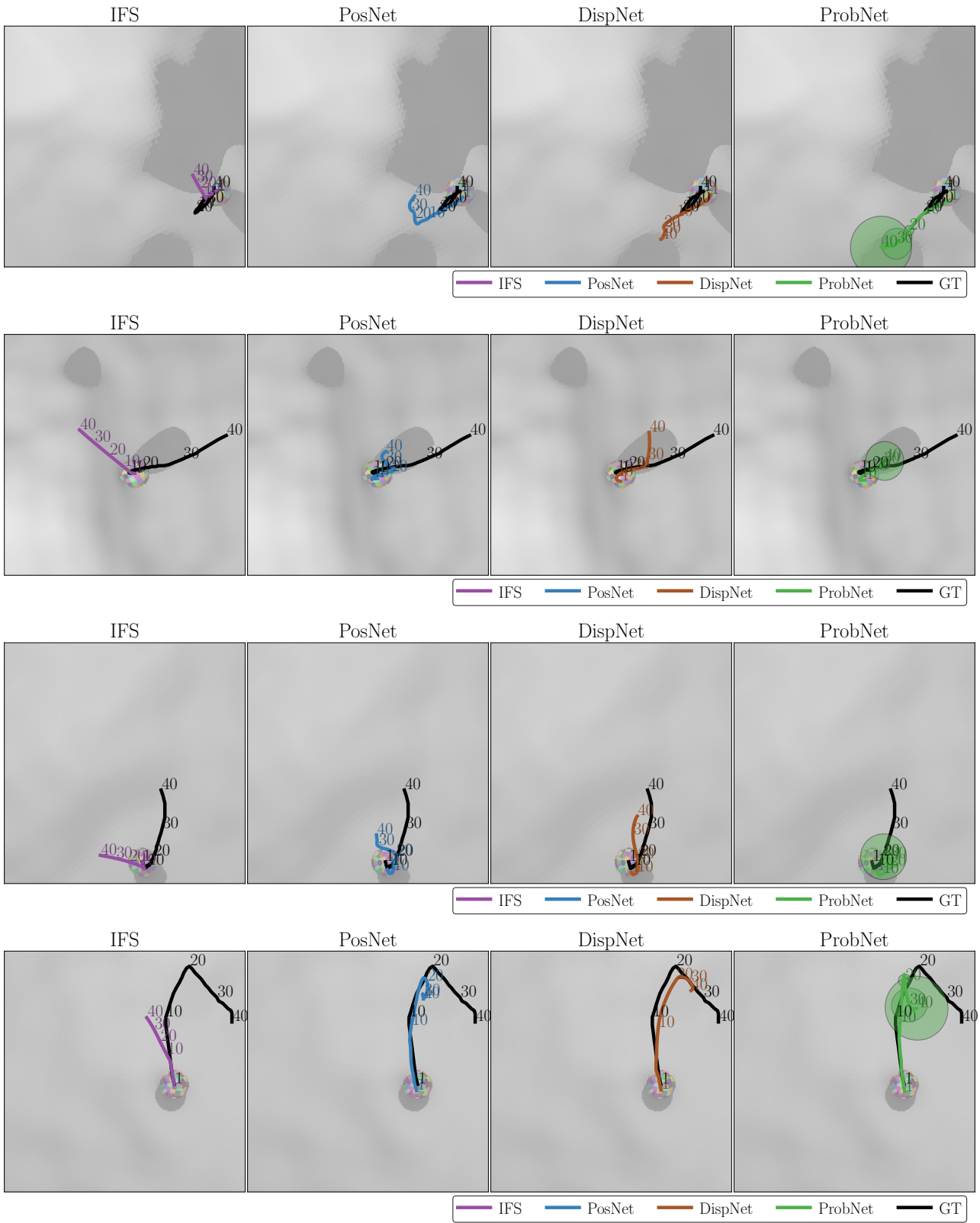














# 8 Synthetic ellipsoid 1ball (BOWLS 1b.)

