A four-point rigid torso can be used to estimate human pose [1]. However, since it is almost coplanar, factorisation using the SVD will not give an affine reconstruction.

Weak perspective projection and Pythagoras’ theorem provide a system of equations.

\[ \ell_{ij} = (q_{ij}^x)^2 s_i^{-2} + (q_{ij}^z)^2 \]

Introducing a relaxation and using the nuclear norm heuristic to minimise rank [2], a convex objective can be obtained. Results in situations with a small number of coplanar points are more accurate.

\[ Z_i \approx z_i z_i^T \]

Rigid pose estimate critically affects bone length estimates through scale.

Pose likelihood learned from motion capture to reduce remaining ambiguity.

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