affine transform

typically stored as a 4 × 4 matrix

An affine transform is one that performs a linear transform and then a translation.

All translation, rotation, scaling, reflection, and shearing matrices are affine.

Homogeneous notation

A direction vector is represented as v = (vx vy vz 0)T and a point as v = (vx vy vz 1)T.

an orthogonal matrix is one whose inverse is the transpose.