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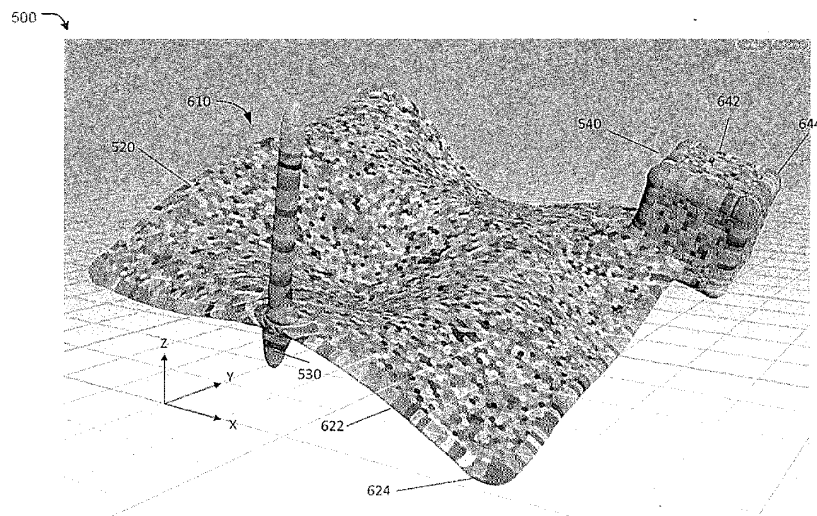


FIG. 6

(57) Abstract: A simulator computes surfaces corresponding to objects in a simulation by computing covariance matrices for particles that use a square root of a diagonal matrix. The simulator might operate by receiving positions and sizes for each particle of a plurality of particles comprising a first object, identifying a subset of the plurality of particles whose positions are proximate to a first surface of the first object, deforming particles of the subset of the plurality of particles by generating a covariance matrix for each particle of the plurality of particles, using a square root of a diagonal matrix, wherein the diagonal matrix is a diagonal matrix of neighboring particles for each particle of the plurality of particles, and computing the first surface of the first object based on the deformed particles.

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WO 2021/173016 A1

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