Verification of Scanned Engineering Parts with CAD Models Based on Discrete Curvature Estimation

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Figure 1: (a) Squeezed ping pong ball (9904 vertices); (b) Gaussian curvature; (c) mean curvature.

Figure 2: (a) Sheet metal mechanical part (15204 vertices); (b) Gaussian curvature; (c) mean curvature.

Figure 3: (a) Face mask (11765 vertices); (b) Gaussian curvature; (c) mean curvature.

Figure 4: (a) Partial model of teeth (10486 vertices); (b) Gaussian curvature; (c) mean curvature.

Figure 5: Verification process by curvature analysis of a squeezed ping pong ball against its CAD model: (a) scanned squeezed ping pong ball; (b) CAD model; (c) Gaussian curvature deviation map, maximum deviates by 600%; (d) mean curvature deviation, maximum deviates by 330%.