

Enhancement Of Two-Dimensional Holographic Images By Resolutionimprovement Through Hologram Aperture Expansion

Abdel-Aal, R.E.;King Fahd Univ. of Petr. of Miner., Dhahran;
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King Fahd University of Petroleum & Minerals

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Summary

The application of the 1-D aperture expansion algorithm to 2-D holograms is demonstrated for the cases of 1-point, 2-point, and quasi-continuous objects in the presence of noise. Due to the 1-D nature of the algorithm, different predictive models used for rows and columns in the case of 2-point and similar objects; which calls for some prior knowledge of the object geometry. Quality of images from expanded holograms may be improved by reconstructing at a distance which optimizes a quality criterion in the image. Of the two methods considered for reconstructing area holograms the 2-D method performs better with prediction errors and noise and is computationally faster

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