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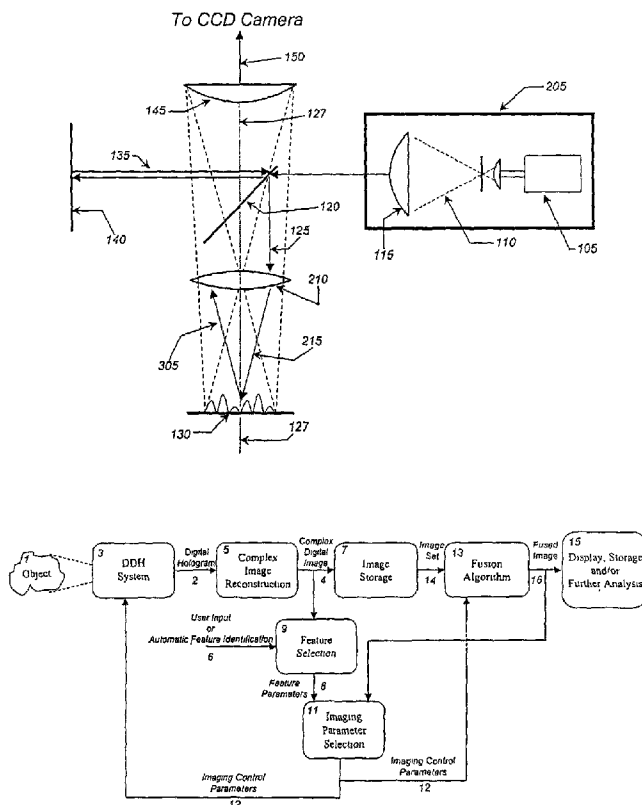
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- (71) Applicant (for all designated States except US): **UT-BAT-TELLE, LLC** [US/US]; 111 Union Valley Road, P.O. Box 2008, Oak Ridge, TN 37831 (US).
- (72) Inventor; and
(75) Inventor/Applicant (for US only): **PRICE, Jeffery, R.** [US/US]; 8800 Nubbin Ridge Road, Knoxville, TN 37923 (US).
- (74) Agent: **BRUCKNER, John, J.**; Gray Cary Ware & Freidenrich, LLP, 1221 South MoPac Expressway, Suite 400, Austin, TX 78746-6875 (US).
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(54) Title: DIRECT-TO-DIGITAL HOLOGRAPHIC ACQUISITION OF CONTENT-BASED OFF-AXIS ILLUMINATED OBJECT



(57) Abstract: Systems and methods are described for content-based fused off-axis illuminated direct-to-digital holography. A method includes calculating and setting an object illumination angle with respect to an optical axis (127) defined by a focusing lens (145) as a function of data representing a Fourier analyzed spatially heterodyne hologram; recording a content based spatially heterodyne hologram including spatially heterodyne fringes for Fourier analysis; Fourier analyzing the recorded content based spatially heterodyne hologram including spatially heterodyne fringes by transforming axes of the recorded content based spatially heterodyne hologram including spatially heterodyne fringes in Fourier space to sit on top of a heterodyne carrier frequency defined as an angle between the reference beam and the object beam; applying a digital filter to cut off signals around an original origin; and then performing an inverse Fourier transform.



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