

Abstract Submitted  
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**Water Drop Interface Shape Reconstruction Using Stereoscopic Digital Image Correlation**<sup>1</sup> HUGO GIORDANO, EDWARD WHITE, Texas AM University — A stereoscopic technique for measuring instantaneous, three-dimensional interface shapes of irregularly shaped water drops on rough surfaces has been developed that builds on work by Schmucker et al. (Exp. Fluids, 52, 123-136, 2011). Those authors used a single camera perpendicular to the surface to image rough-surface speckle patterns and reconstruct drop shapes by measuring the shifts in the speckle pattern caused by interface refraction. While successful near the centers of drops, that technique could fail near the contact line where surface inclinations are large. This shortcoming is overcome using a stereoscopic approach where two inclined cameras are used to better capture light near the contact line. Results show equal or better reconstruction accuracy where the single-camera technique is possible and additional measurement capability for a wider array of interface shapes.

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