Design of Systems for Underwater Optical Imaging in the Presence of Particulates

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This paper presents two kinds of techniques that can be used for underwater imaging. They are designed for different flow conditions. The first one, digital holography, is a three-dimensional imaging technique that can be used to characterize the flow when the particles inside the flow are sparse. The other technique, light field imaging, is another three-dimensional imaging technique that allows the extraction of information about an object obscured by dense distributions of particles. Experimental setups and results are presented.