

Abstract Submitted
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Dynamic Shape Capture of Free-Swimming Aquatic Life using Multi-view Stereo¹ DAVID DAILY, Naval Undersea Warfare Center — The reconstruction and tracking of swimming fish in the past has either been restricted to flumes, small volumes, or sparse point tracking in large tanks. The purpose of this research is to use an array of cameras to automatically track 50-100 points on the surface of a fish using the multi-view stereo computer vision technique. The method is non-invasive thus allowing the fish to swim freely in a large volume and to perform more advanced maneuvers such as rolling, darting, stopping, and reversing which have not been studied. The techniques for obtaining and processing the 3D kinematics and maneuvers of tuna, sharks, stingrays, and other species will be presented and compared.

¹The National Aquarium and the Naval Undersea Warfare Center and

David Daily
Naval Undersea Warfare Center

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