NOAA Office of Exploration and Research (OER)
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"Real-Time 3D Reconstruction from ROV Camera Arrays of Opportunity"

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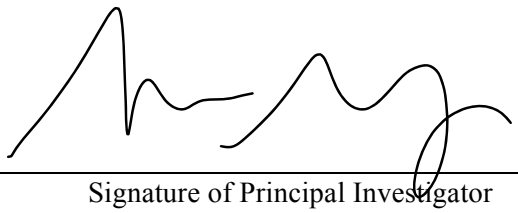
Funding: $105,720
Period of Performance: 9/1/2016 – 8/30/2017

Progress Report for Period: 3/1/2017 – 8/31/17

Prepared By:  12 Sept 2017

Signature of Principal Investigator Date

Work Progress:

Work focused on the development of software tools for processing and subsetting large HD video archives in a time- and bandwidth-efficient manner. These tools were developed jointly between this project and a NSF-funded project for the analysis of subsea HD video from the Ocean Observatories Initiative Cabled Array HD Camera (CamHD). Both projects store high-resolution video in Quicktime video containers, encoded in the ProRes format. While this file format is designed for linear editing, effective 3D reconstruction requires random access to individual frames within the video. The tools allow efficient sharing of large data archives between multiple networked processing machines, and the aggregation of multiple files into a single virtual video, an essential pre-requisite for processing the multi-hour, multi-file ROV videos.

A second set of tools allows repeatable retrieval of frame sets of videos, which can then be sent to a 3D reconstruction pipeline.

All tools are publicly available through the GitHub code distribution platform.

Presentations and Publications:

None during the reporting period.

Work Progress and Plan:

Period of performance for grant has been extended to 30 August 2018. Work is scheduled for Q4 of 2017, with addition of student research assistants.

Expenditures:

Project expenses 1 March 2017 to 30 August 2017: $8,244.69
Project expenses start through 30 August 2017: $14,153.24