

Multi-Digiclops Calibration System

✓ 3D data acquisition from multiple points of view

✓ No line of sight limitation

✓ Modeling of moving or deforming objects

✓ Unlimited points of view

✓ Unlimited volume of coverage

✓ Simple calibration procedure

✓ Low cost

multiclops

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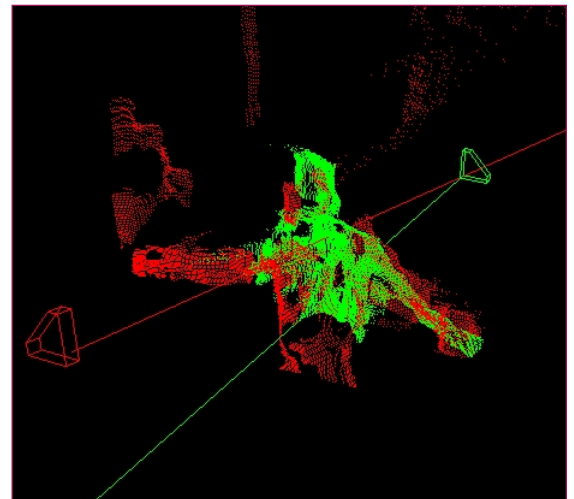
Point Grey Research has created the Multiclops software package to help developers easily and accurately integrate 3D data obtained from multiple Digiclops systems.

Developers using the Digiclops system in areas as diverse as 3D Object Modelling, People Tracking and Vehicle Navigation can benefit from this new functionality - integrating new cameras into existing systems can increase the field of view or allow the viewing of previously occluded elements in a scene.

Multiclops allows users to integrate 3D data from multiple Digiclops cameras into a single coordinate system. The system leverages the existing camera calibration, allowing users to perform a simple procedure in order to accurately determine the transformation between multiple Digiclops camera systems. Once the system-to-system transformation has been determined, applications rely on the Digiclops ability to automatically synchronize to other cameras on the same IEEE-1394 bus in order simultaneously grab images. These images are then processed using the Triclops library and the resultant 3D data can then be transformed and integrated into a single coordinate system.

3D data obtained from the Multiclops system can be processed in real time, or can be stored for post processing. The real time processing requires a larger amount of processing power, however it allows access to the 3D data immediately. Off line

processing can be done with higher accuracy, however generating the results can not be done in real time. Multiclops software system can be distributed over multiple computers in order to decrease the amount of processing time required to obtain the 3D data.



This image shows a 3D point cloud of a person with their hands spread out. The point cloud was generated by two Digiclops cameras, one placed in front of the person, and another placed behind the person. The triangular shapes represent the position of the Digiclops, and the straight lines represent the lines of sight of each Digiclops. The color of the points corresponds to the color of the Digiclops that acquired them, i.e. the red points were acquired by the red digiclops.



Multiclops is a software system that allows users to overcome field-of-view and line-of-sight restrictions imposed by applications employing a single Digiclops™ stereo vision camera system.

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Point Grey Research is a product engineering and technology company founded in January 1997. The company designs and develops computer vision technologies for commercial applications worldwide. Point Grey Research technology has been successfully used in people tracking, object tracking, modeling and dimensioning, mobile robotics, mining and many other computer vision applications.

