

Title: Swarm Imaging

Duration: one hour

Presenters: Dr. Martin Louis Duncan, Paul Weil

Explanation:

The Pluribus Project is currently developing technology to create high-resolution three-dimensional images from multiple, low-resolution, two-dimensional data streams. Our approach combines artificial intelligence and predictive algorithms with the latest advances in cybernetics, digital image processing, and Web technology. Users will benefit by an end result of viewable, manipulable images processed using a high quality Web application client functioning on any device equipped with an A-grade browser.

This methodology provides a simple, inexpensive method to obtain 3-D images of a space. The fortuitous simultaneity of the Internet of Things, relatively cheap circuit boards and sensors, the Maker Movement, easy data streaming, and advanced front-end Web technology enables data collection from many low-resolution sources positioned around a space and unity of this input to create a single, coherent, high-resolution, 3-D image. State-of-the art 3-D cameras are bulky and expensive; drones can be used to scout an area, but they are noisy and cumbersome.

The Pluribus Project intends to obtain visual data from physical areas where humans do not wish to--or cannot--venture. Data visualization will then be implemented in a Web application that can be used to view the space from multiple angles or manipulate its image. Our cybernetic system is intended as a wholly more efficient alternative to expensive 3-D cameras or drones.

Our ongoing R&D uses currently available software and hardware modified minimally for Pluribus Project objectives.