Deep Distortion

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ABSTRACT

Deep learning is a rapidly growing class of AI that has shown tremendous promise for solving problems with greater efficiency than traditional methods because of its great data processing capacity. In this paper, we will first provide an overview of deep learning concepts, and how deep learning fits into the broader contexts of AI and machine learning. We then present a state-of-the-art deep learning solution for accurately aligning projected imagery to the wall of an inflatable dome, leveraging Convolutional Neural Networks combined with Long-Short Term Memory networks(CNN-LSTMs), and generative adversarial networks (GANs).
Finally, we will detail how to utilize Deep Learning concepts to overcome challenges presented in auto-alignment projection tasks. Challenges presented to the Deep Learning solution include: low light conditions in acquisition of alignment data, training with limited training datasets, methods for training and inferencing with high resolution imagery.

BIO

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Brian Furtaw has recently joined Nvidia as a Senior Solutions Architect on the ProViz SA team, where he focuses on Deep Learning application in high-performance rendering techniques. Brian is a self-described GPU Technologist with over 20 years' experience in 3D graphics, Scientific Visualization, VR, training & simulation and high-performance computing. For the last 16 years, Brian has been working as a consultant for numerous companies including the US Army; US Navy; NASA; doing GPU related projects including work with a start-up to scope out a GPU cluster looking at a cure for cancer.