TOWARDS ACHIEVING HIGH COMPRESSION RATIOS FOR DIGITAL VIDEO USING A COMBINED PLANAR AND SEQUENTIAL D-TRANSFORM ALGORITHM. *Enriquez and T. Jones,The McGowan Center Telecommunications Innovation and Collaborative Research, axe2105@rit.edu, taj5844@rit.edu. Research Advisor – Dr. Chance M. Glenn, Sr. (chance.glenn@rit.edu)*

By using the newly developed D-Transform Algorithm, new compression methods were formulated for digital video. Our goal was to explore the combination of planar and sequential compression to achieve the highest possible compression ratio. The planar method, which depends on individual video frames, and the sequential method, which looks at the relationship in time, combine in a multiplicative manner. Both methods compression are based on 16, 32, and 64 length segments. Analysis tools were created in order to compare the pixel values for a selected segment of frames. The values were graphed out in a wave form and matched to the closest wave form in the Combined Chaotic Oscillations (CCO) matrix. The CCO matrix waveforms are stored and used to re-create the image of the frame from the selected segment. We also analyzed sequential pixels for future or past frames. These waveforms are also graphed and compared to CCO Matrix wave forms. The ultimate goal is to determine if any relationships exist between planar and sequential compression in order to multiply video compression ratios. We generated several Matlab based tools for signal processing and analysis. This presentation will show the development of such tools, demonstrate their use, and provide results of the work as it stands today. We expect to continue to develop and to improve the implementation of the algorithm in order to maximize compression ratio while optimizing the quality of the video as well.