\[ P_{old}[i+1,j] = P_{old}[i+1,j] + \text{Error} \]

Using delta encoding with error propagation can make very realistic pictures.

**Ghost Reduction**

This is a fun one. Because ghosts in video pictures are correlated with the picture content, they are very apparent. If the picture elements in the image are randomly shuffled before transmission and then unshuffled in the receiver, the ghosts will become uncorrelated and turn into noise that does not degrade the picture as much. For motion video, it is best if a few shuffling tables are used and randomly selected during transmission because temporal correlation of noise is detectable by the eye.

**Component Video**

NTSC encoding has less resolution for color information in pictures than intensity information. There are also interactions between the chromaticity and luminance that limit resolution. The super VHS and Hi8 recording standards record chroma and luminance separately to increase resolution. You can do the same with transmission. The first thing to try is sending just the red, then the green, then the blue.

The MAC system that is sometimes used in Europe places the luminance (Y) at the beginning of the scan line, then follows with red minus luminance (R-Y) and blue minus luminance (B-Y) at lower resolution. Luminance of a picture may be calculated as:

\[ Y = \text{Red} \times 30\% + \text{Green} \times 59\% + \text{Blue} \times 11\% \]

These are just a few of the experiments that the amateur can perform. Experiments can also take place with high-resolution (HDTV) transmission. With the addition of a Sound Blaster audio card, the video frame buffer can serve as the basis of experiments with digital sound transmission over a video link. Think of the frame store as being a buffer that can hold any type of data and then spit it out at a high rate. The possibilities are endless.

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**Feedback**

In September's "Synchronous Detection of AM Signals," we indicated that Sony has information available about their CX-857 integrated circuit. It turns out that the information is not provided in the US by Sony, nor can they provide technical assistance. But they have agreed to allow us to provide the data sheets by copying them for our readers. If you want a copy of the data, write to: Technical Department, ARRL, 225 Main St, Newington, CT 06111. Ask for the CX-857 data and include a self-addressed, stamped envelope.

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