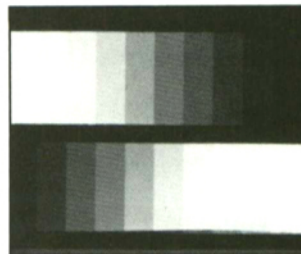


# Highlights

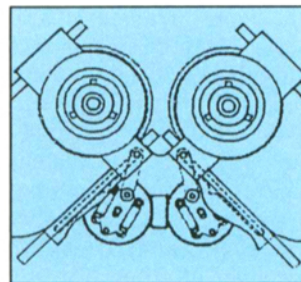
- 556** **A Comparison of HDTV and Film — Overall Light Transfer Characteristics** • *J. Gaspar, H. Mahler, and G. Gabritsos* • This article discusses the ways in which the technical processes involved in HDTV and film imaging systems can be modeled with a succession of transfer functions that determine the overall visual characteristics of these systems. The overall transfer characteristic shows how the original scene is reproduced by a display. A theoretical analysis of the intermediate transfer functions provides insight into the reproduction of the scene. In addition, the viewing environment affects the choice of an overall, aesthetically pleasing transfer characteristic.



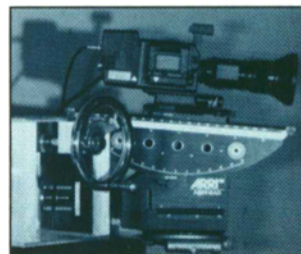
- 563** **The Equalization of Channel Noise Visibility in Television** • *P. Scorer* • A method of deriving a transmission nonlinearity which equalizes noise visibility over the range of displayed gray levels is described in this article. The technique is based on the measured thresholds of the eye. An improvement estimated at between 1 and 2 dB over the present situation, where gamma precorrection performs a similar function, was found. This approach may lend itself to the determination of quantization levels for more complex coding schemes.



- 568** **Mechanical Considerations in the Design of a Composite Digital VTR** • *N. Kaku, S. Ozaki, S. Yokoo, T. Ozawa, Y. Niguchi, H. Ono, K. Ogiro, and H. Yokota* • A new D-2 composite digital VTR for the present NTSC system has been developed. The D-2 system uses three different sizes of cassettes for the tape-loading mechanism, and thin metal tape of high coercivity and 13- $\mu\text{m}$  thickness. To attain reliable and easy operation, an 8-head scanner and a cassette-loading mechanism were developed. All four recording and reproducing heads were designed independently and made from ferrite. All three sizes of cassettes are acceptable without an adapter and are guided by a simple mechanism, thereby achieving reliability and full function.



- 575** **The Brain™: A Multi-Axis, Location/Studio Camera/Subject, Robotic Motion-Control System** • *M. S. Azerad, J. Pley, J. Dabby, and E. Zwaneveld* • The Brain, a robotic motion-control system, was designed to meet cinematographers' requirements for a system with memory for motion-picture filming. It provides repeatability of camera movement through computerized control, at reasonable cost, and is transportable and simple to operate under various location conditions. It can accept a path (motion) from another system and also supply motion data to another computer. The Brain controls eight independent, assignable axes: camera head pan and tilt, subject pan and tilt, film drive, focus, zoom, and dolly motion.



- 580** **Adaptive Prediction for High-Quality Television Transmission Coding Based on the LMS Algorithm** • *M. J. Knee* • Differential pulse-code modulation (DPCM) and hybrid transform coding are two popular high-performance methods of reducing the bit rate of component or composite digital television signals for point-to-point transmission. Both methods involve a predictor and subsequent coding of the resulting prediction error signal. This article describes a new prediction strategy, based on the least-mean-square (LMS) algorithm, which optimizes the accuracy of a multielement linear predictor by allowing it to adapt continuously to local picture-signal statistics.



- 590** **Audio Program Metering in the 1980s: The Work of the IEEE Audio Measurements Subcommittee** • *R. Hoffner* • The volume unit (vu) meter, as specified in IEEE/ANSI 152-1953 (R-1971), has been the standard audio program level measurement device in the U.S. since its development in 1939. The IEEE Broadcast Technology Society's Audio Measurements Subcommittee has written a new proposed standard, updating vu meter specifications and specifying a U.S. peak-program meter for the first time. This article describes that work and its current status.

