

Instructional Staff and Resources

1 Background of the Instructor

Dr. Brian L. Evans is Professor of Electrical and Computer Engineering. He conducts research in digital signal processing, esp. for imaging and communication systems. In imaging, he has been researching high-quality halftoning for display and high-resolution 3-D beamforming for sonar. In image halftoning, his primary contributions have been in the design of color error diffusion methods to control frequency distortion and remove artificial textures and color spikes. He has also conducted research in perceptual image hashing for multimedia security and joint optical-digital processing for image acquisition. In communication systems, he has been researching ADSL transceivers, orthogonal frequency division multiple access (OFDMA) basestations and RFI mitigation. For ADSL receivers, his group developed the first equalizer that maximizes a measure of bit rate and is realizable in real-time fixed-point software. In OFDMA basestations, his group developed a family of linear complexity algorithms for the allocation of subcarriers and power among users to optimize the ergodic bit rate. Dr. Evans has published over 170 refereed conference and journal papers. Dr. Evans is the primary architect of the *Signals and Systems Pack* for Mathematica. His BSEEC degree (1987) is from Rose-Hulman, and his MSEE (1988) and PhDEE (1993) degrees are from Georgia Tech. From 1993–1996, he was a post-doctoral researcher at UC Berkeley in design automation for embedded systems. He is an Associate Editor for the *IEEE Transactions on Signal Processing* and *IEEE Transactions on Image Processing*; a member of the IEEE Design and Implementation of Signal Processing Systems Technical Committee; and a Senior Member of the IEEE. He is the recipient of a 1997 US National Science Foundation CAREER Award.

2 Supplemental Reference Material

The link to the IEEE publications database is <http://ieeexplore.ieee.org/Xplore/guesthome.jsp> if you're on campus and <http://ezproxy.lib.utexas.edu/login?url=http://ieeexplore.ieee.org/> if you're off campus. Other databases, such as INSPEC and Scientific Citation, are also available from <http://www.lib.utexas.edu> under "Research Tools".

Attending seminars is a good way to pick up research ideas. The Wireless Networking and Communications Seminar is on Fridays: <http://wncg.ece.utexas.edu/seminar>. The Center for Perceptual Systems Seminar is on Mondays 12-1 PM: <http://www.cps.utexas.edu/Happening/happening.html>. Talks at Texas Instruments Developer's Conferences are available for 2005 and 2006.

The following journals may be useful in finding ideas for your project:

- *EURASIP Journal on Advances in Signal Processing*
- *IEEE Transactions on Signal Processing*
- *IEEE Transactions on Image Processing*
- *IEEE Transactions on Multimedia*
- *IEEE Transactions on Biomedical Image Processing*
- *IEEE Transactions on Circuits and Systems for Video Technology*
- *IEEE Transactions on Information Theory*
- *Journal on Computer Vision, Graphics, and Image Processing*