

PROFILE

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Research Group : EE1 - Communication & Digital Signal Processing

Academics

● PhD from University of California, Santa Barbara.

Areas of Research

- Co-channel Interference Management
- Channel Estimation for Mobile Broadband Systems
- Space-time Processing with Partial Feedback
- Robust Statistics for Estimation & Detection
- Performance Analysis of Broadband Cellular Networks
- Non coherent and Multiuser Detection
- Co-operative Communication & Cognitive Networks

Most recently published papers:

Publications in Refereed Journals:

- Srinivas, K., **K. Giridhar**, and R. Koilpillai, "Orthogonal Decode and Forward Relaying with Improved Spectral Efficiency", Communications Letters, IEEE, vol. 13, no. 2, pp. 109-111, Feb, 2009.
- Thakre, A., Haardt, M., **Giridhar, K.** , "Single Snapshot Spatial Smoothing With Improved Effective Array Aperture", Signal Processing Letters, IEEE, vol.16, Issue 6, pp.505- 508, June 2009.

Conference Proceedings:

- Ayyar, A., M. Lentmaier, **K. Giridhar**, and G. Fettweis, "Robust Initial LLRs for Iterative Decoders in Presence of Non-Gaussian Noise", International Symposium on Information Theory, ISIT' 2009, Seoul, Korea, IEEE, 06/2009.
- Kalyani, S., and **K. Giridhar**, "Interference Mitigation in Turbo-Coded OFDM Systems Using Robust LLRs", Communications, 2008. ICC '08. IEEE International Conference on, pp. 646-651, May, 2008.

- Srinivas, K.V., R. D. Koilpillai, and **K. Giridhar**, " Diversity Multiplexing Gain Tradeoff of Co-Ordinate Interleaved Spatial Multiplexing", Vehicular Technology Conference, 2008. VTC Spring 2008. IEEE, pp. 1473-1477, May, 2008.
- Kalyani, S., and **K. Giridhar**, "Interference Mitigation in Turbo-Coded OFDM Systems using Robust Statistics", Vehicular Technology Conference, 2008. VTC Spring 2008. IEEE, pp. 1191-1195, May, 2008.
- Srinivas, K. V., **K. Giridhar**, and R. D. Koilpillai, " A New Diagonally Layered Spatial Multiplexing Scheme with Partial Channel Knowledge", Global Telecommunications Conference, 2008. IEEE GLOBECOM 2008. IEEE, pp. 1-5, 30 2008-Dec.

Title of the Talk: "Impact of Social Networks on Wireless Access Networks"

Abstract:

Today, a significant amount of data and internet content is consumed by users connected wirelessly to the network. While a majority of them are connecting through a Wireless LAN access point, (either at home/college/office, where the access point is connected to DSL/Ethernet backbone), an increasing number of them are connecting through 3G/3.5G wireless cellular access links.

Cellular or metro area access technologies are built on the principle that the downlink is highly spectrally efficient and can support high bit rates, whereas the uplink is power efficient but generally provides much lower (peak and average) bit rates, and that too in a spectrally inefficient manner. This was considered fine, since the belief was that users would be downloading more from www rather than uploading content to the web.

Social networks are challenging this belief, and are trying to change the accepted design trade-offs in wireless access networks.

This talk will discuss why the uplink is the weakest link in a wireless access network, taking examples from CDMA and OFDM based cellular technologies. If better uplink rates are required, how will the operator (and equipment vendor) provide this enhanced capacity? Time-division duplex (TDD) based 4G technology has some answers for this, as well as smart caching techniques.

Social networking through wireless access networks will be more efficient (and "green") only if these and other techniques solve the uplink capacity problem in a cost effective manner.