1068-49-60 **Thomas Yang*** (yang482@erau.edu). *New Techniques for Hidden Source Signal Recovery in Highly Dynamic Environments.*

Independent Component Analysis (ICA) is a powerful statistics analysis tool capable of revealing hidden mechanisms and source signals from their combinations. It has a wide variety of practical applications in areas like image and speech processing, telecommunications, financial engineering, and biomedical signal processing, etc. The major advantage of ICA is that little knowledge is required about the mixing process of the source signals. In this talk, we will introduce a family of ICA algorithms we recently developed for highly dynamic environments, i.e., the source signals' mixing process is varying with time rapidly. For example, in mobile cellular communication applications, the user may be constantly moving, and/or may experience "handover" between two service towers. The key to source separation in this scenario is to assure fast convergence of the algorithms. Our algorithms work for both real and complex valued signals with superior convergence properties. (Received January 10, 2011)