

Adaptive Resonance Theory and Diffusion Maps for Clustering Applications in Pattern Analysis

Donald Wunsch*, Stephen Damelin**, and Rui Xu***

*Missouri University of Science & Technology
Dept. of Electrical and Computer Engineering
Rolla MO USA

**University of Michigan in Ann Arbor, MI

|***GE Global Research

Adaptive Resonance is primarily a theory that learning is regulated by resonance phenomena in neural circuits. Diffusion maps are a class of kernel methods on edge-weighted graphs. While either of these approaches have demonstrated success in image analysis, their combination is particularly effective. These techniques are reviewed and some example applications are given.