

Department of Computer Science
University of Houston

SUMMER SEMINAR 2011

WHEN: THURSDAY, AUGUST 11, 2011

WHERE: PGH 563

TIME: 11:00 AM

SPEAKER: Dr. Andres Mendez-Vazquez, Cinvestav Guadalajara

Host: Dr. Ricardo Vilalta

TITLE: Information Fusion and Sparsity Promotion Using Choquet Integrals

ABSTRACT:

In practical applications of pattern classification, multiple algorithms are often developed for the same classification problem. Each algorithm produces confidence values by which each new sample may be classified. We would like to aggregate these confidence values to produce the best possible confidence for the given sample. This can be seen as a particular instance of what is called information fusion. Choquet integrals are nonlinear operators based on fuzzy measures that can represent a wide variety of aggregation operators.

In order to optimize the Choquet integral several methods has been proposed, they are based in Minimum Classification Error (MCE) and Chain / Monte Carlo sampling methods. In addition, we propose the inclusion of the Bayesian approach of imposing sparsity promoting prior distributions on the measure parameters during sampling as a way of selecting subsets of the algorithms for inclusion in the aggregation.

BIO:

Andres Mendez-Vazquez is an associate professor at Cinvestav Guadalajara. He got his Ph.D. degree in computer engineering at the University of Florida, Gainesville, Florida in 2008. He received his Master of Sciences degree in Computer and Information Science and Engineering at the University of Florida, Gainesville, Florida in 2002. He got his Bachelor degree in Mathematics at the University of Yucatan, Merida, Yucatan in 1999.

His research interests include optimization and multi-objective optimization, statistical methods for machine learning, and fuzzy measures and Choquet integration.