Department of Computer Science
University of Houston

## Spring 2011 Seminar

**WHEN: FRIDAY, MAY 6, 2011**
**WHERE: PGH 232**
**TIME: 10:00 AM**

**SPEAKER:** Dr. Aleix M. Martinez, The Ohio State University

Host: Dr. Ioannis Kakadiaris

**TITLE:** Bayes Optimal Pattern Recognition

**Abstract:** The Bayes criterion is generally regarded as the holy grail in classification because, with known distributions, it leads to the smallest classification error. Unfortunately, the Bayes classification boundary is generally nonlinear and its associated error can only be calculated under some restrictive conditions. In this talk, we will review the research we have conducted over the last several years to resolve these issues. We will derive Bayes optimal solutions that can be successfully applied to many scientific and engineering problems. In particular, we will show results on discriminant analysis and its kernel extensions. We will also extend the definition of homoscedastic distributions -- which guarantees the Bayes classifier is linear -- to spherical-homoscedastic. We will show how this new definition yields very general Bayes optimal classifiers and shape analysis algorithms.

**Bio:** Aleix M. Martinez is an associate professor in the Department of Electrical and Computer Engineering at The Ohio State University (OSU), where he is the founder and director of the Computational Biology and Cognitive Science Lab. He is also affiliated with the Department of Biomedical Engineering and to the Center for Cognitive Science. Prior to joining OSU, he was affiliated with the Electrical and Computer Engineering Department at Purdue University and with the Sony Computer Science Lab. He serves as an associate editor of IEEE Transactions on Pattern Analysis and Machine Intelligence and as an Editor of Image and Vision Computing. He's also been an area chair for CVPR, ICPR and F&G. His areas of interest are learning, vision, linguistics, and their interaction. His current research obsession is to understand why he is so bad a recognizing faces.