Electrical and Computer Engineering Colloquium Reminder

Title: **Non-Linear Operators in Spatial Spectroscopy**

Speaker: Dr. James Coggins, BAE Systems, Burlington, MA

When: Monday, April 24, 2006, 3:30 - 4:30 PM

Where: Ball Building, Room 412

Abstract: This talk presents an approach to image analysis called spatial spectroscopy and describes some interesting non-linear operators for simplifying the spectroscopic feature space. In spatial spectroscopy, an image undergoes a linear processing stage that computes a multiscale N-jet (a truncated Taylor Series expansion at multiple scales) of the local image structure about each pixel in the image. This representation can be expanded such that generically, each pixel has a unique mapping into the feature space, which is of high (~100) dimension. Nonlinear operators are required to simplify the feature space for decision-making. Such operators include absolute value (central to visual texture), first- and second-order gauge coordinates (to create a representation that is tied to the image content rather than to the imaging system), discriminant analysis (to reduce dimensionality), and manifold tracking (which shows promise for recognizing targets by parts).

Biography: James Coggins received the Ph.D. degree in Computer Science from Michigan State University. He served on the Computer Science faculty of Worcester Polytechnic Institute from 1982-1986 and the University of North Carolina from 1986-2001. He is now a Principal Engineer in the Computer Vision Directorate at BAE Systems Advanced Information Technologies in Burlington, MA. The directorate works on synthetic aperture radar, automated target recognition, LADAR imaging, video indexing and target tracking, and is developing autonomous, 24/7 surveillance and tracking systems.

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Coffee and cookies will be served, starting from 3 pm. So, come early and treat yourself to some refreshment while it lasts!

For more information, contact Oliver Ibe, oliver_ibe@uml.edu, or call 978-934-3118.