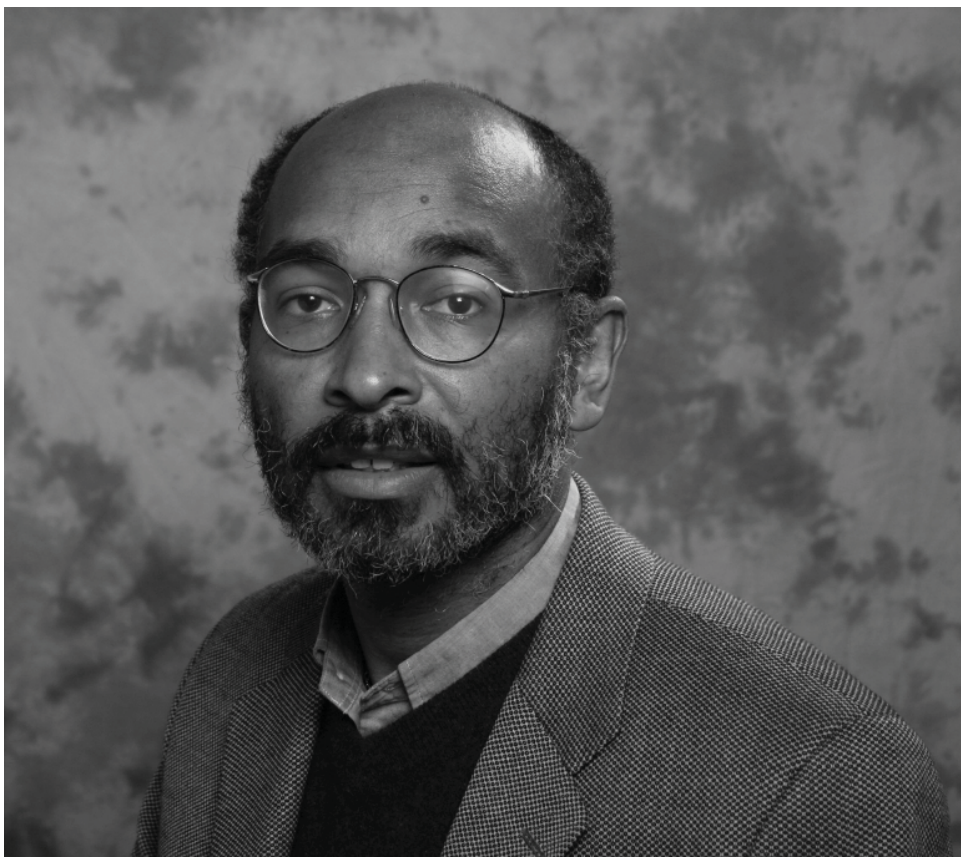
The Department of Mathematics presents the

Dr. Marjorie Lee Browne Colloquium

as part of the University of Michigan's
Rev. Dr. Martin Luther King, Jr. Symposium



Dr. Emery Brown, M.D., Ph.D.

Professor of Computational Neuroscience and Health Sciences and Technology
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Neural Signal Processing Algorithms for Assessing Brain Function

In recent years, there has been tremendous progress in the development of recording modalities to assess brain function. These include multielectrode arrays, electroencephalography, functional magnetic resonance imaging and magnetoencephalography. These various recording modalities, either separately or in combination, make it possible for neuroscientists to collect unprecedented data on brain function. The advent of these new technologies has brought about some challenging new neural signal processing problems. In this presentation, I will survey some of the research work we have been doing to develop algorithms for analyzing data collected from these several modalities. The methods are based on the theory of point processes, likelihood theory, Bayesian methods and state-space modeling. We will illustrate application of these ideas to the study of memory formation in the rat hippocampus, characterizing brain states in humans under general anesthesia and the development of algorithms for control of a motor neural prosthetic device.

Monday, January 19, 2009
4:00 p.m. • Room 1360 East Hall
530 Church Street, Ann Arbor, MI

Reception to follow in the Mathematics Atrium

The Colloquium honors Dr. Marjorie Lee Browne, the first African-American woman to earn a Ph.D. in Mathematics from the University of Michigan.

For information please contact the Math Department at (734) 764-0335 or see www.math.lsa.umich.edu/mlk/