

Center for Applied Mathematical Sciences Distinguished Lecturer, Spring 2015



Grace Wahba

Distinguished University Professor, University of Wisconsin–Madison
I. J. Schoenberg Professor of Statistics

Learning Genetic Risk Models Using Distance Covariance

Abstract: We extend an approach suggested by Li, Zhong and Zhu (2012) to use distance covariance (DCOV) as a variable selection method by providing the DCOV Variable Selection Theorem, which gives a principled stopping rule for a greedy variable selection algorithm. We apply the resulting DCOV Variable Selection Method in two genetic based classification problems with small sample size and large vectors of gene expression data.

The first problem involves the well known SBRCT (Small Blue Round Cell Tumor) childhood Leukemia data, which involves gene expression data from four different types of Leukemia, and it is well known that these data are easy to classify.

The second involves Ovarian Cancer data from The Cancer Genome Atlas, and involves Ovarian Cancer patients that are either sensitive or resistant to a platinum based cancer chemotherapy. The Ovarian Cancer data presents a difficult classification problem.

Monday, May 4, 2015

**Tea: 3:00 PM
KAP 410**

**Lecture: 3:30 PM
KAP 414**



Kaprielian Hall

Grace Wahba is a pioneer in methods for smoothing noisy data. Best known for the development of generalized cross-validation and "Wahba's problem", she has developed methods with applications in demographic studies, machine learning, DNA microarrays, risk modeling, medical imaging, and climate prediction.

She was educated at Cornell (B.A. 1956) and University of Maryland, College Park (M.A. 1962). She worked in industry for several years before receiving her doctorate from Stanford in 1966 and settling in Madison in 1967. She was elected to the United States National Academy of Sciences in 2000 and received an honorary degree of Doctor of Science from the University of Chicago in 2007.

CAMS Director:
Susan Friedlander
susanfri@usc.edu

USC Dornsife
Dana and David Dornsife
College of Letters, Arts and Sciences