

Dr. Willis Jensen

W. L. Gore & Associates, Inc.

Title: Monitoring Linear Profiles with Mixed Models
Date: November 13, 2006 (Monday)
Time: 9:40 am
Place: Goldwater Center ECG G237

Abstract:

This talk will consist of two parts: the first will give a brief overview of W.L. Gore & Associates as a company and its unique culture; the second will discuss research in profile monitoring. Profile monitoring is a relatively new set of techniques in quality control used when the product or process quality is best represented by a function (or a curve) at each time period. The idea is often to model the profile via some parametric method and then monitor the estimated parameters over time to determine if there have been changes in the profiles. Previous modeling methods have not incorporated the correlation structure within the profiles. We propose the use of linear mixed models to monitor the linear profiles in order to account for any correlation structure within a profile. We find that when the data are balanced the simple analysis that ignores the correlation structure will perform just as well as a more complicated analysis that takes into account the correlation structure. When the data are unbalanced or when there are missing data, we find that linear mixed model approach is preferable to an approach that ignores the correlation structure. Our focus is on Phase I control chart applications.

Bio:

Willis Jensen is an Associate at W.L. Gore & Associates, Inc. where he provides statistical support to the Medical Products Division in Flagstaff, Arizona. He earned a BS and MS in Statistics from Brigham Young University. Following graduation he worked for two years as a Six Sigma Coach at 3M Corporation in St. Paul, Minnesota delivering training to Master Black Belts, Black Belts and Green Belts. He then returned to school and obtained a PhD in Statistics from Virginia Tech. He is the recipient of the Ellis R. Ott award from the American Society of Quality. His research interests include Profile Monitoring, Statistical Process Control and problems in Industrial Statistics.