Graphical User Interface for Nonlinear Condition Assessment

ORNL has developed and patented a model-independent methodology to assess condition change in complex systems from noisy, process-indicative data of limited precision and modest length. Condition change typically indicates an impending machine failure or a biomedical event (e.g., epileptic seizure or breathing difficulty). Practical use of this methodology is facilitated by a user-friendly graphical user interface (GUI). The purpose of this work is development of the first essential GUI function: visualization of analysis results. Functional requirements include clear graphics and intuitively obvious use that requires little or no training. Implementation should be portable to many different computer platforms that run various operating systems, as well as remotely accessible via Internet. The software design includes pushbuttons that display the names of the different data sets; clicking on the button causes the corresponding plot to be displayed. Other buttons allow printing the plots and GUI close out. The software implementation is via the graphical user interface development environment (GUIDE) in MatLab^{TM}, using callback functions for the pushbuttons. GUI demonstration visualizes representative results from real data.

Student's Name: **Talisha Haywood**
School Student Attends: Wofford College
Names(s) of Mentor(s) **Lee Hively**
Division: Computational Sciences and Engineering
Program: DOE: Research Alliance for Minorities