

4<sup>th</sup> International Conference on

# BIG DATA ANALYSIS AND DATA MINING

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## Powerful and novel multivariate statistical approaches in big data sets and in data mining with applications to bio-, medical-, and material-informatics

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Advanced statistical methodologies have key roles to contribute in data mining and informatics for large data sets. Over the years, our research has developed a number of statistical techniques exploiting multivariate analysis and methodologies in many applications including bioinformatics, specifically, microarray data sets in a number of applications, medical informatics, including disease diagnosis and discovery, and in material informatics, including the development and evaluation of material properties and testing techniques. In this talk, we present the tools and methodologies that we have developed over the years and discuss their attributes and strengths. The two primary multivariate statistical methodologies that we have exploited have been principal component analysis (PCA) and cluster analysis (CA). This talk will break this technique down for the non-expert and then demonstrate their strengths in handling large data sets to extract critical information that can be exploited in analysis, inference, diagnosis and discovery.

### Biography

Derrick K Rollins is a Professor of Chemical and Biological Engineering and Statistics. He completed his Graduation in Statistics and Chemical Engineering from Ohio State University. He worked at DuPont chemical company for seven years and four months as a Faculty Intern. He received various awards that include: The 2012 Tau Beta Pi McDonald Mentoring Award, the 1996 American Association for the Advancement of Science (AAAS) Mentor Award and National Science Foundation Presidential Faculty Fellows Award. His research areas include "Blood glucose monitoring, modeling and control, and (medical-, bio-, and material-) informatics".

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