Biometrics Northwest LLC

Performing Statistical Data Analysis and Modeling

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Overview of Biometrics Northwest LLC and its services

Biometrics Northwest LLC provides biometrical and statistical consulting services including univariate and multivariate data analysis, exploratory data analysis, hypothesis testing, data mining, classification, clustering and segmentation, mathematical, statistical, and simulation modeling, linear and nonlinear regression, predictive modeling, dynamic modeling, expected value analysis, and the imputation of missing data values. If you have data, we can help with that!

Areas of emphasis

Data analysis and modeling services provided by Biometrics Northwest LLC are predicated upon a variety of statistical techniques, including, but not limited to, exploratory data analysis, nonparametric statistics, nearest neighbor and k-nearest neighbor methods, data mining, clustering and classification, hypothesis testing, probability density estimation, linear and nonlinear regression, multivariate statistical analysis, bootstrap simulation modeling, predictive modeling, expected value analysis, and dynamic model extraction.

Biometrics Northwest LLC specializes in using nonparametric approaches for data analysis and modeling and has successfully applied these methods to modeling forest development, predicting forest growth and yield, forest and natural resources management, ecological monitoring and assessment, and the imputation of missing values.

Analysis and modeling philosophy

Biometrics Northwest LLC emphasizes a distribution oriented approach to data analysis and modeling, taking the shape of a data distribution into account when performing an analysis or developing a model. The shape of a data distribution is of fundamental importance in any analysis or model development, and it must be considered if correct inferences are to be obtained. A nonparametric approach to exploratory data analysis is also emphasized, allowing the distribution of the data to "speak for itself" to guide the selection of appropriate analysis methods and the interpretation of results.

Analysis and modeling methods

Data analysis options range from the use of traditional parametric methods and standard distributions to nonparametric methods or customized methods developed specifically for a particular application. Modeling approaches range from curve fitting and regression models to the development of complex dynamic and simulation models of biological phenomena. The data analysis and modeling methods used for a particular project are determined by identifying the context in which the available data were obtained and by working closely with each client to understand their specific needs and expectations.

Data sources

Data used for biometrical or statistical analyses or for model development performed by Biometrics Northwest LLC are expected to be provided by the client. There may, however, be situations where a client does not have sufficient data for their analysis or modeling needs. In these situations, publicly available data, or data from other sources, may be used to augment data provided by a client as appropriate. Approval of the use of additional data sources will be obtained from each client prior to the use of such data in an analysis or for model development.

Analysis and modeling software

A fundamental component of most data analysis projects is the design and implementation of computer algorithms for data processing, analysis, or modeling. The algorithms may compute simple data summaries, perform straightforward statistical hypothesis tests, or they may implement mathematical, statistical, or simulation models representing the complex behavior of a biological system. Biometrics Northwest LLC emphasizes the development of robust, high quality software and algorithms to support its data processing, analysis, and modeling services. A variety of software tools may be used to develop data analysis or modeling solutions, including the development of customized software.

Results and deliverable items

Deliverable items produced by Biometrics Northwest LLC may include, but are not limited to, simple statistical summaries of data, reports detailing the types of analyses performed, their results, a limited interpretation of the results within the context of the analysis, and software implementing a particular statistical analysis or model that may be used by others. Specific deliverable items are determined based on the particular needs of each client.

Applied research and development

Biometrics Northwest LLC is also available to perform applied scientific research and development on behalf of its clients. The specific data analysis or modeling techniques employed in any situation depend on the data and context for the analysis, and on the needs of each client, and may include the development of innovative approaches to address those needs.