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Population Clustering for Analyzing Flow Cytometry and Other Large Data Sets

This patented, automated data analytics tool sorts and analyzes large data sets by identifying and creating clusters of data. The algorithm intakes data and then groups them into clusters, groupings, or populations of data. This nonparametric method has been used for identifying homogenous subpopulations of cells (i.e. gating) in flow cytometry data. The technique is also broadly applicable for data analysis in any other field that contains clusterable parameters, such as marketing, data mining, genomics, or financial software.

Applications

- Flow cytometry analysis - gating to identify subpopulations of cells
- Data analysis for:
    - Market research
    - Genomics - gene expression, functional genomics
    - Data mining
    - Financial software

Advantages

- Automated and objective - not subject to user's interpretation and experience
- Fast - automatic gating for flow cytometry takes a fraction of a second
- Non-parametric - can reproduce nonconvex subpopulations

Publications

- Walther G, Zimmerman N, Moore W, Parks D, Meehan S, Belitskaya I, Pan J, Herzenberg L., "Automatic clustering of flow cytometry data with density-based merging." *Adv Bioinformatics.* 2009:686759. Epub 2009 Nov 19.

Patents

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