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Understanding metabolism and its regulation is a key aspect when producing bio-refined products using fermentation, such as biofuels. Improving metabolomic technology provides a method to obtain quantitative information around the metabolic flux through metabolic pathways. The challenge of past metabolomics data is that it is qualitative. This type of data requires qualitative data analysis, such as correlation image mapping and cluster analysis. Attempts to improve metabolomics to allow for quantitative analysis have been hampered by relatively low signal-to-noise ratios rendering many of the classic statistical calibration methods problematic. POET has studied the implications of low signal-to-noise signal data and developed several algorithms to improve our ability to work with this data. Missing data in metabolomics is another challenge. This causes significant problems for many of the chemo-metric or statistical methods commonly applied to high dimensional data. POET has used a geometric approach to work with this data and is currently developing analysis methods that are robust with respect to low signal-to-noise ratios and missing data.

Biography

Harry Harlow is the Statistics and Modeling Research Director at POET, LLC, a leading biofuels producer. He holds a doctorate in physical chemistry. Prior to joining POET, he worked in the areas of systems biology and bioinformatics in the pharmaceutical and agricultural industries. He also serves as an adjunct professor at South Dakota State University in the Applied Mathematics and Statistics Department.

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