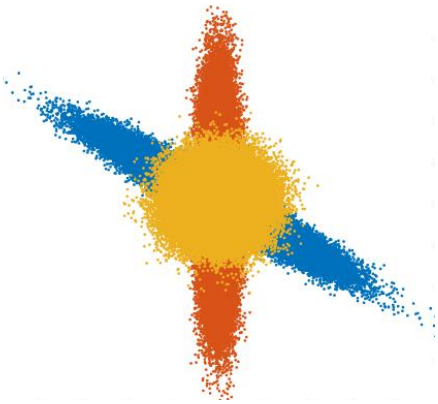
HUMBOLDT STATE UNIVERSITY

DEPARTMENT OF MATHEMATICS

Spring 2019 Colloquium Series

Principal Component Analysis



An Explanation and an Application

Michael Wilson & Peter Oliver

At its core Principal Component Analysis (PCA) involves a change of basis. This new basis is constructed by identifying the directions of maximum variance among the data. The covariance matrix of the original data allows us to identify these "principal components" using a straightforward eigenvalue - eigenvector problem. The new basis makes it possible to approximate the original data in a lower dimension while retaining as much of the original variability as possible. In this talk, we will be discussing the specifics of how PCA achieves this change of basis and how lower dimensionality can drastically simplify complex computations like facial recognition.

Thursday, April 18

BSS Room 166, 4:00 PM

Michael Wilson and Peter Oliver are both seniors in Applied Mathematics at Humboldt State. Michael will be entering a Ph.D. program in Statistics at Florida State University in Fall 2019. Peter hopes to study Architecture or Computer Vision in graduate school.