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Santosh S Vempala* (vempala@cc.gatech.edu) and **S Charles Brubaker**. *Affine-invariant Principal Components*.

Principal component analysis (PCA) is widely used to identify important directions or subspaces. For a given data set or distribution, PCA can be identified with a particular affine transformation. In this talk, we discuss a notion of principal components which is affine-invariant. We apply this extension of PCA to a classical problem from statistics, namely unraveling a mixture of arbitrary Gaussian distributions in high-dimensional space given unlabeled samples from the mixture. We will discuss the method in the context of other known methods for dimension reduction and show how it complements them.

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