

**SYSTEM AND METHOD FOR IMPLEMENTING DIFFERENTIALLY PRIVATE
PRINCIPAL COMPONENT ANALYSIS (PCA) FOR VERTICALLY PARTITIONED
DATA**

ABSTRACT

Various embodiments concern a computer system for implementing differentially private principal component analysis (PCA) for vertically partitioned data. The system includes a first client possessing a first column vector, and a second client possessing a second column vector. The first client is configured to discretize the first column vector to obtain a first discretized column vector and the second client is configured to discretize the second column vector to obtain a second discretized column vector. The first client to configured to introduce a first noise to the first discretized column vector and the second client to configured to introduce a second noise to the second discretized column vector to obtain a PCA result.

FIG. 1