

FLORIDA STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

EFFICIENT METHODS FOR UNSUPERVISED LEARNING

By
SIDA LIU

A Dissertation submitted to the
Department of Statistics
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

2021

Sida Liu defended this dissertation on April 2, 2021.
The members of the supervisory committee were:

Adrian Barbu
Professor Directing Dissertation

Piyush Kumar
University Representative

Yiyuan She
Committee Member

Jinfeng Zhang
Committee Member

The Graduate School has verified and approved the above-named committee members, and certifies that the dissertation has been approved in accordance with university requirements.