McInnes, Leland

Topological methods for unsupervised learning. (English) Zbl 1458.68174

Nielsen, Frank (ed.) et al., Geometric science of information. 4th international conference, GSI 2019, Toulouse, France, August 27–29, 2019. Proceedings. Cham: Springer. Lect. Notes Comput. Sci. 11712, 343-350 (2019).

Summary: Unsupervised learning is a broad topic in machine learning with many diverse sub-disciplines. Within the field of unsupervised learning we will consider three major topics: dimension reduction; clustering; and anomaly detection. We seek to use the languages of topology and category theory to provide a unified mathematical approach to these three major problems in unsupervised learning.

For the entire collection see [Zbl 1428.94016].

MSC:

68T05 Learning and adaptive systems in artificial intelligence
62H30 Classification and discrimination; cluster analysis (statistical aspects)

Keywords:

unsupervised learning; manifold learning; clustering

Full Text: DOI