

Topological Data Analysis

28 November 2019

7 Selected examples

F. Belchí, M. Pirashvili, J. Conway, et al., *Lung topology characteristics in patients with chronic obstructive pulmonary disease*, Scientific Reports **8** (2018), 5341, doi:10.1038/s41598-018-23424-0

M. Feng, M. A. Porter, *Persistent homology of geospatial data: A case study with voting*, arXiv:1902.05911v2 (2019)

N. Giansiracusa, R. Giansiracusa, C. Moon, *Persistent homology machine learning for fingerprint classification*, arXiv:1711.09158v1 (2017)

M. Gidea, Y. Katz, *Topological data analysis of financial time series: Landscapes of crashes*, Physica A **491** (2018), 820–834, arXiv:1703.04385v2 (2017)

Longer exercise

- (1) Search for an article in which Topological Data Analysis is used for studies in medical sciences or social sciences. Explain the objectives, the methodology and main conclusions. Find out what software was used for data analyses.