

## Reading list for Applied Topology, TDA, ETEX01, 2024

### Regular literature

#### Articles

A. Rosenfeld, Digital Topology *The American Mathematical Monthly* Oct., 1979, Vol. 86, No. 8 (Oct., 1979), pp. 621-630.

A. Zomorodian and G. Carlsson, Computing Persistent Homology *Discrete and Computational Geometry* 33 (2005) 249-274

G. Carlsson, Persistent Homology and Applied Topology *ArXiv 2020*  
<https://doi.org/10.48550/arXiv.2004.00738>

R.Ghrist, Elementary Applied Topology *Createspace* ed. 1.0, 2014. Chapter 1  
[www2.math.upenn.edu/~ghrist/notes.html](http://www2.math.upenn.edu/~ghrist/notes.html)

### Additional literature

#### Articles

1. Alexander D. Smith, Pawel Dlotkoy and Victor M. Zavala, Topological Data Analysis: Concepts, Computation, and Applications in Chemical Engineering, ArXiv Nov. 2020.
2. Ziga Virk, Introduction to Persistent Homology, Univerza v Ljubljani (Universidad de Liubliana, Eslovenia), 2022.
3. G. Carlsson, Persistent Topology and the Analysis of High Dimensional Data, University of Chicago, 2005 (pdf-file with Lecture Notes by G. Karlsson)
4. H. Edelsbrunner and J. Harer, Persistent Homology—a Survey, *Contemporary mathematics*, 453, 257-282.
5. Herbert Edelsbrunner and Dmitriy Morozov, Persistent Homology: Theory and Practice, Proceedings of the European Congress of Mathematics, 2012.
6. Robert Ghrist Barcodes: the persistent topology of data. *Bulletin of the*

American  
Mathematical Society (New Series) 45, 1 (2008), 61–75.

7. Magnus Bakke Botnan, Topological Data Analysis, Lecture Notes, Spring 2020.
8. E. Carlsson, J. G. Carlsson and S. Sweitzer, Applying Topological Data Analysis to local search problems. Foundations of Data Science, 4 (2022) 563-579.