

Topological Data Analysis

and Persistence Theory

NSF/CBMS Conference

Valdosta State University

August 8-12, 2022

Peter Bubenik, University of Florida



Lecture 10 : TDA applied to Deep Learning and TDA Software

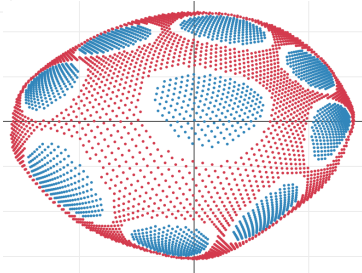
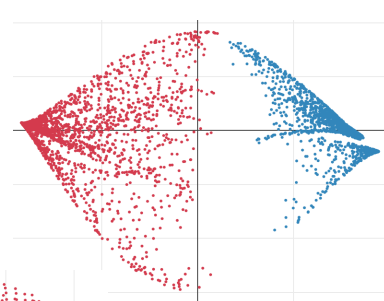
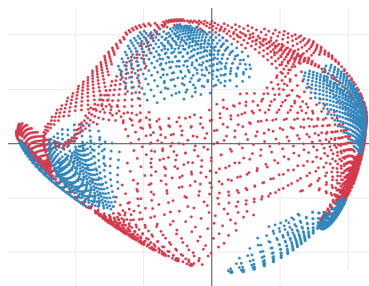
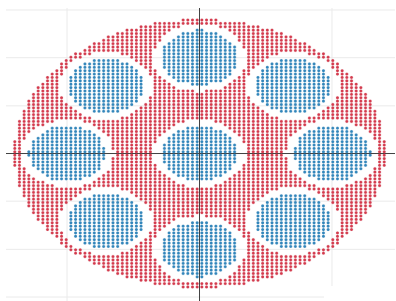
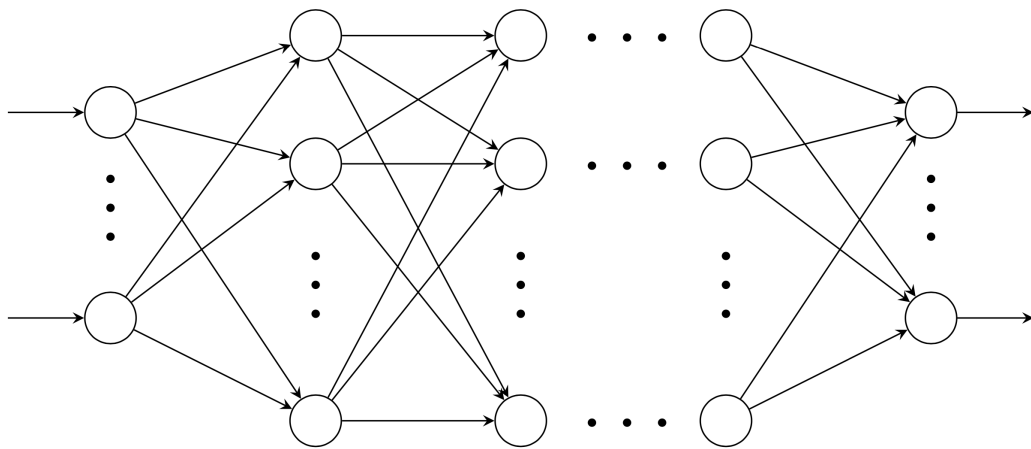
Outline: 1. TDA applied to Deep Learning

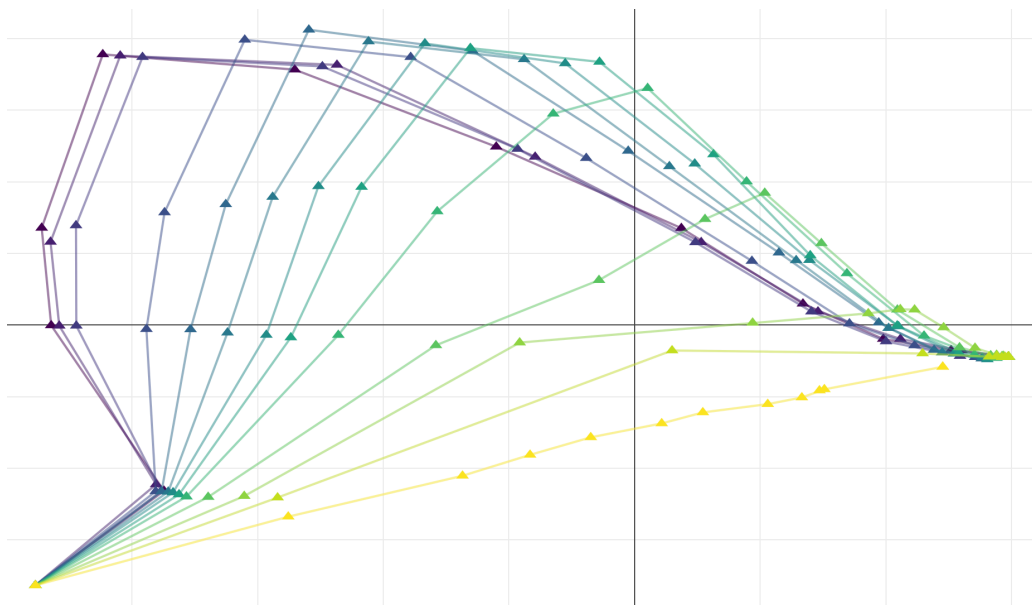
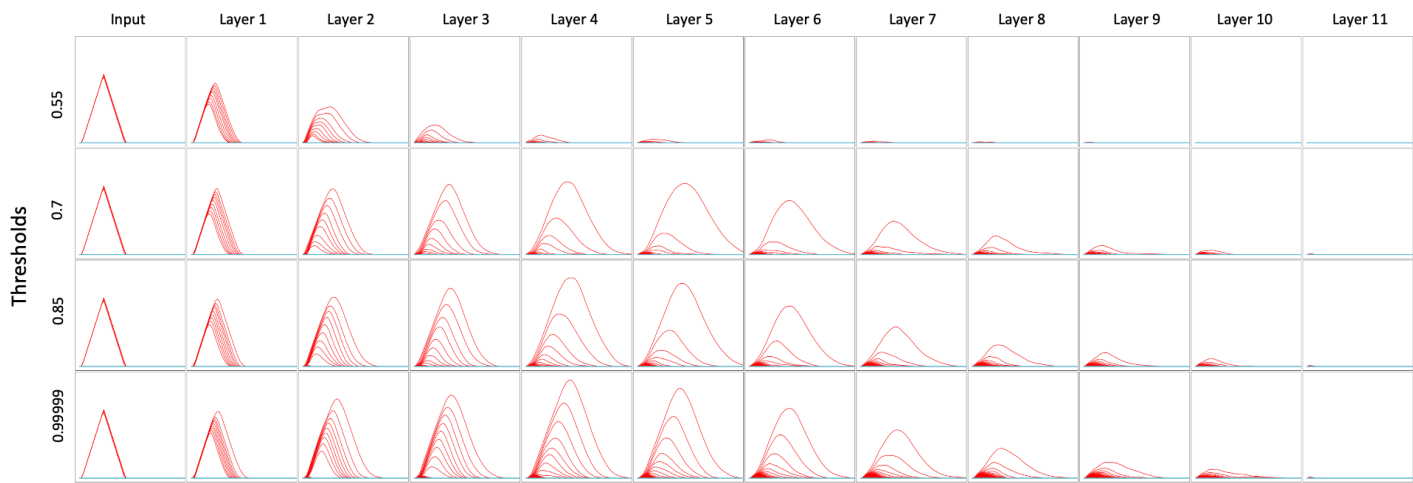
joint with Jose Bouza and Matt Wheeler

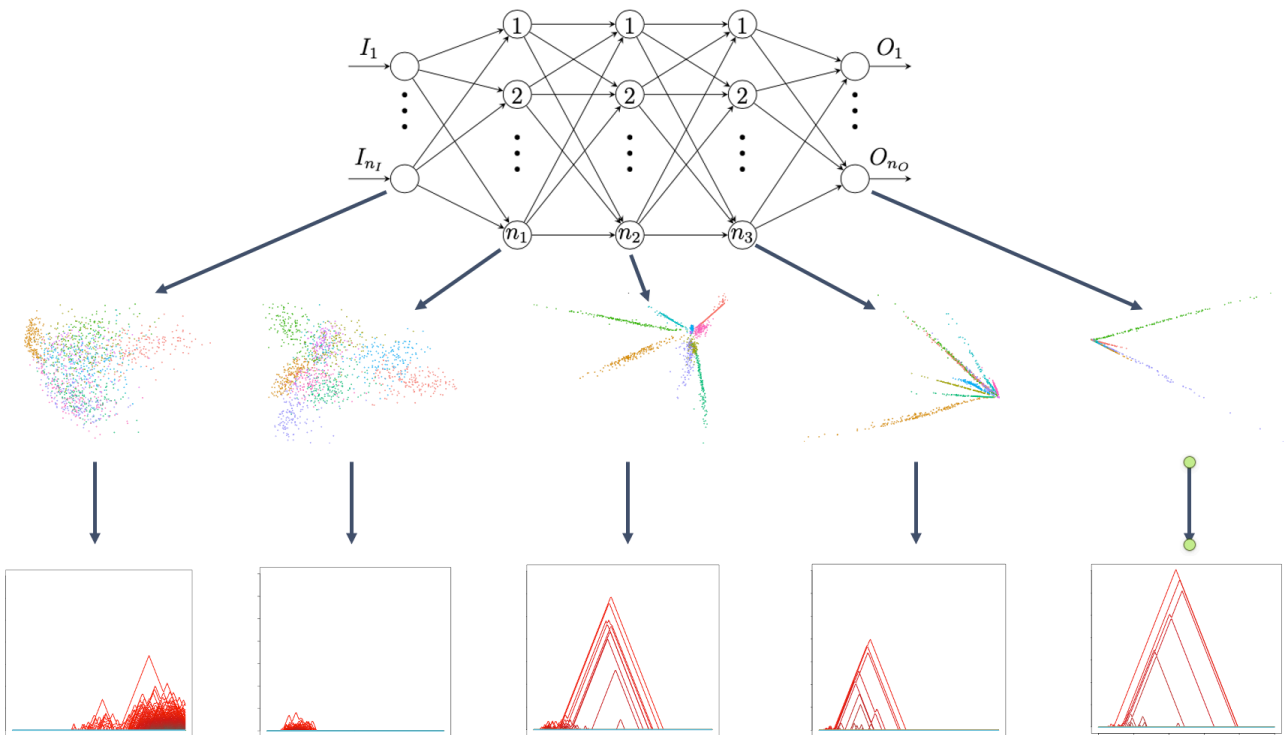
2. TDA Software

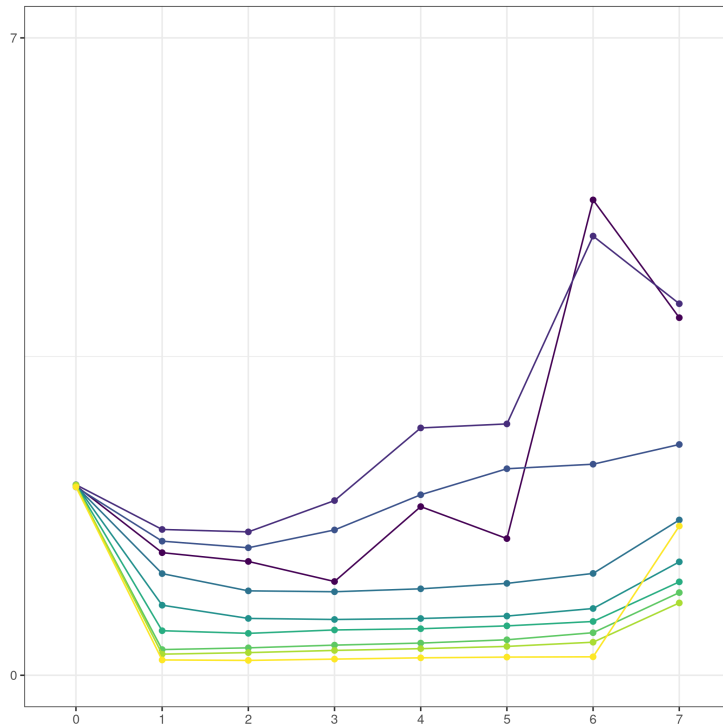
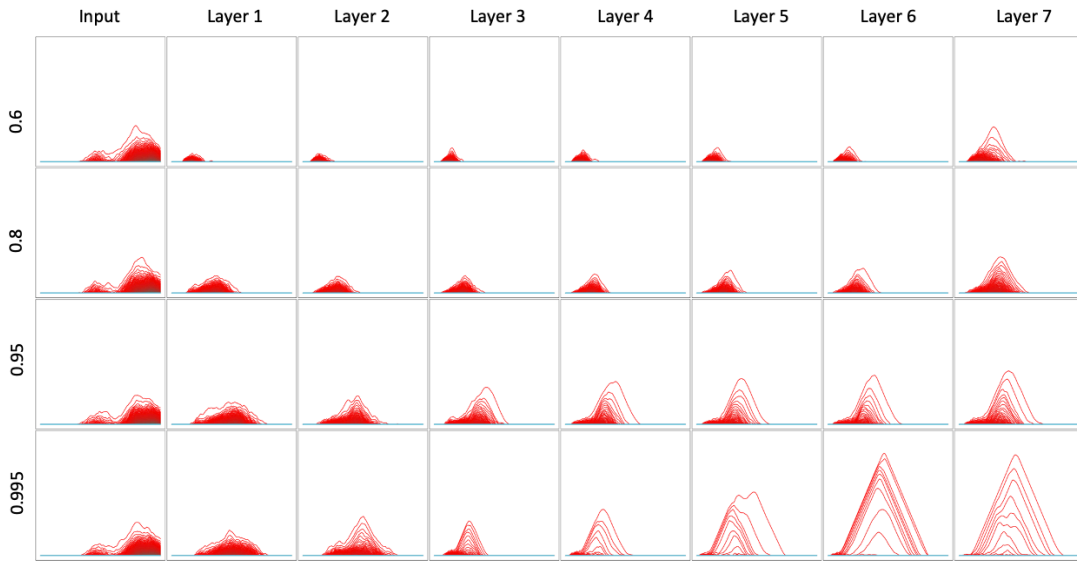
Please interrupt me !!!

1. TDA applied to Deep Learning









2. TDA Software

TDA R package is an R interface to the C++ TDA libraries

- GUDHI

- Dionysus

- PHAT

Computer Pers. Landscape

have python bindings

Updated version: Dionysus 2.

Other persistent homology software:

- Perseus

- Ripser

- Eirene

- giotto-ph

Persistent homology on GPU

- Ripser++

Persistent homology and machine learning

- PLLay (tensorflow)

- giotto-tda (scikit-learn)

- torchph, TopologyLayer (pytorch)

Alex Wagner

Thank Bryanna

Thank Shaun & Jose