

The Gudhi Library

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April 20, 2015

Goals

- ▶ Collect tools
- ▶ Geometry in high dimensions
- ▶ For our own research
- ▶ Dissemination to other communities
- ▶ Ease of (ab)use
- ▶ Performance

People

- ▶ Original authors: Clément Maria, David Salinas
- ▶ Many more people involved now

Simplicial complexes

- ▶ Hasse diagram
- ▶ Simplex tree
- ▶ Skeleton-blockers

They can be constructed manually, as a Rips, an α -shape. . .

Algorithms

- ▶ Persistent cohomology
 - ▶ Multi-field
- ▶ Edge contraction

Coming up real soon now

- ▶ Bottleneck distance
- ▶ Witness complex
- ▶ Clustering (hard and soft)
- ▶ α -shapes in dimension $\neq 3$ (using CGAL)
- ▶ Zigzag persistence
- ▶ ...

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- ▶ YOUR package

Links

- ▶ `https://project.inria.fr/gudhi/software/`
- ▶ `gudhi-users@lists.gforge.inria.fr`