The Gudhi Library

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- 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 $\alpha$-shape...
Algorithms

- Persistent cohomology
  - Multi-field
- Edge contraction
Coming up real soon now

- Bottleneck distance
- Witness complex
- Clustering (hard and soft)
- \( \alpha \)-shapes in dimension \( \neq 3 \) (using CGAL)
- Zigzag persistence
- ...
Coming up real soon now

- Bottleneck distance
- Witness complex
- Clustering (hard and soft)
- $\alpha$-shapes in dimension $\neq 3$ (using CGAL)
- Zigzag persistence
- ...
- YOUR package
Links

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