

VIS: OPTICS_{vis}

Milestone 4

Group 11

28. Januar 2018

Fakultät für Informatik

Agenda

1. Project definition

Motivation

Users and Tasks

2. Approach

3. Demo

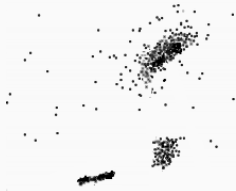
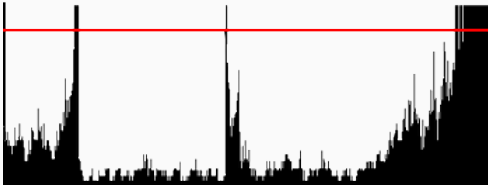
4. Results

5. Analysis

Project definition

Project motivation

- OPTICS: density based clustering
 - algorithm jumps between points in some order
 - records jump distances
 - output somewhat hard to read
 - point order
 - a list of numbers
 - staple visualization method: the bar chart
- more thorough and interactive visualization: OPTICSvis



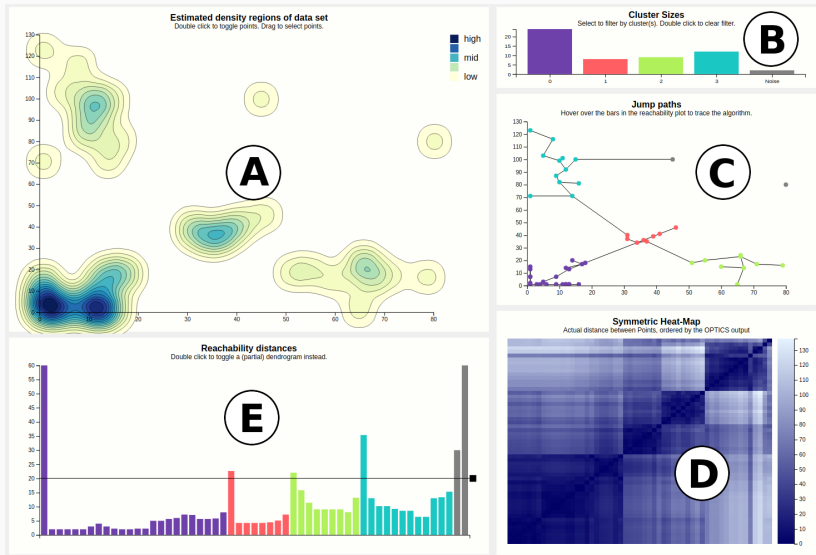
- Teaching personnel
 - for educational purposes
- Researchers
 - exploration
 - testing before practical usage
- Anyone
 - exploration

- Exploration
 - get a feeling for the algorithm, get to know it
- Education
 - learn about the algorithm and how to interpret the output
- Testing
 - give an idea if the algorithm fits the users problem
 - see if result/output is satisfactory and useful

Approach

- static views (w/o interactive elements) provide an overview
- interaction can be used to filter or show more details on demand
- OPTICS is density-based: visualize densities
- make reachability chart interactive: draggable cutoff bar
- heat map makes cluster structures easier to see
- allow user to trace the algorithm
- attempt to visualize hierarchy

Implementation



Demo

Results

Results

- feedback overall favorable
- secondary cutoff bar was considered superfluous and confusing, removed in final prototype
- performance issues were prominent
- people tended to use the tool in a very superficial way, not very conclusive
- OPTICS basics needed to be taught beforehand

Analysis

- strengths
 - + quick exploration of different aspects of OPTICS
 - + good companion for teaching OPTICS
- weaknesses
 - some previous knowledge of OPTICS needed
 - multidimensional data visualization could be improved
 - performance issues

Thanks for your attention!