

On Generating Polygons: Introducing the Salzburg Database

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Philipp Mayer, and Peter Palfrader

EuroCG
2020



Würzburg, March 2020

What is the Salzburg Database?

Keystones

- A repository of polygonal areas
- Can be used freely
- Database: <https://sbgdb.cs.sbg.ac.at/>
- Generators: <https://github.com/cgalab>
- Currently contains 11 507 instances

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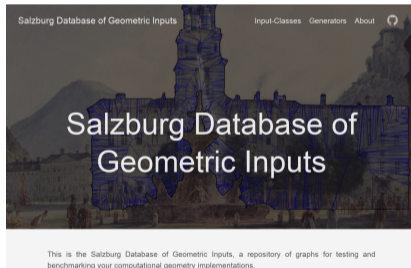
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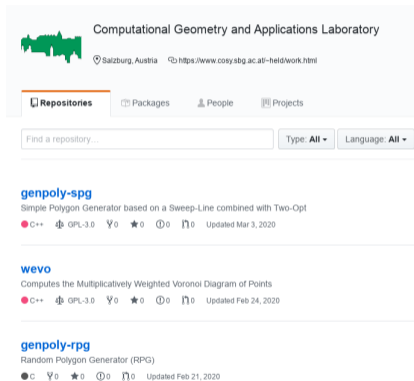
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Computational Geometry and Applications Laboratory

Salzburg, Austria <https://www.cosy.sbg.ac.at/~heid/work.html>

Repositories Packages People Projects

Find a repository... Type: All Language: All

genpoly-spg
Simple Polygon Generator based on a Sweep-Line combined with Two-Opt
C++ GPL-3.0 0 0 0 Updated Mar 3, 2020

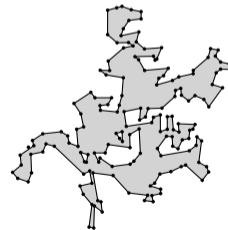
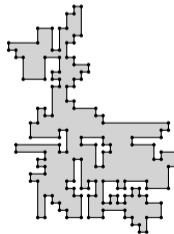
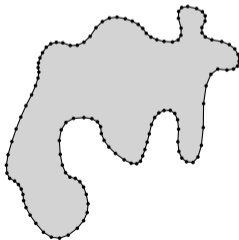
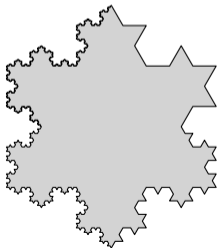
wevo
Computes the Multiplicatively Weighted Voronoi Diagram of Points
C++ GPL-3.0 0 0 0 Updated Feb 24, 2020

genpoly-rpg
Random Polygon Generator (RPG)
C 0 0 0 Updated Feb 21, 2020

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Per instance via <https://sbgdb.cs.sbg.ac.at/db/>

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Whole Repository

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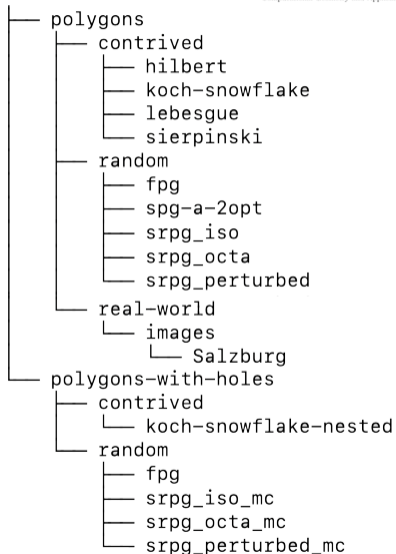

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- Supports the basic geometric types
- Can be extended to support various properties
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GraphML to the rescue!

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- XML – format
- Supports graphs in general
- Directed-, undirected-, mixed-, and hyper-graphs
- Supports edge-weights

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- <https://github.com/cgalab/format-converter>
- MIT license
- Written in Python

- Reading and writing `.graphml`, `.ipe`, `.obj`-files
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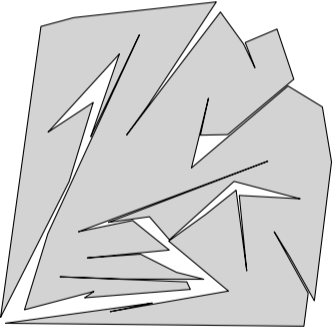
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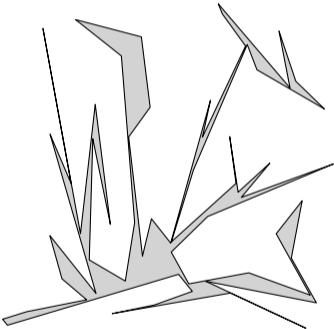
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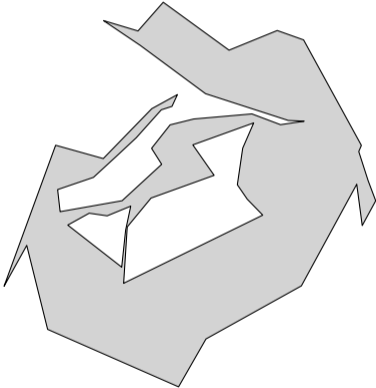
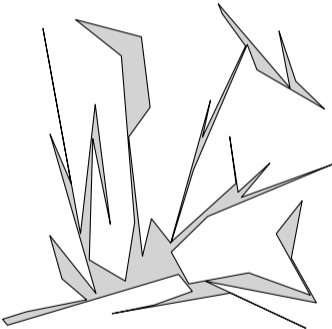
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Instance Classes





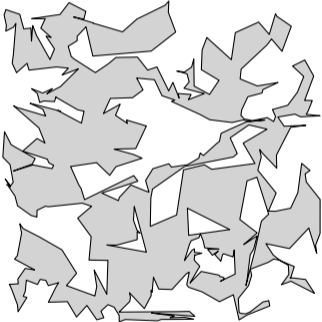
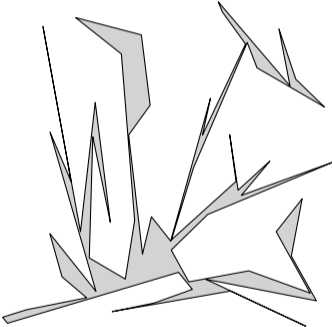
fpg with holes

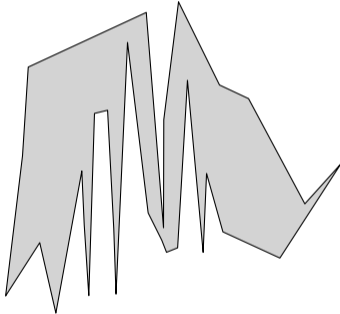
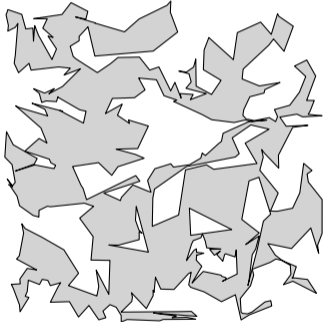
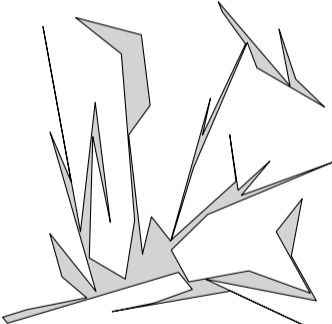
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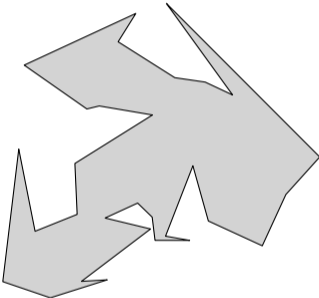


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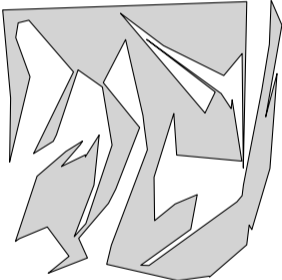
Computational Geometry and Applications Lab



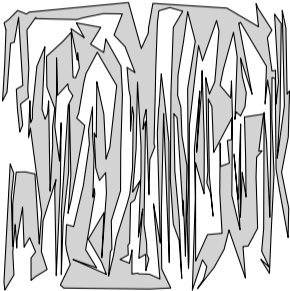




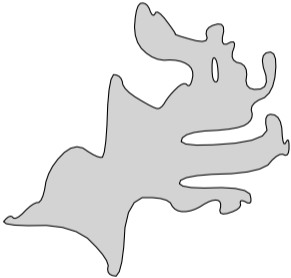
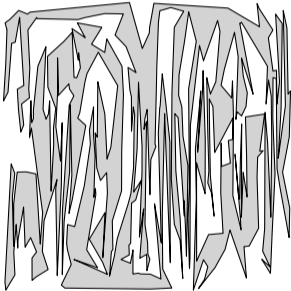
2-opt

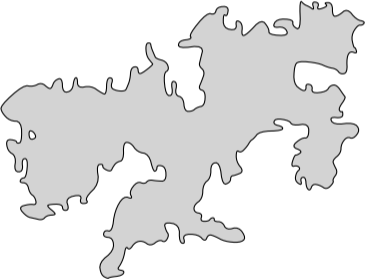
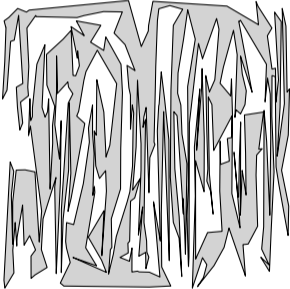


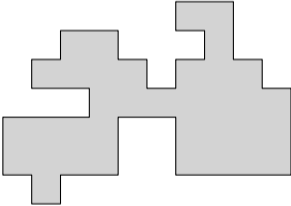
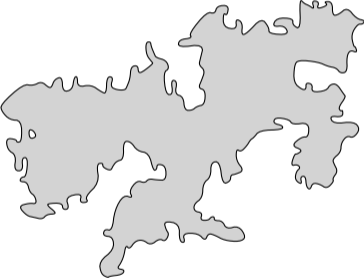
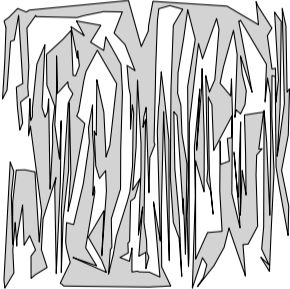
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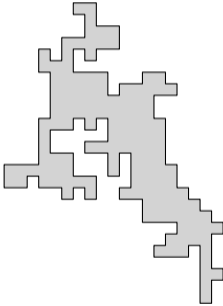
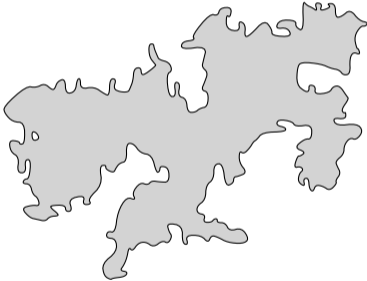
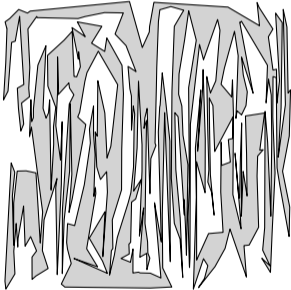


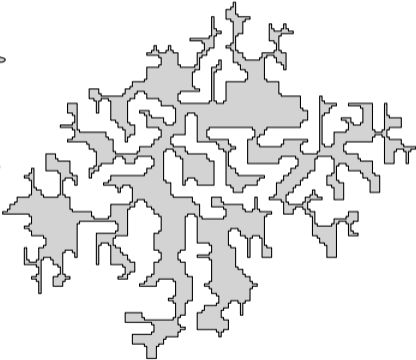
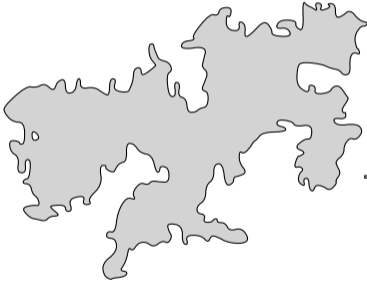
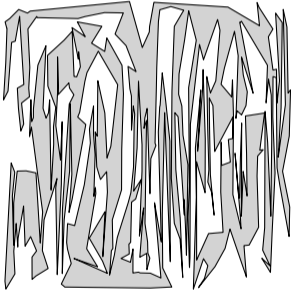
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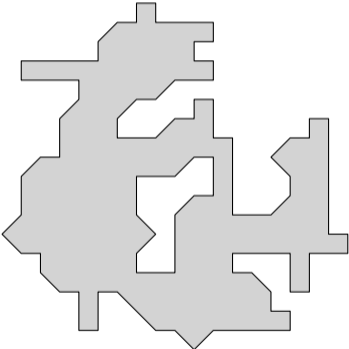


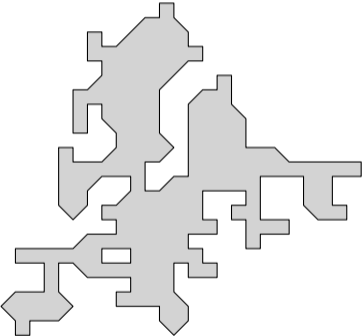




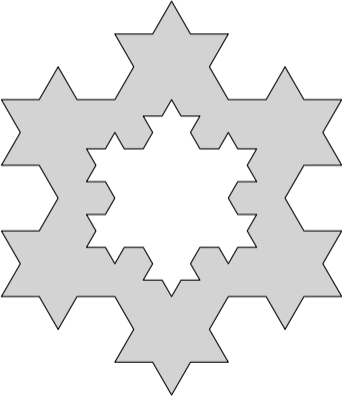
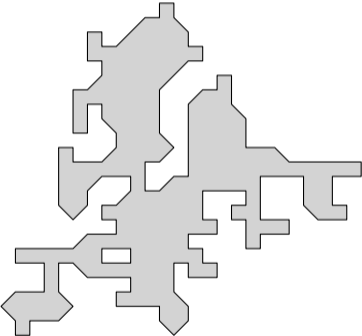




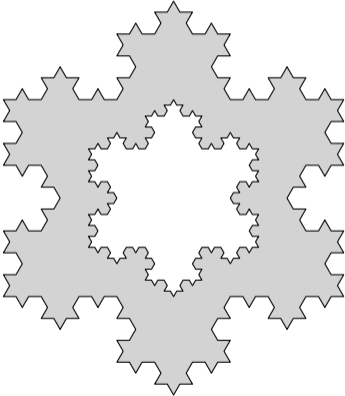
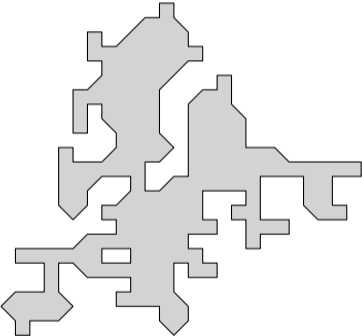




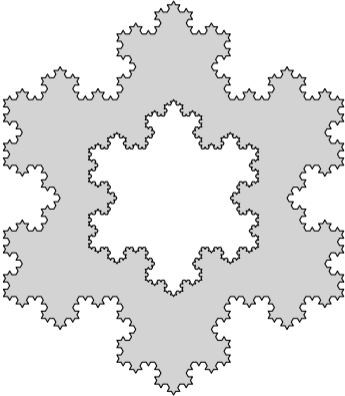
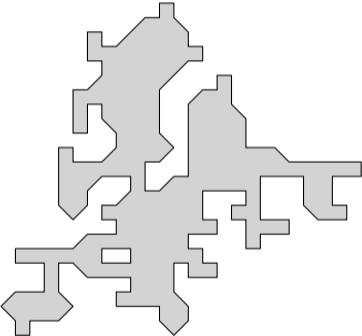
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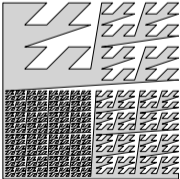
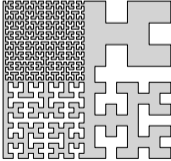
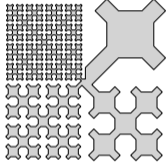
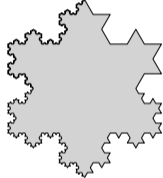
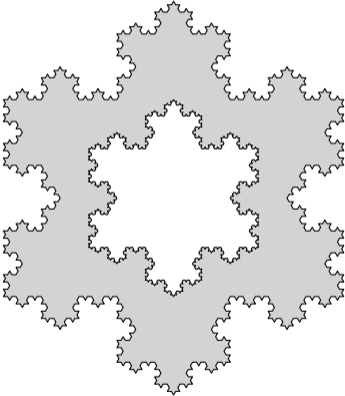
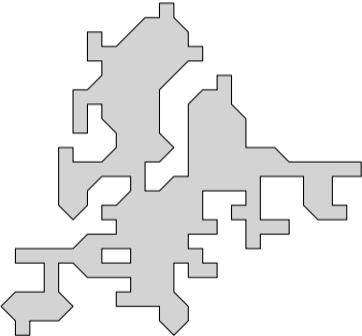


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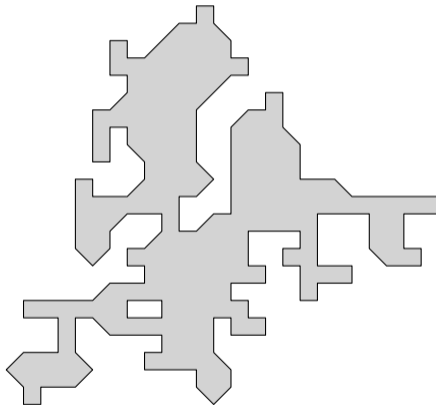
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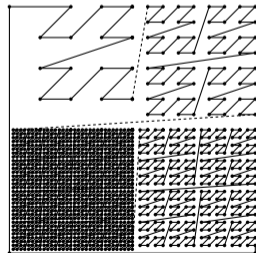
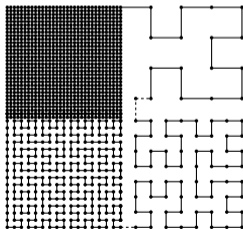
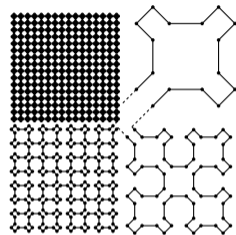
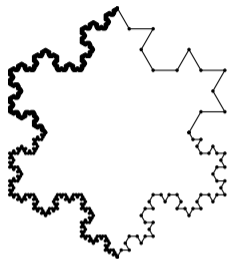


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 - **Srpg** — On the integer grid
 - Koch, Sierpinski, Hilbert, and Lebesgue
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 - **Spg** — Sweep-line & 2-Opt

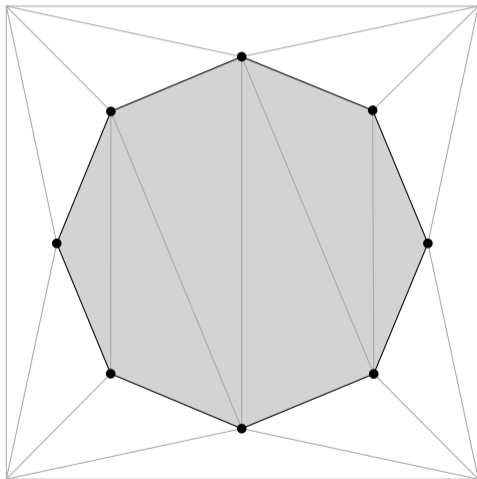
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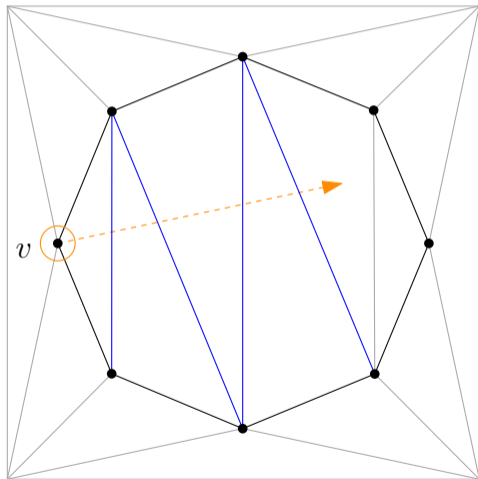
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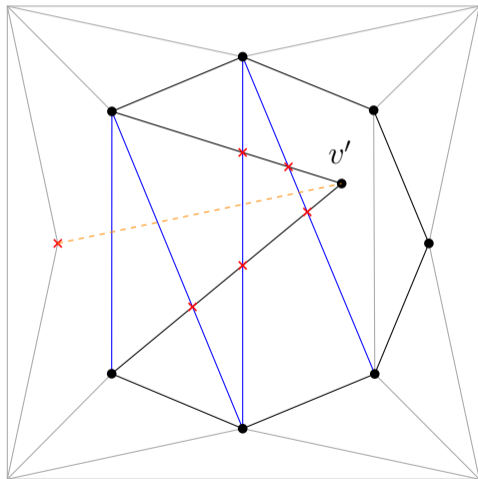
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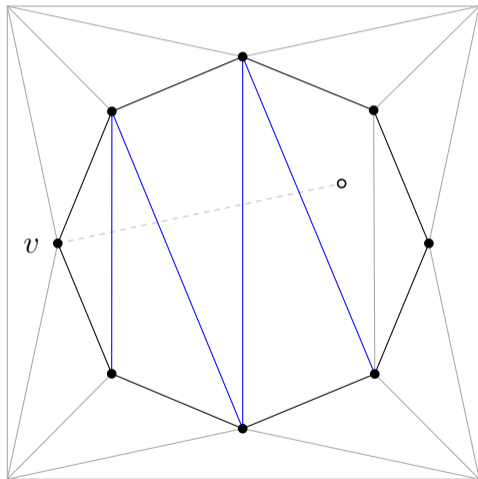
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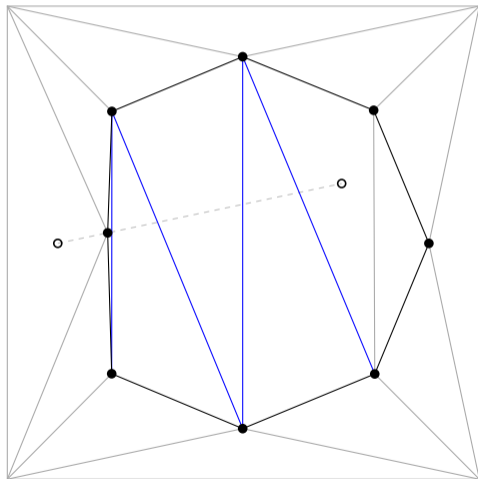
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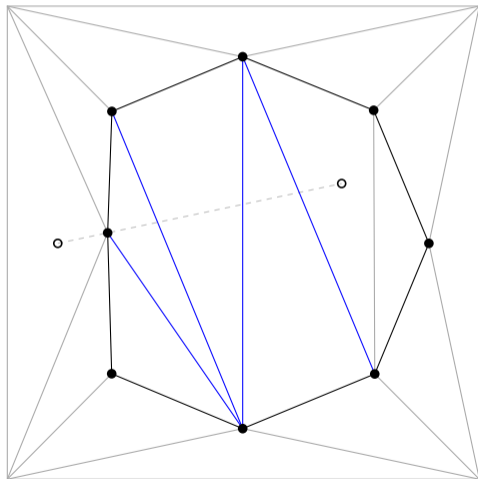
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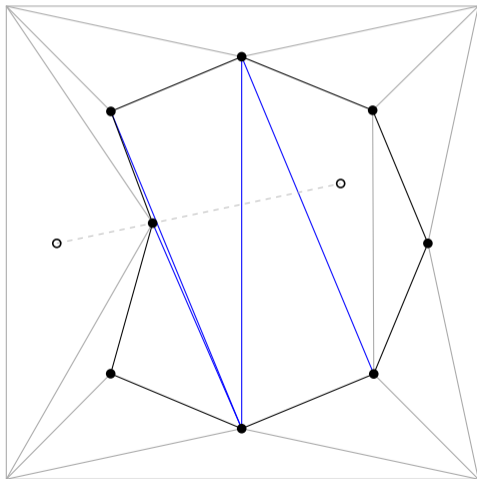
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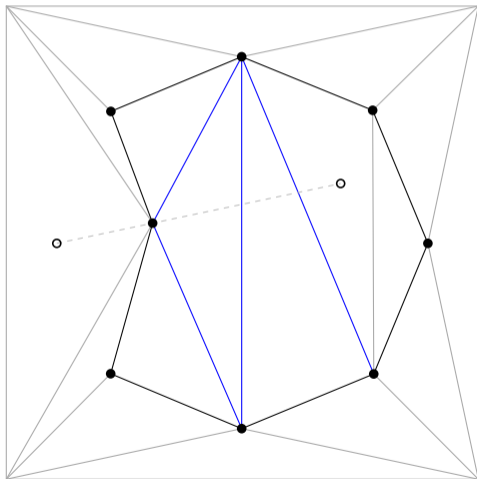
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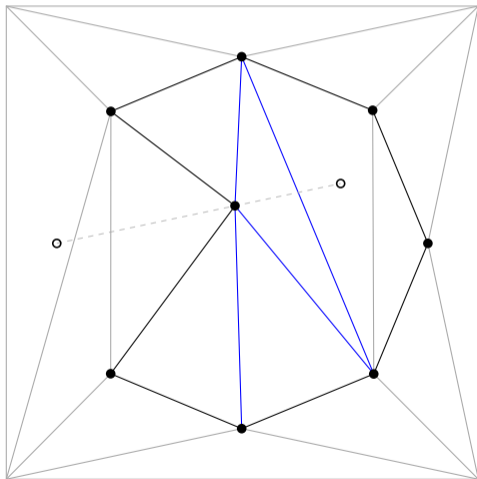
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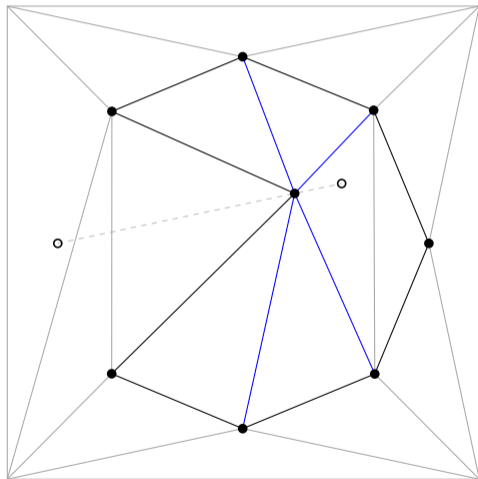
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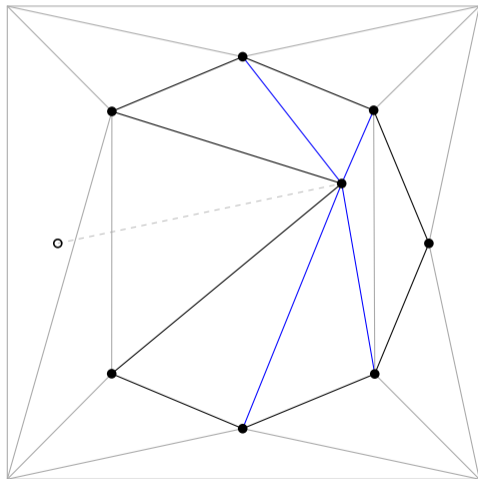
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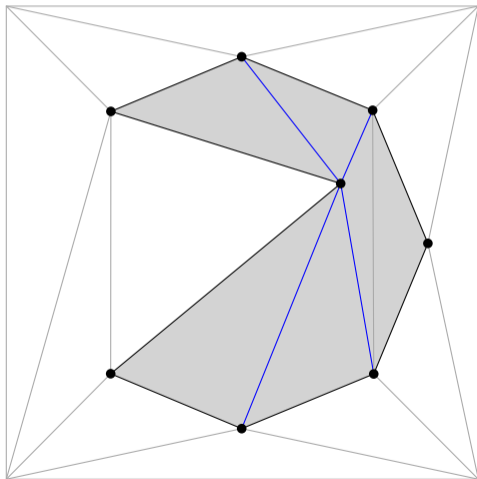
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- Spg — Sweep-line & 2-Opt



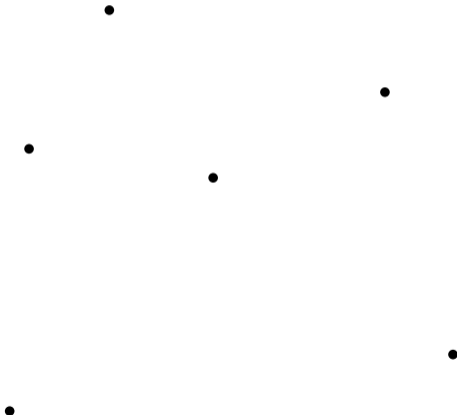
- Rpg — Various heuristics
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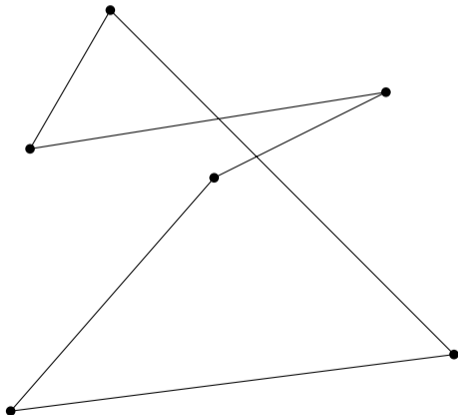
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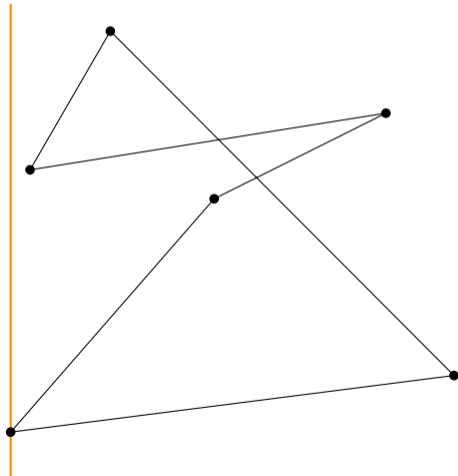
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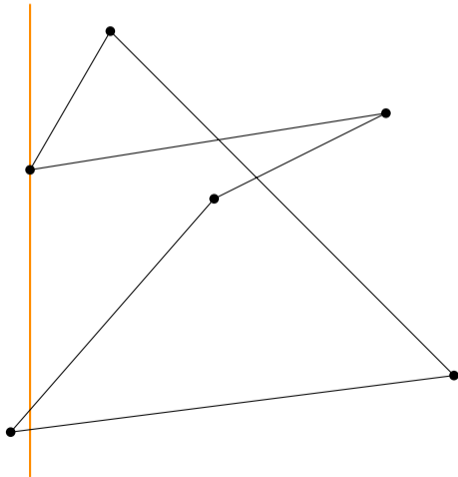
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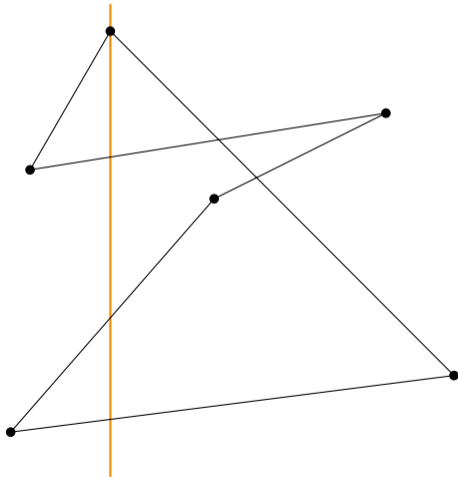
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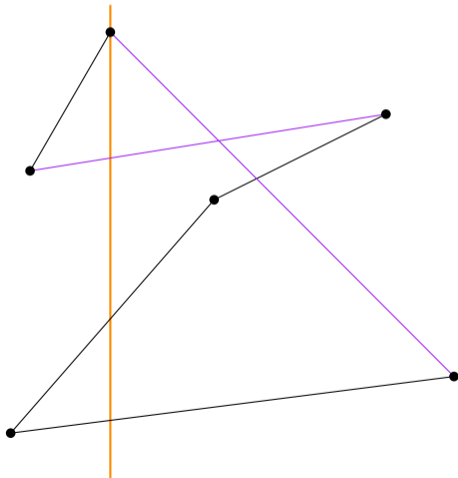
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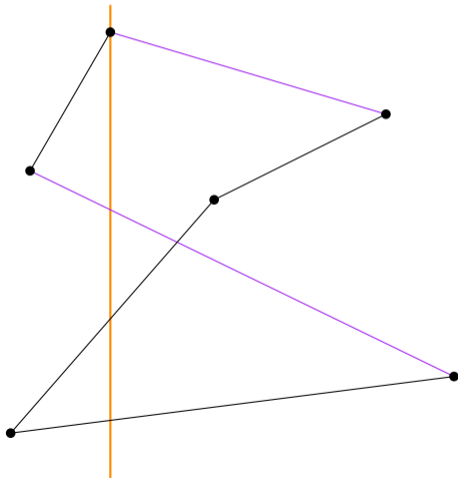
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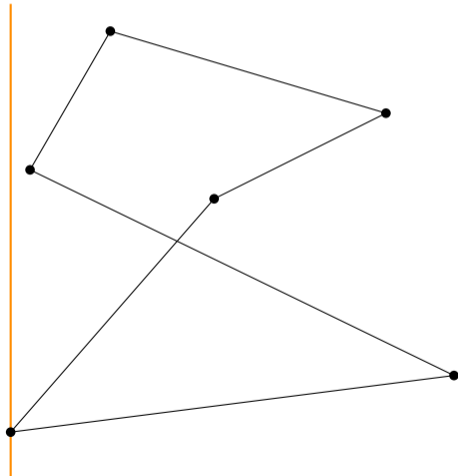
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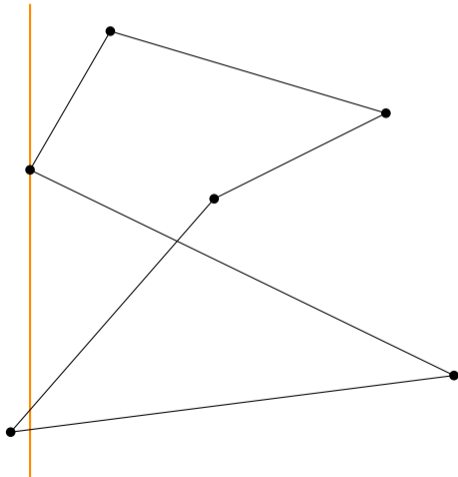
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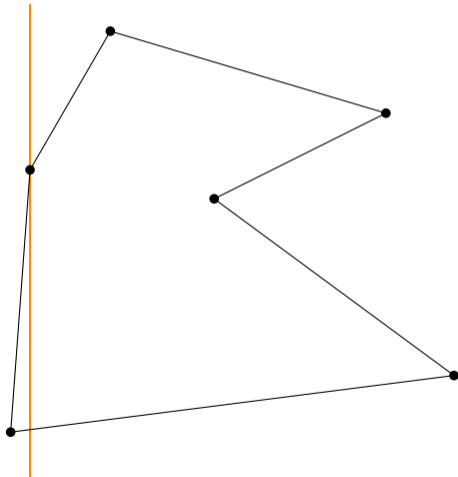
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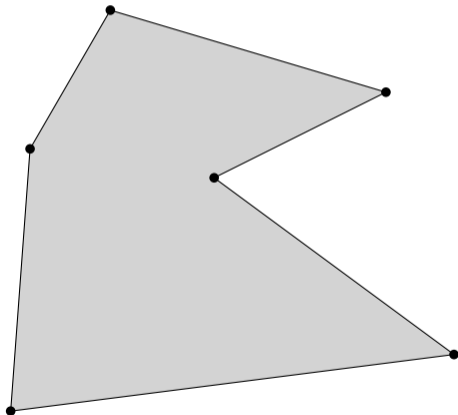
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Summary

Database <https://sbgdb.cs.sbg.ac.at/>

Format-Converter <https://github.com/cgalab/format-converter>

Call for Participation

Do you have *interesting* polygons?

What is missing?
(*specific class, property, file format*)

Contact

{geder,held,palfrader}@cs.sbg.ac.at