At GD 2013 in Bordeaux

**Visibility Representation (VR)**

- A planar graph
- Its visibility representation

We can model a planar graph using the Visibility Representation (VR).

**Pixelated VR**

- We represent every line as a bar-1-VR
- Nodes are boxes of height 1
- Edges are boxes of width 1
- Nodes never share a pixel
- A node and an edge share a pixel when they are incident
- Edges share pixels only at their endpoints

For every object there is a grid of boxes, each of which pixels represent the object.

We can formulate ILP constraints that force the pixels to form a VR.

Back in Karlsruhe

- Can you write a program that lets the user load a graph, runs the ILP and displays the resulting drawing?
- The user must be able to select constraints out of predefined lists.
- It should be easy for the user to specify custom constraints.

The “Pixelated Graphs” Tool PIGRA

- You can select a subset of predefined constraints (macros).
- You can add your own constraints using our simple language PGL.
- You can easily change the constant k in the GUI.
- You also have to set the height and width of the grid.

**The Resulting Drawing**

- A Tool for Pixelated Graph Representations

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**Based on:** Using ILP/SAT to Determine Pathwidth, Visibility Representations, and Other Grid-Based Graph Drawings
Therese C. Biedl · Thomas Bläsius · Benjamin Niedermann · Martin Nöllenburg · Roman Prutkin · Ignaz Rutter
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