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Software Description

The Gardony Map Drawing Analyzer (GMDA) is a novel approach to analyzing hand-drawn sketch maps of environments. This publicly available software is easy to use and customizable, allowing for scoring of complex environments (up to 48 landmarks). The software compares the locations of landmarks on the sketch map to the Cartesian coordinates of the target environment.

Novel Measures

The GMDA provides several quantitative measures, based on pairwise comparison, that reflect both the relative canonical (NSEW) and metrical (distances and angles) placement between landmarks. The software also provides bidimensional regression (BDR) parameters (Friedman & Kohler, 2003; Tobler, 1994). In the case of missing landmarks on the sketch map, only included landmarks are used in the BDR calculation.

Message to Users

Please let me know if you:

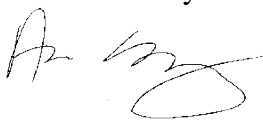
- have any suggestions for software improvements
- found bugs or errors

I hope you find my software useful. I will continue to update and maintain it. The most updated version will be available at my website: aarongardony.com

If you do use the software in your research please cite the following paper.

Gardony, A.L., Taylor, H.A., & Brunyé, T.T. (2016). Gardony map drawing analyzer: Software for quantitative analysis of sketch maps. *Behavior Research Methods*. 48(1), 151-177.
doi:10.3758/s134280140556x

Best,
Aaron Gardony



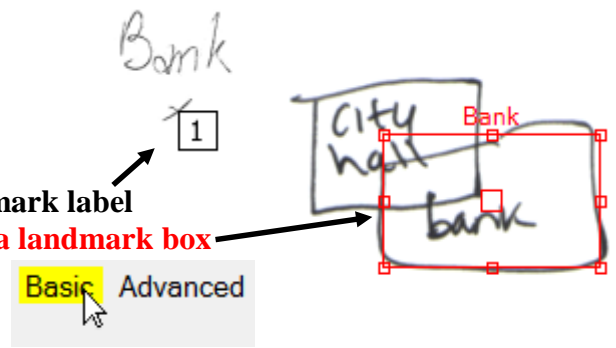
Getting Started

Description of program modes

Basic - Each landmark is represented by a single point, a **landmark label**

Advanced - Each landmark is presented by a rectangular area, a **landmark box**

To switch modes click the basic or advanced button



How to make a coordinates file (manual entry, basic mode)

1) To build a **coordinates file** go to File → New Coordinates File

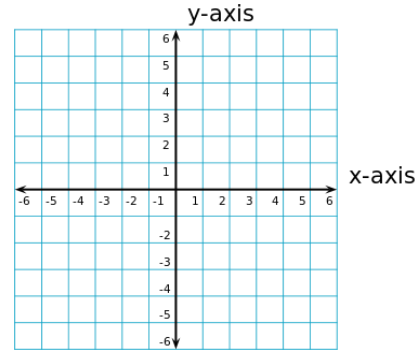
2) Enter the number of landmarks in your environment (2 - 48)

3) Fill in the fields on the spread sheet

Note: Put landmark names in alphabetic order

Note: Entered coordinates must be **Cartesian!**

4) Click Save File - the coordinates file will be saved in the **Resources** folder



How to make a coordinates file (arrange labels/boxes, either mode)

1) Follow steps 1 - 3 from previous section and then click Next Step

2) Select the target map (the map all other maps will be compared to)

3) Arrange the labels/boxes on the map

4) Click Save File - the coordinates file will be saved in the **Resources** folder

Analyzing a Sketch Map

1) Open the sketch map image: File → Open Map Image

** Note:* the image should be cropped so its square (i.e. the height and width of the image in pixels is the same ex. 700 x 700 px, 800 x 800 px, etc.)

2) Select a coordinates file from the drop down *Map ID* menu that corresponds to the environment the sketch map represents.

3) Drag the numbered landmark labels/boxes to their corresponding locations on the sketch map.

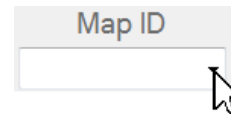
** If a landmark is missing from the sketch map **double click** the center of the label/box.*

** Basic mode: Place the **top-left corner** of each label at the center of its landmark's location.*

** Advanced mode: Move and resize each box to surround its landmark.*

** Note:* You can finely adjust label/box position using the arrow keys.

4) When all landmark labels/boxes have been positioned click Calculate. This will save an analysis file and a configuration file in the **Data** folder.



Optional (but recommended) Functions



1) Click the **rotation buttons** to rotate the map and landmark boxes *90 degrees*.

2) Click **Preview** to preview the data *without writing an analysis file*.

3) **Save a configuration file** of the location of the landmark labels/boxes for each map: File → Save Configuration

4) **Load a configuration file**, arranging the landmark labels/boxes to a previously saved configuration: File → Load Configuration

5) **Save a screenshot:** File → Take Screenshot

6) **Reanalyze** a batch of configuration files: File → Batch Reanalysis

7) **Start Over** to analyze a new Map: File → Start Over