igraph – The network analysis package

igraph is a collection of network analysis tools with the emphasis on **efficiency**, **portability** and ease of use. igraph is **open source** and free. igraph can be programmed in **R**, **Python**, **Mathematica** and **C/C++**.

igraph R package | python-igraph | IGraph/M | igraph C library

Recent news

python-igraph 0.11.3

Nov 20th, 2023

python-igraph 0.11.3, the third bugfix release of the 0.11 series, has arrived. The primary reason for this release is to update the C core of igraph to 0.10.8, which brings quite a few bugfixes to the Python interface. This release also fixes a bug in the Matplotlib backend with curved undirected edges. Please refer to the changelog for more details.

The preferred way of installing the Python interface is via `pip`; typing `pip install igraph` should install a pre-compiled Python wheel on most supported platforms (Windows, Linux and macOS). The pre-compiled wheels and the source code are also available from the Python Package Index page.

Read on for more details about the changes in version 0.11.3, including those that became possible by updating the C core to 0.10.8.

More →

C/igraph 0.10.8

Nov 17th, 2023

C/igraph 0.10.8, the seventh bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This is primarily a maintenance release with bug fixes, but it also adds functions to compute the joint degree matrix, the joint degree distribution and the degree correlation function of graphs as well as a generalized joint distribution of arbitrary vertex categories at the endpoints of edges.

Read on for more details about the changes in version 0.10.8.

More →

python-igraph 0.10.8

Sep 12th, 2023

python-igraph 0.10.8, the seventh bugfix release of the 0.10 series, has arrived. This release updates the C core of igraph to 0.10.7, and adds support for weighted eccentricity and radius calculations. There are also some minor additions and improvements; please refer to the changelog for more details.

The preferred way of installing the Python interface is via `pip`; typing `pip install igraph` should install a pre-compiled Python wheel on most supported platforms (Windows, Linux and

macOS). The pre-compiled wheels and the source code are also available from the Python Package Index page.

C/igraph 0.10.7

Sep 4th, 2023

C/igraph 0.10.7, the sixth bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This is primarily a maintenance release with bug fixes, but it also adds weighted variants of `igraph_radius()` and `igraph_graph_center()` as experimental functions. Their API will be finalized in version 0.11.0 (although we do not anticipate any changes compared to the current version).

Read on for more details about the changes in version 0.10.7.

More →

C/igraph 0.10.6

Jul 13th, 2023

C/igraph 0.10.6, the fifth bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This is a maintenance release bringing bug fixes only. In particular, we fixed convergence failures in `igraph_community_voronoi()` in certain cases on certain platforms, and ensured compatibility with libxml2 2.11.

Read on for more details about the changes in version 0.10.6.

More →

C/igraph 0.10.5

Jun 29th, 2023

C/igraph 0.10.5, the fourth bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This is a maintenance release bringing bug fixes, performance improvements, as well as new experimental features.

Read on for more details about the changes in version 0.10.5.

More →

C/igraph 0.10.4

Jan 27th, 2023

C/igraph 0.10.4, the third bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This release adds support for finding a shortest path with the A* algorithm and for finding a greedy vertex coloring with the DSatur heuristics. It also adds interruption support for the Bellman-Ford and Floyd-Warshall shortest path finder algorithms.

Read on for more details about the changes in version 0.10.4.

More →

C/igraph 0.10.3

Dec 30th, 2022

C/igraph 0.10.3, the third bugfix release of the 0.10 series, has arrived.

The source can be obtained from the GitHub releases page.

This release adds support for generating triangular and hexagonal lattices, constructing trees from a "parent" vector, and retrieving the IDs of the edges in the induced subgraph of a vertex set. It also refines the experimental API of the UMAP layout function, fixes a few bugs and improves the documentation.

Read on for more details about the changes in version 0.10.3.

More →

IGraph/M 0.6.5

Dec 21st, 2022

Just in time before the Christmas holidays, IGraph/M 0.6.5 is now released. This version (along with the unreleased 0.6.4) brings greatly improved performance when computing proximity graphs, new convenience functions, as well as robustness improvements. As usual, you can conveniently upgrade by running the installer script, using the following command:

```
Get["https://raw.githubusercontent.com/szhorvat/IGrapl
```

0.6.5

Other:

- Improved error checking and added more internal consistency checks to help debug issues with recent Mathematica versions.

0.6.4

Added:

- `IGBetaWeightedGabrielGraph` for computing the β value where each edge of a lune-based β-skeleton would disappear (experimental function).
- `IGModularityMatrix` gives the modularity matrix of a network.
- `IGCanonicalLabeledGraph` creates a canonical representation of a labeled graph without changing vertex names. Graphs which are considered equivalent by `IGSameGraphQ` have the same canonical representation. It is intended for removing duplicate graphs using `DeleteDuplicatesBy`.
- `IGCanonicalEdgeList` creates a canonical representation of an edge list, in a manner similar to `IGCanonicalLabeledGraph`.

Other:

- Documentation improvements
- Significant performance improvements for the calculation of lune and circle based β skeletons when using large β values.

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python-igraph 0.10.2

Oct 17th, 2022

python-igraph 0.10.2, the second bugfix release of the 0.10 series, has arrived. Thise release updates the C core of igraph to 0.10.2, adds support for Python 3.11 and fixes a crash and a reference leak in earlier versions of the library. There are also some minor additions and improvements; please refer to the changelog for more details.

The preferred way of installing the Python interface is via `pip`; typing `pip install igraph` should install a pre-compiled Python wheel on most supported platforms (Windows, Linux and macOS). The pre-compiled wheels and the source code are also available from the Python Package Index page.

The documentation of the project has also been moved to Read The Docs.

All news →