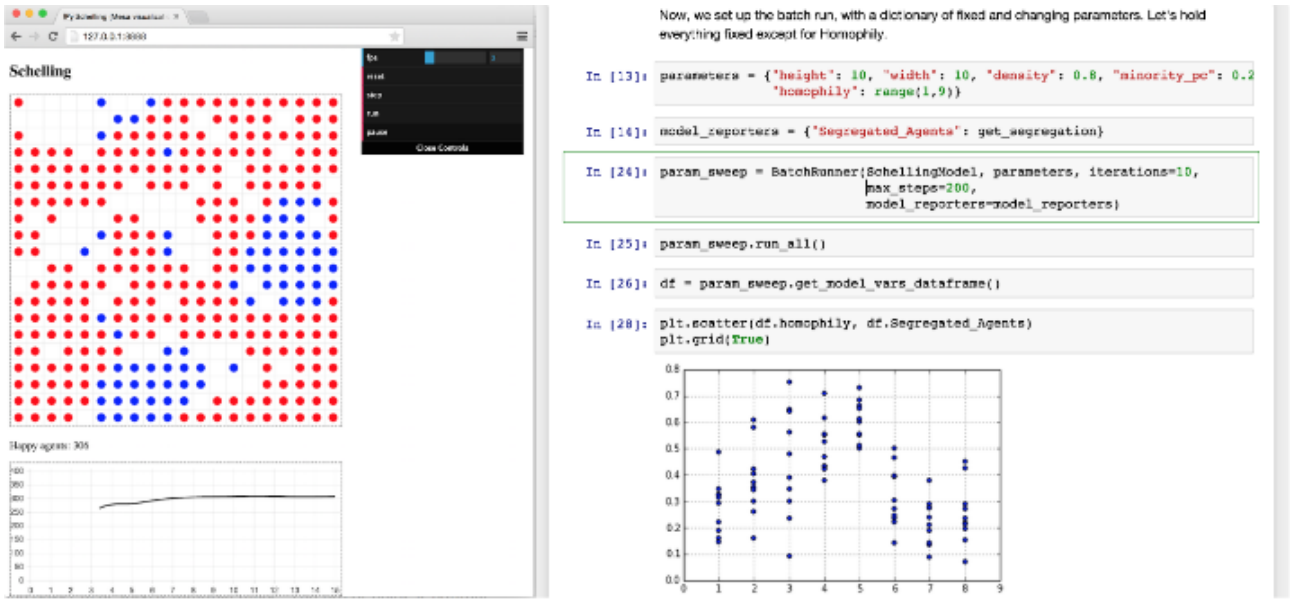
Mesa: Agent-based modeling in Python 3+

Mesa is an Apache2 licensed agent-based modeling (or ABM) framework in Python.

It allows users to quickly create agent-based models using built-in core components (such as spatial grids and agent schedulers) or customized implementations; visualize them using a browser-based interface; and analyze their results using Python's data analysis tools. Its goal is to be the Python 3-based counterpart to NetLogo, Repast, or MASON.



Above: A Mesa implementation of the Schelling segregation model, being visualized in a browser window and analyzed in an IPython notebook.

Features

- Modular components
- Browser-based visualization
- Built-in tools for analysis

Using Mesa

Getting started quickly:

```
$ pip install mesa
```

To launch an example model, clone the repository folder and invoke `mesa runserver` for one of the `examples/` subdirectories:

```
$ mesa runserver examples/wolf_sheep
```

For more help on using Mesa, check out the following resources:

- Mesa Introductory Tutorial
- Mesa Advanced Tutorial
- GitHub Issue Tracker
- Email list
- PyPI

Contributing back to Mesa

If you run into an issue, please file a ticket for us to discuss. If possible, follow up with a pull request.

If you would like to add a feature, please reach out via ticket or the email list for discussion. A feature is most likely to be added if you build it!

- Contributors guide
- Github

Mesa Packages

ABM features users have shared that you may want to use in your model

- See the Packages
- Mesa-Packages

Indices and tables

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