

PandasBiogeme: the zoo must go on

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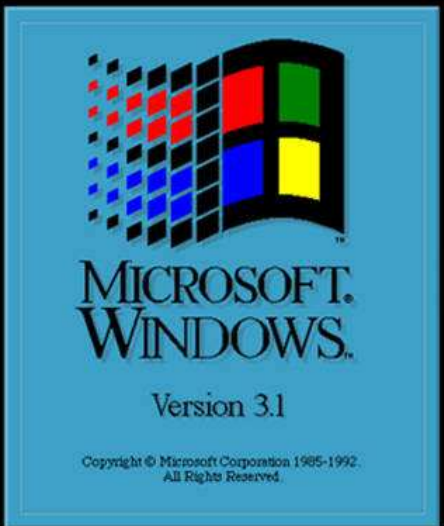
Outline

1 History

2 PandasBiogeme



Around 1990



Around 1990

HieLoW: Hierarchical Logit for Windows

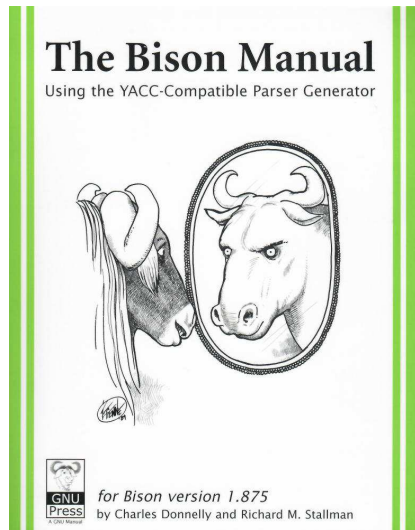
- Written in Borland C++.
- First discrete choice software with a graphical user interface.
- Designed for nested logit models.
- Modeling language: GUI.
- Data: tab-separated text file.
- Optimization algorithm: trust-region + conjugate gradient.



Around 2000



Around 2000



Around 2000

Biogeme

- Bierlaire's Optimization for GEv Models Estimation.
- Written in GNU C++.
- First open source discrete choice software.
- Modeling language: designed using GNU Bison.
- Data: tab-separated text file.
- Optimization algorithms: specific + CFSQP + some free algorithms.



Around 2010



BIOGEME

Around 2010



BIOGEME



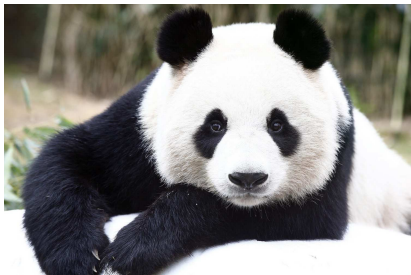
Around 2000

PythonBiogeme

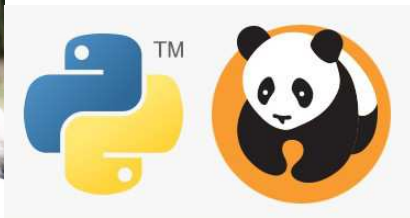
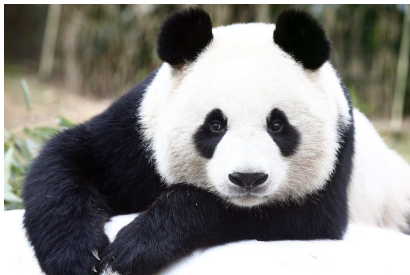
- Written in GNU C++.
- More flexible than Bison Biogeme.
- Modeling language: Python
- Data: tab-separated text file.
- Optimization algorithms: specific + CFSQP + some free algorithms.



2018



2018



2018

PandasBiogeme

- Written in Python and C++.
- Genuine Python package.
- Modeling language: Python
- Data: pandas.
- Optimization algorithms: Scipy.



Outline

1 History

2 PandasBiogeme



Pandas Biogeme

Motivation

- Data management.
- Requests to integrate Biogeme in R.
- Machine learning community uses Python/Numpy/Pandas.
- More and more Python libraries.
- Flexibility with Python and efficiency with C++.
- Portability.



Pandas Biogeme

Philosophy

- Modeling language as similar as possible with PythonBiogeme
- As easy to use as PythonBiogeme
- In particular, does not require to be proficient in Python.
- But if you are, you can exploit the power of Python.
- Model calculation on the database written in C++
- Everything else written in Python.
- Use of Jupyter Notebook

