

# Oracle® FCCM Automated Scenario Calibration Cloud Service Licensing Information User Manual



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# Contents

## Preface

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Audience	i
Documentation Accessibility	i
Diversity and Inclusion	i
Related Resources	i
Conventions	ii
Comments and Suggestions	ii

## 1 Licensing Information

---

## 2 Oracle Financial Services Crime and Compliance Management Automated Scenario Calibration Cloud Service

---

## 3 Third-party Notices

---

## 4 Third-party Licenses

---

4.1 The Apache Software Foundation	1
4.1.1 requests	1
4.1.2 cython	15
4.1.3 xgboost	21
4.1.4 python-oracledb	146
4.2 The 2-clause BSD License or 3-clause BSD License	160
4.2.1 seaborn	161
4.2.2 scipy	239
4.2.3 Pandas	308
4.2.4 NumPy	342
4.2.5 statsmodels	358
4.2.6 py4j	408
4.2.7 pyod	409
4.2.8 scikit-learn	488

4.2.9	scikit-optimize	610
4.3	The MIT License	618
4.3.1	PDPbox	618
4.3.2	pyjnius	729
4.3.3	shap	729
4.3.4	SQLAlchemy	782
4.3.5	editdistance	793
4.3.6	Minisom	793
4.3.7	imbalanced-learn	794
4.3.8	matplotlib-venn	868
4.4	Python Software Foundation	918
4.4.1	matplotlib	918

# Preface

This guide provides licensing information for the Oracle Financial Services Crime and Compliance Management Automated Scenario Calibration Cloud Service.

## Audience

This document is intended for users of the Oracle FCCM Automated Scenario Calibration Cloud Service.

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- Community: Use <https://community.oracle.com/customerconnect/> to get information from experts at Oracle, the partner community, and other users.
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Convention	Meaning
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# 2

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**Table 2-1 Third Party Software Tools**

Product	Licensing Description
Oracle Financial Services Crime and Compliance Management Automated Scenario Calibration Cloud Service includes the following product: <ul style="list-style-type: none"><li>Oracle Financial Services Crime and Compliance Management Automated Scenario Calibration Cloud Service</li></ul>	Third party software tools used in the application: <ul style="list-style-type: none"><li>requests</li><li>cython</li><li>xgboost</li><li>python-oracledb</li><li>seaborn</li><li>scipy</li><li>Pandas</li><li>NumPy</li><li>statsmodels</li><li>py4j</li><li>pyod</li><li>scikit-learn</li><li>scikit-optimize</li><li>PDPbox</li><li>pyjnius</li><li>shap</li><li>SQLAlchemy</li><li>editdistance</li><li>Minisom</li><li>imbalanced-learn</li><li>matplotlib-venn</li><li>matplotlib</li></ul>

# 3

## Third-party Notices

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2-clause BSD or 3-clause BSD	statsmodels	Open source, web application security control library designed to write lower risk applications.	Licensed under the New BSD license. For a copy of the license, see <a href="#">The 2-clause BSD License or 3-clause BSD License</a> .
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# 4

## Third-party Licenses

This topic describes information about the third-party licenses.

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Name: Meson

Files: vendored-meson/meson/\*

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For details, see `scipy/io/_fast_matrix_market/fast_matrix_market/dependencies/ryu/LICENSE-BOOST`

Name: `ID`

Files: `scipy/linalg/src/id_dist/*`

License: 3-clause BSD

For details, see `scipy/linalg/src/id_dist/doc/doc.tex`

Name: `L-BFGS-B`

Files: `scipy/optimize/lbfgsb/*`

License: BSD license

For details, see `scipy/optimize/lbfgsb/README`

Name: `LAPJVsp`

Files: `scipy/sparse/csgraph/_matching.pyx`

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Name: SuperLU

Files: `scipy/sparse/linalg/dsolve/SuperLU/*`

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Name: ARPACK

Files: `scipy/sparse/linalg/eigen/arpack/ARPACK/*`

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Name: Qhull

Files: scipy/spatial/qhull/\*

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Name: Cephес

Files: scipy/special/cephес/\*

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Name: Faddeeva

Files: scipy/special/Faddeeva.\*

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Name: qd

Files: scipy/special/cephes/dd\_\*. [ch]

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Name: pypocketfft

Files: `scipy/fft/_pocketfft/[pocketfft.h, pypocketfft.cxx]`

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Name: uarray

Files: `scipy/_lib/uarray/*`

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Name: ampgo

Files: `benchmarks/benchmarks/go_benchmark_functions/*.py`

License: MIT

Functions for testing global optimizers, forked from the AMPGO project,  
<https://code.google.com/archive/p/ampgo>

Name: pybind11

Files: no source files are included, however pybind11 binary artifacts are included with every binary build of SciPy.

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Files: `scipy/optimize/_highs/*`

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Name: Boost

Files: `scipy/_lib/boost_math/*`

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Name: Biasedurn

Files: `scipy/stats/biasedurn/*`

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Name: UNU.RAN

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Name: NumPy

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Name: array-api-compat

Files: `scipy/_lib/array-api-compat/*`

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----- Forwarded message -----

From: Agner Fog <agner@agner.org>  
Date: Wed, Jul 22, 2020 at 8:54 PM  
Subject: Re: Add BiasedUrn to SciPy?  
To: Matt Haberland <mhaberla@calpoly.edu>  
Cc: Warren Weckesser <warren.weckesser@gmail.com>

Dear Matt The C++ code for these distributions without binding to the R project are available here:

<https://www.agner.org/random/stocc.zip>

You have my permission to use it in SciPy under the new BSD license.

Best regards,

Agner Fog

On 22/07/2020 17.05, Matt Haberland wrote:

Hi Agner, I'm a maintainer of the Python scientific computing library SciPy, and I'm working on improving the capabilities of our statistics subpackage `scipy.stats`. We'd like to add both Fisher's and Wallenius' noncentral hypergeometric distributions, but these look quite challenging to implement. We found your BiasedUrn package, and we'd love to wrap it, but we can't include GPL-3 licensed code under our BSD-new license. Would you consider re-licensing BiasedUrn under a more permissive license, such as BSD-new or MIT, so we can include it in SciPy?

Thank you for considering it!

Matt

--

Matt Haberland  
Assistant Professor  
BioResource and Agricultural Engineering  
08A-3K, Cal Poly

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`./tools/wheels/LICENSE_linux.txt`

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Name: LAPACK

Files: scipy.libs/libopenblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: scipy.libs/libgfortran\*.so

Description: dynamically linked to files compiled with gcc

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Version 3, 29 June 2007

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Name: libquadmath

Files: scipy.libs/libquadmath\*.so

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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----- Separator -----

./tools/wheels/LICENSE\_osx.txt

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This binary distribution of SciPy also bundles the following software:

Name: OpenBLAS

Files: scipy/.dylibs/libopenblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: LAPACK

Files: scipy/.dylibs/libopenblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: scipy/.dylibs/libgfortran\*, scipy/.dylibs/libgcc\*

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libgfortran>

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Version 3.1, 31 March 2009

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Name: libquadmath

Files: `scipy/.dylibs/libquadmath*.so`

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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----- Separator -----

./tools/wheels/LICENSE\_win32.txt

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This binary distribution of SciPy also bundles the following software:

Name: OpenBLAS

Files: scipy.libs\libopenblas\*.dll

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

License: BSD-3-Clause-Attribution

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Name: LAPACK

Files: scipy.libs\libopenblas\*.dll

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: scipy.libs\libopenblas\*.dll

Description: statically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libgfortran>

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Version 3.1, 31 March 2009

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Name: libquadmath

Files: scipy.libs\libopenblas\*.dll

Description: statically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <fxcoudert@gcc.gnu.org>

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null ( same as :scipy)

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## 4.1.4 python-oracledb

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pycparser -- A C parser in Python

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David H. Munro wrote Yorick and Gist. Berkeley Yacc (byacc) generated the Yorick parser. The routines in Math are from LAPACK and FFTPACK; MathC contains C translations by David H. Munro. The algorithms for Yorick's random number generator and several special functions in Yorick/include were taken from Numerical Recipes by Press, et. al., although the Yorick implementations are unrelated to those in Numerical Recipes. A small amount of code in Gist was adapted from the X11R4 release, copyright M.I.T. -- the complete copyright notice may be found in the (unused) file Gist/host.c.

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Authors/contributors include:

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Arvid Picciani  
Bobby Bingham  
Boris Brezillon  
Brent Cook  
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Clément Vasseur  
Emil Renner Berthing  
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In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations (now Zope Corporation, see <http://www.zope.com>). In 2001, the Python Software Foundation (PSF, see <http://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation is a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python

releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2	1991-1995	CWI	yes	
1.3 thru 1.5.2	1.2 1995-1999	CNRI	yes	
1.6	1.5.2 2000	CNRI	no	
2.0	1.6 2000	BeOpen.com	no	
1.6.1	1.6 2001	CNRI	yes (2)	
2.1	2.0+1.6.1 2001	PSF	no	
2.0.1	2.0+1.6.1 2001	PSF	yes	
2.1.1	2.1+2.0.1 2001	PSF	yes	
2.2	2.1.1 2001	PSF	yes	
2.1.2	2.1.1 2002	PSF	yes	
2.1.3	2.1.2 2002	PSF	yes	
2.2.1	2.2 2002	PSF	yes	
2.2.2	2.2.1 2002	PSF	yes	
2.2.3	2.2.2 2003	PSF	yes	
2.3	2.2.2 2002-2003	PSF	yes	
2.3.1	2.3 2002-2003	PSF	yes	
2.3.2	2.3.1 2002-2003	PSF	yes	
2.3.3	2.3.2 2002-2003	PSF	yes	
2.3.4	2.3.3 2004	PSF	yes	
2.3.5	2.3.4 2005	PSF	yes	
2.4	2.3 2004	PSF	yes	
2.4.1	2.4 2005	PSF	yes	
2.4.2	2.4.1 2005	PSF	yes	
2.4.3	2.4.2 2006	PSF	yes	
2.4.4	2.4.3 2006	PSF	yes	
2.5	2.4 2006	PSF	yes	
2.5.1	2.5 2007	PSF	yes	
2.5.2	2.5.1 2008	PSF	yes	
2.5.3	2.5.2 2008	PSF	yes	

2.6 2.5 2008 PSF yes  
 2.6.1 2.6 2008 PSF yes  
 2.6.2 2.6.1 2009 PSF yes  
 2.6.3 2.6.2 2009 PSF yes  
 2.6.4 2.6.3 2009 PSF yes  
 2.6.5 2.6.4 2010 PSF yes  
 2.7 2.6 2010 PSF yes

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(2) According to Richard Stallman, 1.6.1 is not GPL-compatible, because its license has a choice of law clause. According to CNRI, however, Stallman's lawyer has told CNRI's lawyer that 1.6.1 is "not incompatible" with the GPL.

Thanks to the many outside volunteers who have worked under Guido's direction to make these releases possible.

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## 4.2.2 scipy

==== Package: scipy =====

Name: scipy

Source code URL: <https://github.com/scipy/scipy>

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==== Dependencies =====

numpy (BSD License) [<https://github.com/numpy/numpy>]

ARPACK, bundled dependency of scipy, (3-clause BSD) [[scipy/sparse/linalg/eigen/arpack/ARPACK/\\*](#)]

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HiGHS, bundled dependency of scipy, (MIT) [[scipy/optimize/\\_highs/\\*](#)]

ID, bundled dependency of scipy, (3-clause BSD) [[scipy/linalg/src/id\\_dist/\\*](#)]

Julia, bundled dependency of numpy, (MIT) [[/numpy/blob/numpy/random/src/distributions/\\*](#)]

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MT19937, bundled dependency of numpy, (MIT) [/numpy/blob/numpy/random/src/mt19937/\*]  
Meson, bundled dependency of numpy, (Apache 2.0) [vendored-meson/meson/\*]  
PCG64, bundled dependency of numpy, (MIT) [/numpy/blob/numpy/random/src/pcg64/\*]  
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Qhull, bundled dependency of scipy, (Qhull license (BSD-like)) [scipy/spatial/qhull/\*]  
Random, bundled dependency of numpy, (dual-licensed under the The University of Illinois/  
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Name: OpenBLAS

Files: scipy.libs/libopenblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: libquadmath

Files: scipy.libs/libquadmath\*.so

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <fxcoudert@gcc.gnu.org>

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----- Forwarded message -----

From: Agner Fog <agner@agner.org>

Date: Wed, Jul 22, 2020 at 8:54 PM

Subject: Re: Add BiasedUrn to SciPy?

To: Matt Haberland <mhaberland@calpoly.edu>

Cc: Warren Weckesser <warren.weckesser@gmail.com>

Dear Matt The C++ code for these distributions without binding to the R project  
are available here:

<https://www.agner.org/random/stocc.zip>

You have my permission to use it in SciPy under the new BSD license.

Best regards,

Agner Fog

On 22/07/2020 17.05, Matt Haberland wrote:

Hi Agner, I'm a maintainer of the Python scientific computing library SciPy,  
and I'm working on improving the capabilities of our statistics subpackage  
scipy.stats. We'd like to add both Fisher's and Wallenius' noncentral  
hypergeometric distributions, but these look quite challenging to implement.  
We found your BiasedUrn package, and we'd love to wrap it, but we can't  
include GPL-3 licensed code under our BSD-new license. Would you consider  
re-licensing BiasedUrn under a more permissive license, such as BSD-new or  
MIT, so we can include it in SciPy?

Thank you for considering it!

Matt

--

Matt Haberland

Assistant Professor

BioResource and Agricultural Engineering

08A-3K, Cal Poly

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unuran-1.8.1/src/parser/stringparser\_lists.ch.in

UNU.RAN relies on a modified version of the library Cephes, see `./src/src/specfunct/cephes_source.h`

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Name: array-api-compat

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This binary distribution of NumPy also bundles the following software:

Name: OpenBLAS

Files: numpy.libs/libscipy\_openblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: LAPACK

Files: numpy.libs/libscipy\_openblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: libquadmath

Files: numpy.libs/libquadmath\*.so

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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PCG Random Number Generation for C.

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Original algorithm for the implementation of `rk_interval` function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

Constants used in the `rk_double` implementation by Isaku Wada.

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Name: dragon4

Files: numpy/\_core/src/multiarray/dragon4.c

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Written in 2015 by Sebastiano Vigna ([vigna@acm.org](mailto:vigna@acm.org))

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Name: SFC64

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Name: PCG64

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PCG Random Number Generation for C.

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Name: MT19937

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The rk\_random and rk\_seed functions algorithms and the original design of the Mersenne Twister RNG:

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Original algorithm for the implementation of `rk_interval` function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

Constants used in the `rk_double` implementation by Isaku Wada.

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Name: Julia

The ziggurat methods were derived from Julia.

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Name: Random

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This distribution of NumPy also bundles the following software:

Name: OpenBLAS

Files: numpy/.dylibs/libscipy\_openblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: LAPACK

Files: numpy/.dylibs/libscipy\_openblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: libquadmath

Files: numpy/.dylibs/libquadmath\*.so

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GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <fxcoudert@gcc.gnu.org>

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python-dateutil

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Files: numpy/.dylibs/libopenblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Written by Francois-Xavier Coudert <fxcoudert@gcc.gnu.org>

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Name: fast\_matrix\_market

Files: `scipy/io/_fast_matrix_market/*`

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Name: `pystreambuf`

Files: `scipy/io/_fast_matrix_market/src/pystreambuf.h`

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This component utilizes components derived from `cctbx`, available at

[http://cci.lbl.gov/cctbx\\_sources/boost\\_adaptbx/python\\_streambuf.h](http://cci.lbl.gov/cctbx_sources/boost_adaptbx/python_streambuf.h)

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Name: fast\_float

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Name: ryu

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Name: ID

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Name: L-BFGS-B

Files: scipy/optimize/lbfgsb/\*

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From the website for the L-BFGS-B code (from at  
<http://www.ece.northwestern.edu/~nocedal/lbfgsb.html>):

\*\*\*\*\*

L-BFGS-B is a limited-memory quasi-Newton code for bound-constrained optimization, i.e. for problems where the only constraints are of the form  $l \leq x \leq u$ .

\*\*\*\*\*

This is a Python wrapper (using F2PY) written by David M. Cooke <cookedm@physics.mcmaster.ca> and released as version 0.9 on April 9, 2004. The wrapper was slightly modified by Joonas Paalasmaa for the 3.0 version in March 2012.

License of L-BFGS-B (Fortran code)

=====

The version included here (in lbfgsb.f) is 3.0 (released April 25, 2011). It was written by Ciyou Zhu, Richard Byrd, and Jorge Nocedal <nocedal@ece.nwu.edu>. It carries the following condition for use:

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#### References

- \* R. H. Byrd, P. Lu and J. Nocedal. A Limited Memory Algorithm for Bound Constrained Optimization, (1995), SIAM Journal on Scientific and Statistical Computing, 16, 5, pp. 1190-1208.
- \* C. Zhu, R. H. Byrd and J. Nocedal. L-BFGS-B: Algorithm 778: L-BFGS-B, FORTRAN routines for large scale bound constrained optimization (1997), ACM Transactions on Mathematical Software, 23, 4, pp. 550 - 560.
- \* J.L. Morales and J. Nocedal. L-BFGS-B: Remark on Algorithm 778: L-BFGS-B, FORTRAN routines for large scale bound constrained optimization (2011), ACM Transactions on Mathematical Software, 38, 1.

\*\*\*\*\*

#### The Python wrapper

=====

This code uses F2PY (<http://cens.ioc.ee/projects/f2py2e/>) to generate the wrapper around the Fortran code.

The Python code and wrapper are copyrighted 2004 by David M. Cooke <cookedm@physics.mcmaster.ca>.

#### Example usage

=====

An example of the usage is given at the bottom of the lbfgsb.py file.

Run it with 'python lbfgsb.py'.

#### License for the Python wrapper

=====

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Name: LAPJVsp

Files: scipy/sparse/csgraph/\_matching.pyx

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Files: benchmarks/benchmarks/go\_benchmark\_functions/\*.py

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Functions for testing global optimizers, forked from the AMPGO project,

Coded by Andrea Gavana

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Name: pybind11

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Name: array-api-compat

Files: scipy/\_lib/array-api-compat/\*

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Name: Tempita

Files: scipy/\_build\_utils/tempita/\*

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Name: OpenBLAS

Files: `scipy/.dylibs/libopenblas*.so`

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Name: libquadmath

Files: scipy/dylibs/libquadmath\*.so

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Written by Francois-Xavier Coudert <fxcoudert@gcc.gnu.org>

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David H. Munro wrote Yorick and Gist. Berkeley Yacc (byacc) generated the Yorick parser. The routines in Math are from LAPACK and FFTPACK; MathC contains C translations by David H. Munro. The algorithms for Yorick's random number generator and several special functions in Yorick/include were taken from Numerical Recipes by Press, et. al., although the Yorick implementations are unrelated to those in Numerical Recipes. A small amount of code in Gist was adapted from the X11R4 release, copyright M.I.T. -- the complete copyright notice may be found in the (unused) file Gist/host.c.

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Fourth Party Dependency #9 : numba

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jquery.graphviz.svg (<https://github.com/mountainstorm/jquery.graphviz.svg/>)

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The DAG roadmap rendering code in docs/dagmap/ uses Javascript from this package to draw graphs in HTML.

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <http://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <http://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization created specifically to own Python-related Intellectual Property. Zope Corporation was a sponsoring member of the PSF.

All Python releases are Open Source (see <http://www.opensource.org> for the Open Source Definition). Historically, most, but not all, Python

releases have also been GPL-compatible; the table below summarizes the various releases.

Release	Derived	Year	Owner	GPL-compatible? (1)
0.9.0 thru 1.2	1991-1995	CWI	yes	
1.3 thru 1.5.2	1.2 1995-1999	CNRI	yes	
1.6	1.5.2 2000	CNRI	no	
2.0	1.6 2000	BeOpen.com	no	
1.6.1	1.6 2001	CNRI	yes (2)	
2.1	2.0+1.6.1 2001	PSF	no	
2.0.1	2.0+1.6.1 2001	PSF	yes	
2.1.1	2.1+2.0.1 2001	PSF	yes	
2.1.2	2.1.1 2002	PSF	yes	
2.1.3	2.1.2 2002	PSF	yes	
2.2 and above	2.1.1 2001-now	PSF	yes	

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CPython unicode (<https://github.com/python/cpython>)

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cloudpickle

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dragon4

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Original algorithm for the implementation of `rk_interval` function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

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Constants used in the `rk_double` implementation by Isaku Wada.

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```

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```

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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----- Forwarded message -----

From: Agner Fog <agner@agner.org>  
Date: Wed, Jul 22, 2020 at 8:54 PM  
Subject: Re: Add BiasedUrn to SciPy?  
To: Matt Haberland <mhaberla@calpoly.edu>  
Cc: Warren Weckesser <warren.weckesser@gmail.com>

Dear Matt The C++ code for these distributions without binding to the R project are available here:

<https://www.agner.org/random/stocc.zip>

You have my permission to use it in SciPy under the new BSD license.

Best regards,

Agner Fog

On 22/07/2020 17.05, Matt Haberland wrote:

Hi Agner, I'm a maintainer of the Python scientific computing library SciPy, and I'm working on improving the capabilities of our statistics subpackage `scipy.stats`. We'd like to add both Fisher's and Wallenius' noncentral hypergeometric distributions, but these look quite challenging to implement. We found your `BiasedUrn` package, and we'd love to wrap it, but we can't include GPL-3 licensed code under our BSD-new license. Would you consider re-licensing `BiasedUrn` under a more permissive license, such as BSD-new or MIT, so we can include it in SciPy?

Thank you for considering it!

Matt

--

Matt Haberland  
Assistant Professor  
BioResource and Agricultural Engineering  
08A-3K, Cal Poly

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`./tools/wheels/LICENSE_linux.txt`

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This binary distribution of SciPy also bundles the following software:

Name: OpenBLAS

Files: scipy.libs/libopenblas\*.so

Description: bundled as a dynamically linked library

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Name: LAPACK

Files: scipy.libs/libopenblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: `scipy.libs/libgfortran*.so`

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libgfortran>

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Version 3.1, 31 March 2009

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Name: libquadmath

Files: scipy.libs/libquadmath\*.so

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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----- Separator -----

./tools/wheels/LICENSE\_osx.txt

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This binary distribution of SciPy also bundles the following software:

Name: OpenBLAS

Files: scipy/.dylibs/libopenblas\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: LAPACK

Files: scipy/.dylibs/libopenblas\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: scipy/.dylibs/libgfortran\*, scipy/.dylibs/libgcc\*

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libgfortran>

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Version 3.1, 31 March 2009

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Name: libquadmath

Files: `scipy/.dylibs/libquadmath*.so`

Description: dynamically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

License: LGPL-2.1-or-later

GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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----- Separator -----

./tools/wheels/LICENSE\_win32.txt

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This binary distribution of SciPy also bundles the following software:

Name: OpenBLAS

Files: scipy.libs\libopenblas\*.dll

Description: bundled as a dynamically linked library

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Name: LAPACK

Files: scipy.libs\libopenblas\*.dll

Description: bundled in OpenBLAS

Availability: <https://github.com/OpenMathLib/OpenBLAS/>

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Name: GCC runtime library

Files: scipy.libs\libopenblas\*.dll

Description: statically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libgfortran>

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Version 3.1, 31 March 2009

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Version 3, 29 June 2007

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Name: libquadmath

Files: scipy.libs\libopenblas\*.dll

Description: statically linked to files compiled with gcc

Availability: <https://gcc.gnu.org/git/?p=gcc.git;a=tree;f=libquadmath>

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GCC Quad-Precision Math Library

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Written by Francois-Xavier Coudert <[fxcoudert@gcc.gnu.org](mailto:fxcoudert@gcc.gnu.org)>

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null ( same as :numpy)

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Based on <https://gist.github.com/asford/544323a5da7dddad2c9174490eb5ed06>

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Chris Colbert began the Kiwi project in December 2013 in an effort to  
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Name python-dateutil

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\*\*\*\*\*NUMPY dependencies START\*\*\*\*\*  
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Name numpy

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This binary distribution of NumPy also bundles the following software:

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Name OpenBLAS

Files: extra-dll\libopenb\*.dll

Description: bundled as a dynamically linked library

Availability: <https://github.com/xianyi/OpenBLAS/>

License: 3-clause BSD

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Name LAPACK

Files: extra-dll\libopenb\*.dll

Description: bundled in OpenBLAS

Availability: <https://github.com/xianyi/OpenBLAS/>

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Name: GCC runtime library

Files: extra-dll\*.dll

Description: statically linked, in DLL files compiled with gfortran only

Availability: <https://gcc.gnu.org/viewcvs/gcc/>

License: GPLv3 + runtime exception

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Name: Microsoft Visual C++ Runtime Files

Files: extra-dll\msvc\140.dll

License: MSVC

<https://www.visualstudio.com/license-terms/distributable-code-microsoft-visual-studio-2015-rc-microsoft-visual-studio-2015-sdk-rc-includes-utilities-buildserver-files/#visual-c-runtime>

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VC\atlmfc\lib\mfcmfc80.dll

VC\atlmfc\lib\amd64\mfcmfc80.dll

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Name: Microsoft Visual C++ Runtime Files

Files: extra-dll\msvc\*90.dll, extra-dll\Microsoft.VC90.CRT.manifest

License: MSVC

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\\VC\redist\x86\Microsoft.VC90.ATL\

atl90.dll

Microsoft.VC90.ATL.manifest

\\VC\redist\ia64\Microsoft.VC90.ATL\

atl90.dll

Microsoft.VC90.ATL.manifest

\\VC\redist\amd64\Microsoft.VC90.ATL\

atl90.dll

Microsoft.VC90.ATL.manifest

\\VC\redist\x86\Microsoft.VC90.CRT\

msvcm90.dll

msvcp90.dll

msvcr90.dll

Microsoft.VC90.CRT.manifest

\\VC\redist\ia64\Microsoft.VC90.CRT\

msvcm90.dll

msvcp90.dll

msvcr90.dll

Microsoft.VC90.CRT.manifest

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Version 3.1, 31 March 2009

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dragon4

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Original algorithm for the implementation of rk\_interval function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

Constants used in the rk\_double implementation by Isaku Wada.

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#### AUTHOR

David H. Munro wrote Yorick and Gist. Berkeley Yacc (byacc) generated the Yorick parser. The routines in Math are from LAPACK and FFTPACK;

MathC contains C translations by David H. Munro. The algorithms for Yorick's random number generator and several special functions in Yorick/include were taken from Numerical Recipes by Press, et. al., although the Yorick implementations are unrelated to those in Numerical Recipes. A small amount of code in Gist was adapted from the X11R4 release, copyright M.I.T. -- the complete copyright notice may be found in the (unused) file Gist/host.c.

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\*\*\*\*\*MATPLOTLIB dependencies END\*\*\*\*\*

## 4.3.2 pyjnius

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shap 0.46.0 has dependencies on following libraries:

cloudpickle

numba

numpy

packaging

pandas

scikit-learn

scipy

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<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Files: scipy/optimize/lbfgsb/\*

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\*\*\*\*\*

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- \* C. Zhu, R. H. Byrd and J. Nocedal. L-BFGS-B: Algorithm 778: L-BFGS-B, FORTRAN routines for large scale bound constrained optimization (1997), ACM Transactions on Mathematical Software, 23, 4, pp. 550 - 560.
- \* J.L. Morales and J. Nocedal. L-BFGS-B: Remark on Algorithm 778: L-BFGS-B, FORTRAN routines for large scale bound constrained optimization (2011), ACM Transactions on Mathematical Software, 38, 1.

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#### The Python wrapper

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#### Example usage

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An example of the usage is given at the bottom of the lbfgsb.py file.

Run it with 'python lbfgsb.py'.

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Name: ampgo

Files: benchmarks/benchmarks/go\_benchmark\_functions/\*.py

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Name: Tempita

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Python was created in the early 1990s by Guido van Rossum at Stichting Mathematisch Centrum (CWI, see <https://www.cwi.nl>) in the Netherlands as a successor of a language called ABC. Guido remains Python's principal author, although it includes many contributions from others.

In 1995, Guido continued his work on Python at the Corporation for National Research Initiatives (CNRI, see <https://www.cnri.reston.va.us>) in Reston, Virginia where he released several versions of the software.

In May 2000, Guido and the Python core development team moved to BeOpen.com to form the BeOpen PythonLabs team. In October of the same year, the PythonLabs team moved to Digital Creations, which became Zope Corporation. In 2001, the Python Software Foundation (PSF, see <https://www.python.org/psf/>) was formed, a non-profit organization

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1.6	1.5.2 2000	CNRI	no	
2.0	1.6 2000	BeOpen.com	no	
1.6.1	1.6 2001	CNRI	yes (2)	
2.1	2.0+1.6.1 2001	PSF	no	
2.0.1	2.0+1.6.1 2001	PSF	yes	
2.1.1	2.1+2.0.1 2001	PSF	yes	
2.1.2	2.1.1 2002	PSF	yes	
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### 4.3.7 imbalanced-learn

==== Package: imbalanced-learn =====

Name: imbalanced-learn

Source code URL: <https://github.com/scikit-learn-contrib/imbalanced-learn>

License: MIT License

==== Dependencies =====

joblib (BSD 3-Clause "New" or "Revised" License) [<https://github.com/joblib/joblib>]

numpy (BSD License) [<https://github.com/numpy/numpy>]

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----

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Name: OpenBLAS

Files: .libs/libopenb\*.so

Description: bundled as a dynamically linked library

Availability: <https://github.com/xianyi/OpenBLAS/>

License: 3-clause BSD

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Name: LAPACK

Files: .libs/libopenb\*.so

Description: bundled in OpenBLAS

Availability: <https://github.com/xianyi/OpenBLAS/>

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Name: PCG64

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PCG Random Number Generation for C.

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Original algorithm for the implementation of `rk_interval` function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

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Name: Biasedurn

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----- Forwarded message -----

From: Agner Fog <agner@agner.org>

Date: Wed, Jul 22, 2020 at 8:54 PM

Subject: Re: Add BiasedUrn to SciPy?

To: Matt Haberland <mhaberland@calpoly.edu>

Cc: Warren Weckesser <warren.weckesser@gmail.com>

Dear Matt The C++ code for these distributions without binding to the R project are available here:

<https://www.agner.org/random/stocc.zip>

You have my permission to use it in SciPy under the new BSD license.

Best regards,

Agner Fog

On 22/07/2020 17.05, Matt Haberland wrote:

Hi Agner, I'm a maintainer of the Python scientific computing library SciPy,

and I'm working on improving the capabilities of our statistics subpackage

scipy.stats. We'd like to add both Fisher's and Wallenius' noncentral

hypergeometric distributions, but these look quite challenging to implement.

We found your BiasedUrn package, and we'd love to wrap it, but we can't

include GPL-3 licensed code under our BSD-new license. Would you consider

re-licensing BiasedUrn under a more permissive license, such as BSD-new or

MIT, so we can include it in SciPy?

Thank you for considering it!

Matt

--

Matt Haberland

Assistant Professor

BioResource and Agricultural Engineering

08A-3K, Cal Poly

-----  
Name: UNU.RAN

License 3-Clause BSD

Permission was granted on 23 March 2021 by Josef Leydold (josef.leydold@wu.ac.at) and Wolfgang Hoermann (hormannw@bound.edu.tr)

to use the UNU.RAN code excluding the uniform random number generator in src/uniform/mrg31k3p.c (copyright by Renee Touzin)

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unuran-1.8.1/aclocal.m4

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unuran-1.8.1/autogen.sh

unuran-1.8.1/configure

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unuran-1.8.1/tests/testdistributions/Makefile.in

unuran-1.8.1/tests/testdistributions/c\_sawtooth\_contpdf.c  
unuran-1.8.1/tests/testdistributions/c\_sawtooth\_discpdf.c  
unuran-1.8.1/tests/testdistributions/c\_w\_pdf\_from\_logpdf.c  
unuran-1.8.1/tests/testdistributions/c\_with\_multiple\_of\_pdf.c  
unuran-1.8.1/tests/testdistributions/c\_wo\_logpdf.c  
unuran-1.8.1/tests/testdistributions/testdistributions.h  
unuran-1.8.1/tests/testdistributions/vc\_cauchy\_RoU\_ball.c  
unuran-1.8.1/tests/testdistributions/vc\_special\_correlations\_ar1.c  
unuran-1.8.1/tests/testdistributions/vc\_special\_correlations\_constantrho.c  
unuran-1.8.1/tests/testdistributions/vc\_w marginals.c  
unuran-1.8.1/tests/testdistributions/vc\_wo\_logpdf.c  
unuran-1.8.1/tests/testroutines.c  
unuran-1.8.1/tests/testunuran.h  
unuran-1.8.1/src/distr/deprecated\_distr.c  
unuran-1.8.1/src/distr/deprecated\_distr.h  
unuran-1.8.1/src/methods/deprecated\_methods.c  
unuran-1.8.1/src/methods/deprecated\_methods.h  
unuran-1.8.1/src/methods/deprecated\_tdrwg.h  
unuran-1.8.1/src/methods/deprecated\_vmt.c  
unuran-1.8.1/src/methods/deprecated\_vmt.h  
unuran-1.8.1/src/methods/deprecated\_vmt\_struct.h  
unuran-1.8.1/src/parser/stringparser\_lists.ch.in

UNU.RAN relies on a modified version of the library Cephes, see `./src/src/specfunct/cephes_source.h`

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## 4.3.8 matplotlib-venn

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Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

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Name: sfc64

Files: numpy/src/sfc64/\*

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# SFC64

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Adapted from a C++ implementation of Chris Doty-Humphrey's SFC PRNG.

<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Name: splitmix64

Files: numpy/src/splitmix64/\*

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# SPLITMIX64

Written in 2015 by Sebastiano Vigna (vigna@acm.org)

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kiwisolver

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About Kiwi

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Chris Colbert began the Kiwi project in December 2013 in an effort to create a blisteringly fast UI constraint solver. Chris is still the project lead.

The Nucleic Development Team is the set of all contributors to the Nucleic project and its subprojects.

The core team that coordinates development on GitHub can be found here: <http://github.com/nucleic>. The current team consists of:

\* Chris Colbert

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Security policy

Activity

Custom properties

Stars

632 stars

Watchers

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Forks

252 forks

Report repository

Releases 22

24.2 Latest

Nov 8, 2024

+ 21 releases

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python-dateutil

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six

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David H. Munro wrote Yorick and Gist. Berkeley Yacc (byacc) generated the Yorick parser. The routines in Math are from LAPACK and FFTPACK; MathC contains C translations by David H. Munro. The algorithms for Yorick's random number generator and several special functions in Yorick/include were taken from Numerical Recipes by Press, et. al., although the Yorick implementations are unrelated to those in Numerical Recipes. A small amount of code in Gist was adapted from the X11R4 release, copyright M.I.T. -- the complete copyright notice may be found in the (unused) file Gist/host.c.

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agg24-svn

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ttutil.cpp

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/\*

\* Modified for use within matplotlib

\* 5 July 2007

\* Michael Droettboom

\*/

/\* Very simple interface to the ppr TT routines \*/

/\* (c) Frank Siegert 1996 \*/

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ppdrv.h

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/\*

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** documentation. This software is provided "as is" without express or
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**
** This file last revised 5 December 1995.
*/

+++++++

ppdrv_tt.cpp
-----

/*
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 */

/*
** ~ppr/src/ppdrv/ppdrv_tt.c
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**
** TrueType font support. These functions allow PPR to generate
** PostScript fonts from Microsoft compatible TrueType font files.
**
** Last revised 19 December 1995.
*/

+++++++

ppdrv_tt2.cpp
```

```
-----  
  
/*  
* Modified for use within matplotlib  
* 5 July 2007  
* Michael Droettboom  
*/  
  
/*  
** ~ppr/src/pprdrv/pprdrv_tt2.c  
** Copyright 1995, Trinity College Computing Center.  
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**  
** The functions in this file do most of the work to convert a  
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**  
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*/  
  
+++++++  
  
truetype.h
```

```
-----  
  
/*  
* Modified for use within matplotlib  
* 5 July 2007  
* Michael Droettboom  
*/  
  
/*  
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**  
** Last modified 19 April 1995.  
*/  
  
+++++  
  
_tkmini.h  
  
-----  
  
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<https://gist.github.com/imneme/f1f7821f07cf76504a97f6537c818083>

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Original algorithm for the implementation of `rk_interval` function from Richard J. Wagner's implementation of the Mersenne Twister RNG, optimised by Magnus Jonsson.

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