

```
Last login: Tue Jan 18 05:34:09 on ttys003
(base) aayoungb@gs66-jasnah Data % cd
(base) aayoungb@gs66-jasnah ~ % conda create --name georgetest2
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

```
## Package Plan ##
```

```
environment location: /Users/aayoungb/opt/anaconda3/envs/georgetest2
```

```
Proceed ([y]/n)? y
```

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
```

```
#
# To activate this environment, use
#
# $ conda activate georgetest2
#
# To deactivate an active environment, use
#
# $ conda deactivate
```

```
(base) aayoungb@gs66-jasnah ~ % conda activate georgetest2
(georgetest2) aayoungb@gs66-jasnah ~ % conda install -c anaconda pip
Collecting package metadata (current_repodata.json): done
Solving environment: done
```

```
## Package Plan ##
```

```
environment location: /Users/aayoungb/opt/anaconda3/envs/georgetest2
```

```
added / updated specs:
- pip
```

```
The following NEW packages will be INSTALLED:
```

```
ca-certificates  anaconda/osx-64::ca-certificates-2020.10.14-0
certifi          anaconda/osx-64::certifi-2020.6.20-py38_0
libcxx           anaconda/osx-64::libcxx-10.0.0-1
libedit         anaconda/osx-64::libedit-3.1.20191231-h1de35cc_1
libffi          anaconda/osx-64::libffi-3.3-hb1e8313_2
ncurses         anaconda/osx-64::ncurses-6.2-h0a44026_1
openssl         anaconda/osx-64::openssl-1.1.1h-haf1e3a3_0
pip             anaconda/osx-64::pip-20.2.4-py38_0
python         anaconda/osx-64::python-3.8.5-h26836e1_1
readline        anaconda/osx-64::readline-8.0-h1de35cc_0
setuptools      anaconda/osx-64::setuptools-50.3.0-py38h0dc7051_1
sqlite          anaconda/osx-64::sqlite-3.33.0-hffc06c0_0
tk              anaconda/osx-64::tk-8.6.10-hb0a8c7a_0
wheel           anaconda/noarch::wheel-0.35.1-py_0
xz              anaconda/osx-64::xz-5.2.5-h1de35cc_0
zlib            anaconda/osx-64::zlib-1.2.11-h1de35cc_3
```

```
Proceed ([y]/n)? y
```

```
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
```

```
(georgetest2) aayoungb@gs66-jasnah ~ % pip install ipython
Collecting ipython
```

```
Using cached ipython-8.0.0-py3-none-any.whl (747 kB)
```

```
Collecting black
```

```
Using cached black-21.12b0-py3-none-any.whl (156 kB)
```

```
Collecting stack-data
```

```
Using cached stack_data-0.1.4-py3-none-any.whl (20 kB)
```

```
Collecting pickleshare
```

```
Using cached pickleshare-0.7.5-py2.py3-none-any.whl (6.9 kB)
```

```
Collecting appnope; sys_platform == "darwin"
```

```
Using cached appnope-0.1.2-py2.py3-none-any.whl (4.3 kB)
```

```
Collecting decorator
```

```
Using cached decorator-5.1.1-py3-none-any.whl (9.1 kB)
```

```
Collecting matplotlib-inline
```

```
Using cached matplotlib_inline-0.1.3-py3-none-any.whl (8.2 kB)
```

```
Collecting jedi<=0.16
```

```
Using cached jedi-0.18.1-py2.py3-none-any.whl (1.6 MB)
```

```
Requirement already satisfied: setuptools>=18.5 in /opt/anaconda3/envs/georgetest2/lib/python3.8/site-packages (from ipython) (50.3.0.post20201006)
```

```
Collecting prompt-toolkit<=3.0.0,!=3.0.1,<3.1.0,>=2.0.0
```

```
Using cached prompt_toolkit-3.0.24-py3-none-any.whl (374 kB)
```

```
Collecting traitlets>=5
```

```
Using cached traitlets-5.1.1-py3-none-any.whl (102 kB)
```

```
Collecting pexpect>4.3; sys_platform != "win32"
```

```
Using cached pexpect-4.8.0-py2.py3-none-any.whl (59 kB)
```

```
Collecting backcall
```

```
Using cached backcall-0.2.0-py2.py3-none-any.whl (11 kB)
```

```
Collecting pygments
```

```
Using cached Pygments-2.11.2-py3-none-any.whl (1.1 MB)
```

```
Collecting platformdirs>=2
```

```
Using cached platformdirs-2.4.1-py3-none-any.whl (14 kB)
```

```
Collecting click>=7.1.2
```

```
Using cached click-8.0.3-py3-none-any.whl (97 kB)
```

```
Collecting typing-extensions>=3.10.0
```

```
Using cached typing_extensions-4.0.1-py3-none-any.whl (22 kB)
```

```
Collecting pathspec<1,>=0.9.0
```

```
Using cached pathspec-0.9.0-py2.py3-none-any.whl (31 kB)
```

```
Collecting mypy-extensions>=0.4.3
```

```
Using cached mypy_extensions-0.4.3-py2.py3-none-any.whl (4.5 kB)
```

```
Collecting tomli<2.0.0,>=0.2.6
```

```
Using cached tomli-1.2.3-py3-none-any.whl (12 kB)
```

```
Collecting executing
```

```
Using cached executing-0.8.2-py2.py3-none-any.whl (16 kB)
```

```
Collecting asttokens
```

```
Using cached asttokens-2.0.5-py2.py3-none-any.whl (20 kB)
```

```
Collecting pure-eval
```

```
Using cached pure_eval-0.2.1-py3-none-any.whl (11 kB)
```

```
Collecting parso<0.9.0,>=0.8.0
```

```
Using cached parso-0.8.3-py2.py3-none-any.whl (100 kB)
```

```
Collecting wcwidth
```

```
Using cached wcwidth-0.2.5-py2.py3-none-any.whl (30 kB)
```

```
Collecting ptyprocess>=0.5
```

```
Using cached ptyprocess-0.7.0-py2.py3-none-any.whl (13 kB)
```

```
Collecting six
```

```
Using cached six-1.16.0-py2.py3-none-any.whl (11 kB)
```

```
Installing collected packages: platformdirs, click, typing-extensions, pathspec, mypy-extensions, tomli, black, executing, six, asttokens, pure-eval, stack-data, pickleshare, appnope, deco
rator, traitlets, matplotlib-inline, parso, jedi, wcwidth, prompt-toolkit, ptyprocess, pexpect, backcall, pygments, ipython
Successfully installed appnope-0.1.2 asttokens-2.0.5 backcall-0.2.0 black-21.12b0 click-8.0.3 decorator-5.1.1 executing-0.8.2 ipython-8.0.0 jedi-0.18.1 matplotlib-inline-0.1.3 mypy-extensi
ons-0.4.3 parso-0.8.3 pathspec-0.9.0 pexpect-4.8.0 pickleshare-0.7.5 platformdirs-2.4.1 prompt-toolkit-3.0.24 ptyprocess-0.7.0 pure-eval-0.2.1 pygments-2.11.2 six-1.16.0 stack-data-0.1.4 t
```

```
(georgetest2) aayoungb@gs66-jasnah ~ % conda install -c conda-forge numpy scipy pybind11
```

Collecting package metadata (current_repodata.json): done
Solving environment: done

Package Plan

environment location: /Users/aayoungb/opt/anaconda3/envs/georgetest2

added / updated specs:

- numpy
- pybind11
- scipy

The following NEW packages will be INSTALLED:

```
blas                pkgs/main/osx-64::blas-1.0-mkl
intel-openmp        pkgs/main/osx-64::intel-openmp-2021.4.0-hecd8cb5_3538
libblas             conda-forge/osx-64::libblas-3.9.0-12_osx64_mkl
libclblas           conda-forge/osx-64::libclblas-3.9.0-12_osx64_mkl
libgfortran         conda-forge/osx-64::libgfortran-3.0.1-0
liblapack           conda-forge/osx-64::liblapack-3.9.0-12_osx64_mkl
mkl                 pkgs/main/osx-64::mkl-2021.4.0-hecd8cb5_637
mkl-service         conda-forge/osx-64::mkl-service-2.4.0-py38haad401_0
numpy               conda-forge/osx-64::numpy-1.20.3-py38had91d27_1
pybind11            conda-forge/osx-64::pybind11-2.5.0-py38ha0d09dd_0
python_abi          conda-forge/osx-64::python_abi-3.8-2_cp38
scipy               pkgs/main/osx-64::scipy-1.7.1-py38h88652d9_2
six                 conda-forge/noarch::six-1.16.0-pyh6c4a22f_0
```

The following packages will be UPDATED:

```
ca-certificates  anaconda::ca-certificates-2020.10.14-0 --> conda-forge::ca-certificates-2021.10.8-h033912b_0
certifi          anaconda::certifi-2020.6.20-py38_0 --> conda-forge::certifi-2021.10.8-py38h50d1736_1
openssl          anaconda::openssl-1.1.1h-haf1e3a3_0 --> conda-forge::openssl-1.1.1h-h08d85af4_0
```

Proceed ([y]/n)? y

Preparing transaction: done

Verifying transaction: done

Executing transaction: done

(georgetest2) aayoungb@gs66-jasnah ~ % pip install pyyaml

Collecting pyyaml

Using cached PyYAML-6.0-cp38-cp38-macosx_10_9_x86_64.whl (192 kB)

Installing collected packages: pyyaml

Successfully installed pyyaml-6.0

(georgetest2) aayoungb@gs66-jasnah ~ % pip install Jinja2

Collecting Jinja2

Using cached Jinja2-3.0.3-py3-none-any.whl (133 kB)

Collecting MarkupSafe>=2.0

Using cached MarkupSafe-2.0.1-cp38-cp38-macosx_10_9_x86_64.whl (13 kB)

Installing collected packages: MarkupSafe, Jinja2

Successfully installed Jinja2-3.0.3 MarkupSafe-2.0.1

(georgetest2) aayoungb@gs66-jasnah ~ % git clone --recursive https://github.com/dfm/george.git

Cloning into 'george'...

remote: Enumerating objects: 5400, done.

remote: Counting objects: 100% (150/150), done.

remote: Compressing objects: 100% (62/62), done.

remote: Total 5400 (delta 59), reused 134 (delta 52), pack-reused 5250

Receiving objects: 100% (5400/5400), 37.18 MiB | 2.29 MiB/s, done.

Resolving deltas: 100% (2621/2621), done.

Submodule 'vendor/eigen' (https://gitlab.com/libeigen/eigen.git) registered for path 'vendor/eigen'

Cloning into '/Users/aayoungb/george/vendor/eigen'...

remote: Enumerating objects: 114248, done.

remote: Counting objects: 100% (1459/1459), done.

remote: Compressing objects: 100% (775/775), done.

remote: Total 114248 (delta 914), reused 1145 (delta 683), pack-reused 112789

Receiving objects: 100% (114248/114248), 103.08 MiB | 4.81 MiB/s, done.

Resolving deltas: 100% (93771/93771), done.

Submodule path 'vendor/eigen': checked out 'db61b8d47825e55e348a66e77cb9e1fcbae066b'

(georgetest2) aayoungb@gs66-jasnah ~ % cd ~/george

(georgetest2) aayoungb@gs66-jasnah george % python -m pip install -e .

Obtaining file:///Users/aayoungb/george

Installing build dependencies ... done

Getting requirements to build wheel ... done

Preparing wheel metadata ... done

Requirement already satisfied: scipy in /Users/aayoungb/opt/anaconda3/envs/georgetest2/lib/python3.8/site-packages (from george==0.4.1.dev7+g15205b9) (1.7.1)

Requirement already satisfied: numpy in /Users/aayoungb/opt/anaconda3/envs/georgetest2/lib/python3.8/site-packages (from george==0.4.1.dev7+g15205b9) (1.20.3)

Installing collected packages: george

Running setup.py develop for george

Successfully installed george

(georgetest2) aayoungb@gs66-jasnah george % ipython

Python 3.8.5 (default, Sep 4 2020, 02:22:02)

Type 'copyright', 'credits' or 'license' for more information

IPython 8.0.0 -- An enhanced Interactive Python. Type '?' for help.

```
In [1]: import numpy as np
```

```
...: import george
```

```
...:
```

```
...: np.random.seed(1234)
```

```
...: x = 10 * np.sort(np.random.rand(15))
```

```
...: yerr = 0.2 * np.ones_like(x)
```

```
...: y = np.sin(x) + yerr * np.random.randn(len(x))
```

```
...: kernel = np.var(y) * george.kernels.ExpSquaredKernel(0.5)
```

```
...: gp = george.GP(kernel)
```

```
...: gp.compute(x, yerr)
```

```
In [2]: cp ~/Desktop/test.yml ~/george/kernels
```

```
In [3]: ls ~/george/kernels
```

/Users/aayoungb/opt/anaconda3/envs/georgetest2/lib/python3.8/site-packages/IPython/core/interactiveshell.py:2373: UserWarning: You executed the system command !ls which may not work as expected. Try the IPython magic %ls instead.

warnings.warn

```
Constant.yml          Empty.yml             ExpSquared.yml       Matern32.yml         Polynomial.yml
```

```
Cosine.yml            Exp.yml               Linear.yml            Matern52.yml         RationalQuadratic.yml
```

```
DotProduct.yml       ExpSine2.yml         LocalGaussian.yml    MaternGeneral.yml.example  test.yml
```

```
In [4]: rm ~/george/kernels/test.yml
```

```
In [6]: %run generate_kernels.py
```

Found kernel 'LinearKernel'

Found kernel 'RationalQuadraticKernel'

Found kernel 'ExpKernel'

Found kernel 'LocalGaussianKernel'

Found kernel 'EmptyKernel'

Found kernel 'CosineKernel'

Found kernel 'Matern52Kernel'

Found kernel 'ExpSine2Kernel'

Found kernel 'ConstantKernel'

Found kernel 'ExpSquaredKernel'

Found kernel 'Matern32Kernel'

Found kernel 'PolynomialKernel'

Found kernel 'DotProductKernel'

Found 13 kernel specifications

```
Saving parser to 'src/george/include/george/parser.h'
Saving C++ kernels to 'src/george/include/george/kernels.h'
Saving Python kernels to 'src/george/kernels.py'
```

```
In [6]: exit
(georgetest2) aayoungb@gs66-jasnah george % ipython
Python 3.8.5 (default, Sep 4 2020, 02:22:02)
Type 'copyright', 'credits' or 'license' for more information
IPython 8.0.0 -- An enhanced Interactive Python. Type '?' for help.
```

```
In [1]: import numpy as np
...: import george
...:
...: np.random.seed(1234)
...: x = 10 * np.sort(np.random.rand(15))
...: yerr = 0.2 * np.ones_like(x)
...: y = np.sin(x) + yerr * np.random.randn(len(x))
...: kernel = np.var(y) * george.kernels.ExpSquaredKernel(0.5)
...: gp = george.GP(kernel)
...: gp.compute(x, yerr)
...:
```

```
In [2]: cp src/george/kernels.py ~/Downloads/kernels_working.py
```

```
In [3]: cp ~/Desktop/test.yml ~/george/kernels
...:
```

```
In [4]: %run generate_kernels.py
...:
Found kernel 'LinearKernel'
Found kernel 'RationalQuadraticKernel'
Found kernel 'RationalQuadraticKernel2'
Found kernel 'ExpKernel'
Found kernel 'LocalGaussianKernel'
Found kernel 'EmptyKernel'
Found kernel 'CosineKernel'
Found kernel 'Matern52Kernel'
Found kernel 'ExpSine2Kernel'
Found kernel 'ConstantKernel'
Found kernel 'ExpSquaredKernel'
Found kernel 'Matern32Kernel'
Found kernel 'PolynomialKernel'
Found kernel 'DotProductKernel'
Found 14 kernel specifications
Saving parser to 'src/george/include/george/parser.h'
Saving C++ kernels to 'src/george/include/george/kernels.h'
Saving Python kernels to 'src/george/kernels.py'
```

```
In [6]: import numpy as np
...: import george
...:
...: np.random.seed(1234)
...: x = 10 * np.sort(np.random.rand(15))
...: yerr = 0.2 * np.ones_like(x)
...: y = np.sin(x) + yerr * np.random.randn(len(x))
...: kernel = np.var(y) * george.kernels.ExpSquaredKernel(0.5)
...: gp = george.GP(kernel)
...: gp.compute(x, yerr)
...:
```

```
In [6]: exit
(georgetest2) aayoungb@gs66-jasnah george % ipython
Python 3.8.5 (default, Sep 4 2020, 02:22:02)
Type 'copyright', 'credits' or 'license' for more information
IPython 8.0.0 -- An enhanced Interactive Python. Type '?' for help.
```

```
In [1]: import numpy as np
...: import george
...:
...: np.random.seed(1234)
...: x = 10 * np.sort(np.random.rand(15))
...: yerr = 0.2 * np.ones_like(x)
...: y = np.sin(x) + yerr * np.random.randn(len(x))
...: kernel = np.var(y) * george.kernels.ExpSquaredKernel(0.5)
...: gp = george.GP(kernel)
...: gp.compute(x, yerr)
...:
```

```
-----
AttributeError                                Traceback (most recent call last)
Input In [1], in <module>
      8 kernel = np.var(y) * george.kernels.ExpSquaredKernel(0.5)
      9 gp = george.GP(kernel)
----> 10 gp.compute(x, yerr)

File ~/george/src/george/gp.py:331, in GP.compute(self, x, yerr, **kwargs)
    329 # Include the white noise term.
    330 yerr = np.sqrt(self._yerr2 + np.exp(self._call_white_noise(self._x)))
--> 331 self.solver.compute(self._x, yerr, **kwargs)
    333 self._const = -0.5 * (
    334     len(self._x) * np.log(2 * np.pi) + self.solver.log_determinant
    335 )
    336 self.computed = True

File ~/george/src/george/solvers/basic.py:64, in BasicSolver.compute(self, x, yerr)
    52 """
    53 Compute and factorize the covariance matrix.
    54
    (...)
    61
    62 """
    63 # Compute the kernel matrix.
--> 64 K = self.kernel.get_value(x)
    65 K[np.diag_indices_from(K)] += yerr ** 2
    67 # Factor the matrix and compute the log-determinant.

File ~/george/src/george/kernels.py:109, in Kernel.get_value(self, x1, x2, diag)
    107     return self.kernel.value_diagonal(x1, x1)
    108     else:
--> 109         return self.kernel.value_symmetric(x1)
    110 x2 = np.ascontiguousarray(x2, dtype=np.float64)
    111 if diag:

File ~/george/src/george/kernels.py:66, in Kernel.__getattr__(self, name)
    64     if None in self.models:
    65         return getattr(self.models[None], name)
--> 66 raise AttributeError(name)

AttributeError: kernel
```

```
In [2]: exit
(georgetest2) aayoungb@gs66-jasnah george % conda env export > george_AY.yml
(georgetest2) aayoungb@gs66-jasnah george % cp src/george/kernels.py ~/Downloads/kernels_notworking.py
(georgetest2) aayoungb@gs66-jasnah george %
```