Appendix A Installation and Setup A

> Whether you fall into a small pool or into the middle of the largest sea,
> you still have to swim all the same.
>
> Plato

Python packages The packages we touch upon can be divided into two categories:

- *Required:* Python 3 and its standard library; Matplotlib; NumPy.
- *Mentioned, but not required:* Jupyter Notebook; SciPy; SymPy; JAX.

The matrix-related material uses Python's infix `@` operator instead of `numpy.dot()`; thus, for a seamless experience you should be using Python 3.5 or a later version. Incidentally, if you're still using Python 2 but would like to follow along, you should read the relevant section in our online tutorial (though you really should switch to Python 3).

Installation The easiest way to download and install the needed packages is via the *Anaconda Distribution*. Actually, this also includes functionality that we don't use, like `pandas`, `TensorFlow`, or `Numba`; if you keep doing numerical work with Python, you are likely to run into many of Anaconda's packages in the future. Practically speaking, you should head on over to `www.anaconda.com/distribution` and click on "Download". There are packaged versions for Windows, macOS, or Linux. If you are asked to choose between Python 2.n and Python 3.n, choose the latter. Follow the instructions after that and all should be well. Another option is to use *Enthought's Canopy* distribution. Finally, you could try to install the reference implementation, *CPython*, and the other needed libraries "by hand", but if this is your first foray into the Python world it's probably best to stick to a distribution, which takes care of all the technical details for you.

Running The simplest way of using Python is to launch the Python interpreter; in addition to interactive sessions, you can also use a text editor (like `vim` or `emacs`) to save code into a file, which you then run. Another popular option is the *Spyder* integrated development environment (IDE), which allows you to edit, debug, and profile your programs. A third option is to use *Jupyter Notebook*, which involves interactive documents that combine code, text, equations, and plots all in one place (displayed in your browser). If you used the Anaconda distribution, then you already have both Spyder and Jupyter Notebook installed on your system; in that case, you can work through our Python and NumPy tutorials interactively (otherwise, you can read the html versions). You can access the tutorials and the codes discussed in the main text at the companion website `www.numphyspy.org` or at the publisher's website.