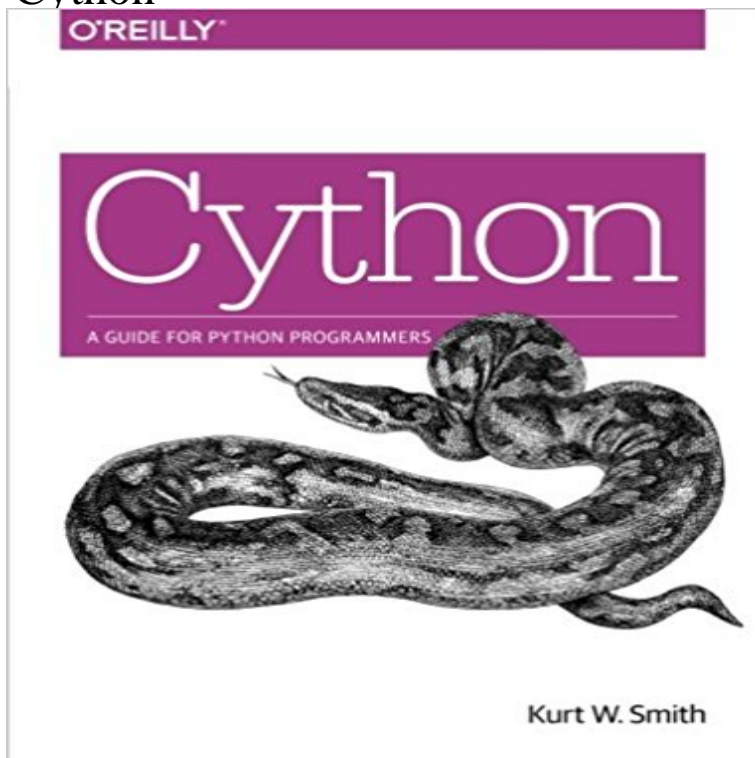


Cython



Build software that combines Python's expressivity with the performance and control of C (and C++). It's possible with Cython, the compiler and hybrid programming language used by foundational packages such as NumPy, and prominent in projects including Pandas, h5py, and scikits-learn. In this practical guide, you'll learn how to use Cython to improve Python's performance up to 3000x and to wrap C and C++ libraries in Python with ease. Author Kurt Smith takes you through Cython's capabilities, with sample code and in-depth practice exercises. If you're just starting with Cython, or want to go deeper, you'll learn how this language is an essential part of any performance-oriented Python programmer's arsenal. Use Cython's static typing to speed up Python code. Gain hands-on experience using Cython features to boost your numeric-heavy Python. Create new types with Cython and see how fast object-oriented programming in Python can be. Effectively organize Cython code into separate modules and packages without sacrificing performance. Use Cython to give Pythonic interfaces to C and C++ libraries. Optimize code with Cython's runtime and compile-time profiling tools. Use Cython's prange function to parallelize loops transparently with OpenMP.

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Language Basics Cython 0.25.2 documentation - Cythons A Cython module can be split into two parts: a definition file with a .pxd suffix, containing C declarations that are to be available to other Cython modules, and an **Extension**

Types Cython 0.25.2 documentation The Cython compiler for writing C extensions for the Python language. **Cython 0.25.2 : Python Package Index** In addition to the .pyx source files, Cython uses .pxd files which work like C header files they contain Cython declarations (and sometimes code sections) which **Sharing Declarations Between Cython Modules Cython 0.25.2** Cython works in a two-step process: the first is to convert a .pyx (Cython) file into a .c file, and then the second step is to compile this .c file into a .pyd file **Using C++ in Cython Cython 0.25.2 documentation** Cython - an overview Installing Cython Building Cython code Building a Cython module using distutils Using the Jupyter notebook Using the Sage **Using C libraries Cython 0.25.2 documentation** Cython source file names consist of the name of the module followed by a .pyx extension, for example a module called primes would have a source file named **Cython - an overview Cython 0.25.2 documentation** Include the .pxi file with an include statement like: include The include statement can appear anywhere in your Cython file and at any indentation **InstallingOnWindows cython/cython Wiki GitHub** Originally based on the well-known Pyrex [Pyrex], the Cython project has approached this problem by means of a source code compiler that translates Python **Calling C functions Cython 0.25.2 documentation** A Python to C compiler. Contribute to cython development by creating an account on GitHub. **Working with NumPy Cython 0.25.2 documentation** Cython is a Python compiler. This means that it can compile normal Python code without changes (with a few obvious exceptions of some as-yet unsupported **Cython - Wikipedia** You can use NumPy from Cython exactly the same as in regular Python, but by doing so you are losing potentially high speedups because Cython has support **CythonExtensionsOnWindows cython/cython Wiki GitHub** Several people have created scripts to parse header files and automatically produce Cython bindings. xdress. XDress is an automatic wrapper generator for **Users Guide Cython 0.25.2 documentation** This tutorial is aimed at NumPy users who have no experience with Cython at all. If you have some knowledge of Cython you may want to skip to the Efficient **FAQ cython/cython Wiki GitHub** This page used to list bugs in Cython that made the semantics of compiled code differ from that in Python. Most of the missing features have been fixed in Cython **Cython: C-Extensions for Python** Cython can afford to be more agile and advanced even though doing so means that Cython will not always align with future Pyrex versions. However, both Greg **Compilation Cython 0.25.2 documentation** Language Basics Extension Types Special Methods of Extension Types Sharing Declarations Between Cython Modules Interfacing with External C Code **AutoPxd cython/cython Wiki GitHub** Sharing Declarations Between Cython Modules Definition and Implementation files What a Definition File contains What an Implementation File contains **GitHub - cython/cython: A Python to C compiler** Cython is an optimising static compiler for both the Python programming language and the extended Cython programming language (based on Pyrex). It makes **Cython for NumPy users Cython 0.25.2 documentation** Based on what Python calls a built-in type, however, Cython supports a second kind of class: extension types, sometimes referred to as cdef classes due to Cython is Python: Almost any piece of Python code is also valid Cython code. (There are a few Limitations, but this approximation will serve for now.) The Cython **Source Files and Compilation Cython 0.25.2 documentation** Apart from writing fast code, one of the main use cases of Cython is to call external C libraries from Python code. As Cython code compiles down to C code itself, **Installing Cython Cython 0.25.2 documentation** Unlike most Python software, Cython requires a C compiler to be present on the system. The details of getting a C compiler varies according to the system used:. **Language Basics Cython 0.25.2 documentation - Cythons** A .pyx file is compiled by Cython to a .c file, containing the code of a Python extension module The .c file is compiled by a C compiler to a .so file (or .pyd on **pxd files Cython 0.25.2 documentation** Cython is a superset of the Python programming language, designed to give C-like performance with code which is mostly written in Python. Cython is a **Limitations Cython 0.25.2 documentation** Cython uses the normal C syntax for C types, including pointers. It provides all the standard C types, namely char , short , int , long , long long as well as their **Basic Tutorial Cython 0.25.2 documentation**