Acessibilidade para deficientes visuais com Python

#PythonAmazonas

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About me

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o que é nvda?

NonVisual Desktop Access

NDVA é um screen reader open source escrito em python e roda em computadores com Windows 2k ou maior.

Com ele, pessoas que possuem deficiencia visual parcial ou total, conseguem usar o computador para realizar tarefas diarias e que são simples para quem não é deficiente como estudar, pagar contas, se comunicar entre outras coisas, mais para quem possui uma limitação na visão, até as tarefas mais faceis se torma um desafio.

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historia do nvda

Michael Curran e James Teh desde crianças ja tinham interesse por computadores, mais esbarravam em um problema, ambos eram deficientes visuais e mesmo ja tendo computador, não tinham como usa-lo pois o software screen reader que existia, tinha um valor altissimo e sua licensa por computador tambem era cara.

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historia do nvda

O fato de não existir um software screen reader acessivel a todos, fazia com que milhares de deficientes ao redor do mundo não tinha acesso a emprego, educação, bankline, compras, musicas entre outras coisas.

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historia do nvda

Cansados desta situação, Michael Curran e seu amigo James Teh, se uniram e como ja eram programadores, desenvolveram em python, um screen reader proprio e apos anos de esforço, liberaram sob a licensa GPLv2
no github, o que foi bom porque varios voluntarios ao redor do mundo traduziram ela para mais de 43 idiomas, entre outras contribuições.

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NVDA - Fundadores

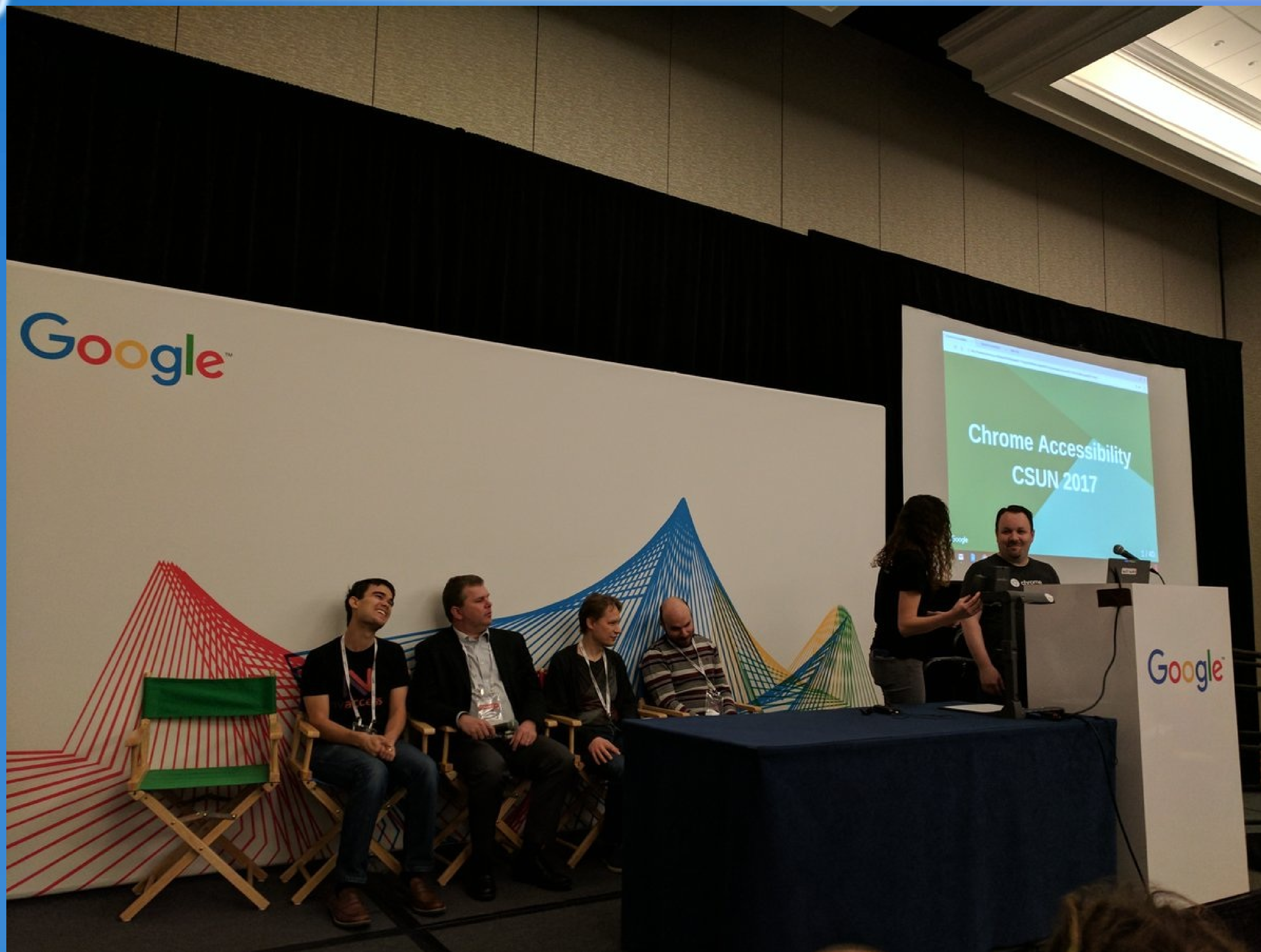@NVAccess

@jcsteh

@md_curran

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NVDA - Arquitetura

Ele é desenvolvido 80% em python version 2.7.13 32bits

Os outros 20% é usado c++ por causa das dll's e apis do windows, compilado com MS Virtual Studio 2015 Express for Desktop with VC++ and Windows SDK 7.1A

NVDA - Arquitetura

comtypes, version 0.6.2

comtypes is a lightweight Python COM package, based on the ctypes FFI library, in less than 10000 lines of code (not counting the tests).
comtypes allows to define, call, and implement custom and dispatch-based COM interfaces in pure Python. It works on Windows, 64-bit Windows, and Windows CE.

https://pypi.python.org/pypi/comtypes/1.1.3

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wxPython, version 3.0.2.0

Phoenix wraps the wxWidgets C++ toolkit and provides access to the user interface portions of the wxWidgets API, enabling Python applications to have a native GUI on Windows, Macs or Unix systems, with a native look and feel and requiring very little (if any) platform specific code.

https://pypi.python.org/pypi/wxPython/4.0.0b1

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Python Windows Extensions, build 218

https://sourceforge.net/projects/pywin32/

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eSpeak NG, commit 37121600

eSpeak NG is an open source speech synthesizer that supports 99 languages and accents.

https://github.com/espeak-ng/espeak-ng

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Sonic, commit 4f8c1d11

Programming Music with Sonic Pi or
Supercollider

Python-Sonic is a simple Python interface for
Sonic Pi, which is a real great music software
created by Sam Aaron (http://sonic-pi.net).
At the moment Python-Sonic works with Sonic
Pi.

https://pypi.python.org/pypi/python-sonic/0.2.0

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IAccessible2, version 1.3

IAccessible2 is a new accessibility API which complements Microsoft's earlier work on MSAA. This API fills critical accessibility API gaps in the MSAA offering. IAccessible2 was created out of necessity to produce a usable and accessible OpenDocument Format (ODF) based office suite for the Commonwealth of Massachusetts.
https://wiki.linuxfoundation.org/accessibility/iaccessible2/start

NVDA - Arquitetura

ConfigObj, version 4.6.0

Config file reading, writing and validation.
ConfigObj is a simple but powerful config file reader and writer.
Powerful unrepr mode for storing/retrieving Python data-types
String interpolation (substitution)

https://pypi.python.org/pypi/configobj/5.0.6

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liblouis, version 3.0.0

The Liblouis software suite provides an open-source braille translator, back-translator and formatter for a large number of languages and braille codes. It is a set of libraries designed for use in any of a number of applications, both free and commercial. It is written in C so that it does not require a runtime environment and hence can be used in applications written in high-level languages such as Java and Python.
http://liblouis.org

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txt2tags, version 2.5

Txt2tags is a document generator. It reads a text file with minimal markup such as **bold** and //italic// and converts it to the following formats:
HTML
XHTML
SGML
LaTeX

http://txt2tags.org

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MinHook, tagged version 1.2.2

The Minimalistic x86/x64 API Hooking Library for Windows

https://github.com/TsudaKageyu/minhook

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SCons, version 2.4.1

SCons is an Open Source software construction tool—that is, a next-generation build tool. Think of SCons as an improved, cross-platform substitute for the classic Make utility with integrated functionality similar to autoconf/automake and compiler caches such as ccache. In short, SCons is an easier, more reliable and faster way to build software.

http://scons.org

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brlapi Python bindings, version 0.5.7

Python bindings
BRLTTY is a daemon which provides access to the console for a blind person using a braille display. It drives the braille display and provides complete screen review functionality.
BrlAPI is a library which gives an application access to a braille display and lets it write braille.
https://packages.debian.org/sid/python/python-brlapi

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Handy Tech Braille SDK, version 1.4.2.0

The latest firmware Active Star Version 2.0 now provides further helpful developments. Besides the opportunity of selecting between various languages version 2.0

https://handytech.de/en/service/downloads-and-manuals/handy-tech-software/braille-display-software

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pyserial, version 2.5

Python Serial Port Extension for Win32, OSX, Linux, BSD, Jython, IronPython

https://pypi.python.org/pypi/pyserial

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Python interface to FTDI driver/chip

Pythonic interface to FTDI devices using libftdi pylibftdi is a minimal Pythonic interface to FTDI devices using libftdi.

https://pypi.python.org/pypi/pylibftdi

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Py2Exe, version 0.6.9

py2exe is a Python Distutils extension which converts Python scripts into executable Windows programs, able to run without requiring a Python installation.

http://www.py2exe.org

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Nulsoft Install System, version 2.51

NSIS UAC plug-in, version 0.2.4, ansi
NSIS (Nullsoft Scriptable Install System) is a professional open source system to create Windows installers. It is designed to be as small and flexible as possible and is therefore very suitable for internet distribution.

http://nsis.sourceforge.net/Main_Page

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xgettext and msgfmt from GNU gettext

Many would simply love to see their computer screen showing a lot less of English, and far more of their own language.

https://www.gnu.org/software/gettext/manual/gettext.html

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epydoc, version 3.0.1 with patch for bug #303

Epydoc is a tool for generating API documentation for Python modules, based on their docstrings. For an example of epydoc's output, see the API documentation for epydoc itself (html, pdf).

http://epydoc.sourceforge.net

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Boost Optional (stand-alone header), from commit 3922965

Boost provides free peer-reviewed portable C++ source libraries.We emphasize libraries that work well with the C++ Standard Library. Boost libraries are intended to be widely useful, and usable across a broad spectrum of applications.

http://www.boost.org

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NVDA images and sounds

System dlls not present on many systems:
mfc90.dll, msvcp90.dll, msvcr90.dll,
Microsoft.VC90.CRT.manifest
Adobe Acrobat accessibility interface
Adobe FlashAccessibility interface typelib
ALVA BC6 generic dll, version 3.0.4.1
lilli.dll, version 2.1.0.0
HanSoneConnect.dll, version 2.0.0.1
SyncBraille.dll, version 1.0.0.1
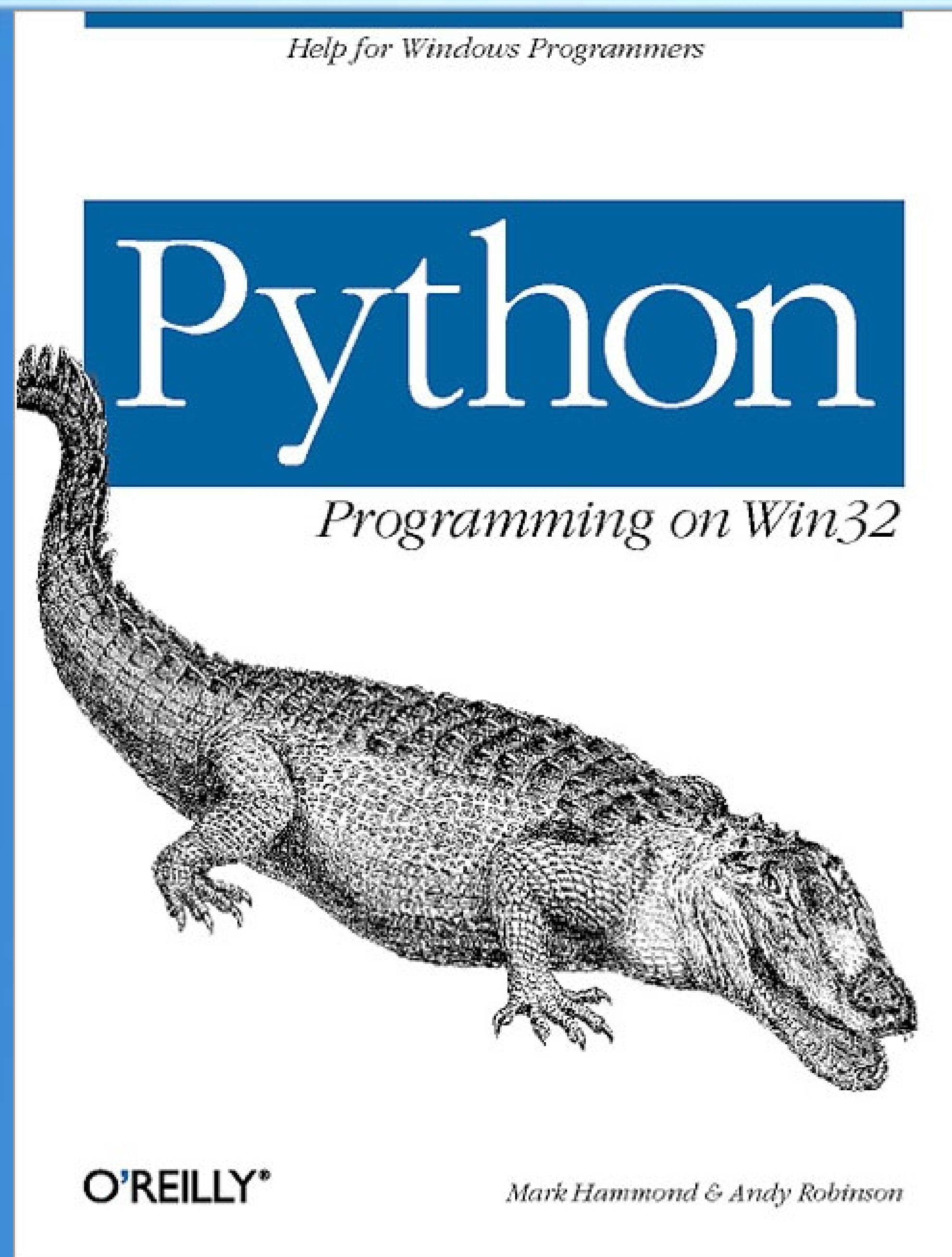
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Python IDE para Windows

ActiveState

https://www.activestate.com/activepython/downloads

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http://shop.oreilly.com/product/9781565926219.do

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NVDA - Escolas

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NVDA - Features

Suporte para aplicações populares, incluindo navegadores da web, e-mail, internet bate-papo e programas do office, incluindo o Word e Excel.

NVDA pode ser instalado diretamente no computador, mas tem a capacidade de executar inteiramente a partir de um stick USB ou outra mídia portátil.

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NVDA - Features

Sintetizador de discurso interno para inglês ou outros 43 idiomas.

Relatórios de formatação textual onde disponível, como nome da fonte e tamanho, estilo e erros de ortografia.

Anúncio automático de texto sob o mouse e indicação audível facultativa a posição do mouse.

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NVDA - Features

Suporte para o modo braile.

Suporte para interfaces de acessibilidade comuns, incluindo ponte de acesso do Java.

Suporte para aplicativos de console e prompt de comando do Windows.

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Outras opções

http://www.virtualvision.com.br/

http://www.microsoft.com/enable/training/windowsvista/narrator.aspx

https://wiki.gnome.org/Attic/Gnopernicus

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projetos open source

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