

Install NEURON on Windows

**The example here is for Windows 10
but anything \geq Windows XP is fine.**

Install NEURON

Test by launching neurondemo

Test MPI parallel from terminal

...If you do not already have Python 2.7

Install Python 2.7 distribution

Test NEURON + Python

Web search for "git for windows" and install it.

(not shown in this example)

Installing ...

Recycle Bin

NEURON | for empiricall × +

neuron.yale.edu/neuron

NEURON

for empirically-based simulations of neurons and networks of neurons

Installers and source code

[NEURON news](#) | [Download](#) | [Courses](#) | [Publications](#) | [About](#) | [Login](#)

[Documentation](#) | [Programmer's Reference](#) | [Forum](#) | [Resources](#) | [ModelDB](#)

Welcome to the community of NEURON users and developers!

This is the home page of the NEURON simulation environment, which is used in classrooms and

world for building and

of neurons and

Search

Google™ Custom Search

Search

http://neuron.yale.edu/neuron/download

Search the web and Windows

6:56 AM 11/17/2015

Right Ctrl

Installing on 64bit Windows 10 ...

The screenshot shows a Windows 10 desktop with a dark blue background. In the top-left corner, there is a Recycle Bin icon. The taskbar at the bottom contains the Start button, a search bar with the text "Search the web and Windows", and several pinned application icons: Internet Explorer, File Explorer, and the Windows Store. The system tray on the right shows the volume icon, network icon, and the time "6:59 AM 11/17/2015".

The main focus is a web browser window titled "Download and install | N". The address bar shows the URL "neuron.yale.edu/neuron/dow". The page content includes:

- Download and install**
If NEURON is already installed, uninstall it before installing a different version.
- The standard distribution**
The current standard distribution is version 7.4. It is recommended for most users, especially for new projects.
- Precompiled installers:**

OS X		64 bit .dmg
MSWin	32 bit	64 bit
Linux	32 bit .deb	64 bit .deb
	32 bit .rpm	64 bit .rpm
- Installation hints**
OS X Double click on the dmg file, then
http://www.neuron.yale.edu/ftp/neuron/versions/v7.4/nrn-7.4.x86_64-w64-mingw32-setup.exe

The right sidebar of the browser window contains a search box with "Google™ Custom Search" and a "Search" button. Below it is a "Navigation" section with links for "Blogs" and "Recent posts". At the bottom of the sidebar is a "Recent blog posts" section with a link titled "Two important events at the 2015 SFN meeting".

Run the downloaded file

The screenshot shows a Windows desktop environment. In the top-left corner, there is a Recycle Bin icon. The taskbar at the bottom contains the Start button, a search bar with the text "Search the web and Windows", and several application icons including Internet Explorer, File Explorer, and the Start menu. The system tray on the right shows the time as 7:03 AM on 11/17/2015, along with icons for network, volume, and notifications. A notification area at the bottom of the desktop displays the message: "nrn-7.4.x86_64-w64-mingw32-setup (1).exe finished downloading." with a "Run" button and a "View downloads" button. A mouse cursor is hovering over the "Run" button.

Download and install | N X +

neuron.yale.edu/neuron/dow

Download and install

If NEURON is already installed, uninstall it before installing a different version.

The standard distribution

The current standard distribution is version 7.4. It is recommended for most users, especially for new projects.

Precompiled installers:

OS X		64 bit .dmg
MSWin	32 bit	64 bit
Linux	32 bit .deb	64 bit .deb
	32 bit .rpm	64 bit .rpm

Search

Google™ Custom Search

Search

Navigation

- ▶ [Blogs](#)
- [Recent posts](#)

Recent blog posts

- [Two important](#)

nrn-7.4.x86_64-w64-mingw32-setup (1).exe finished downloading.

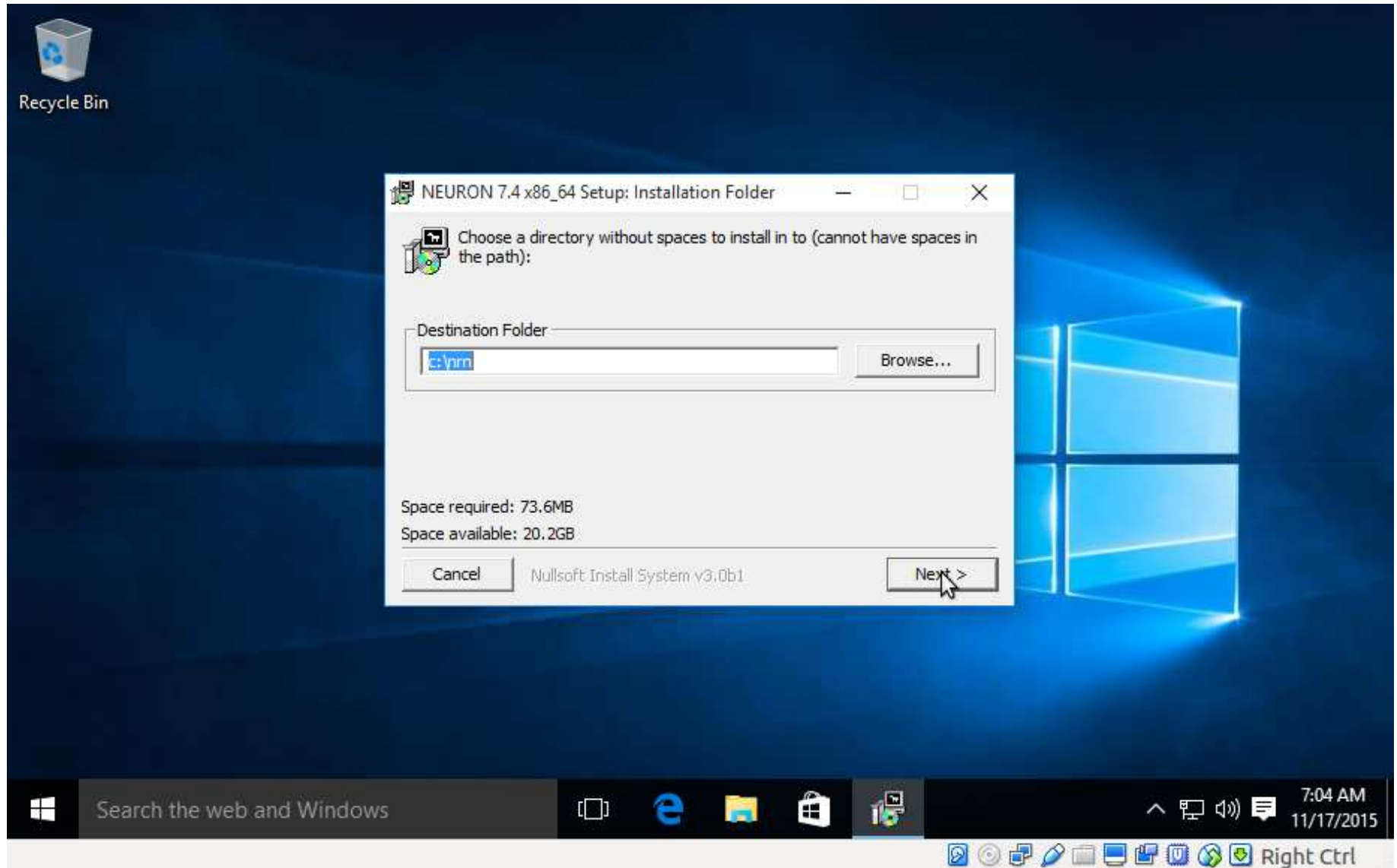
Run View downloads X

Search the web and Windows

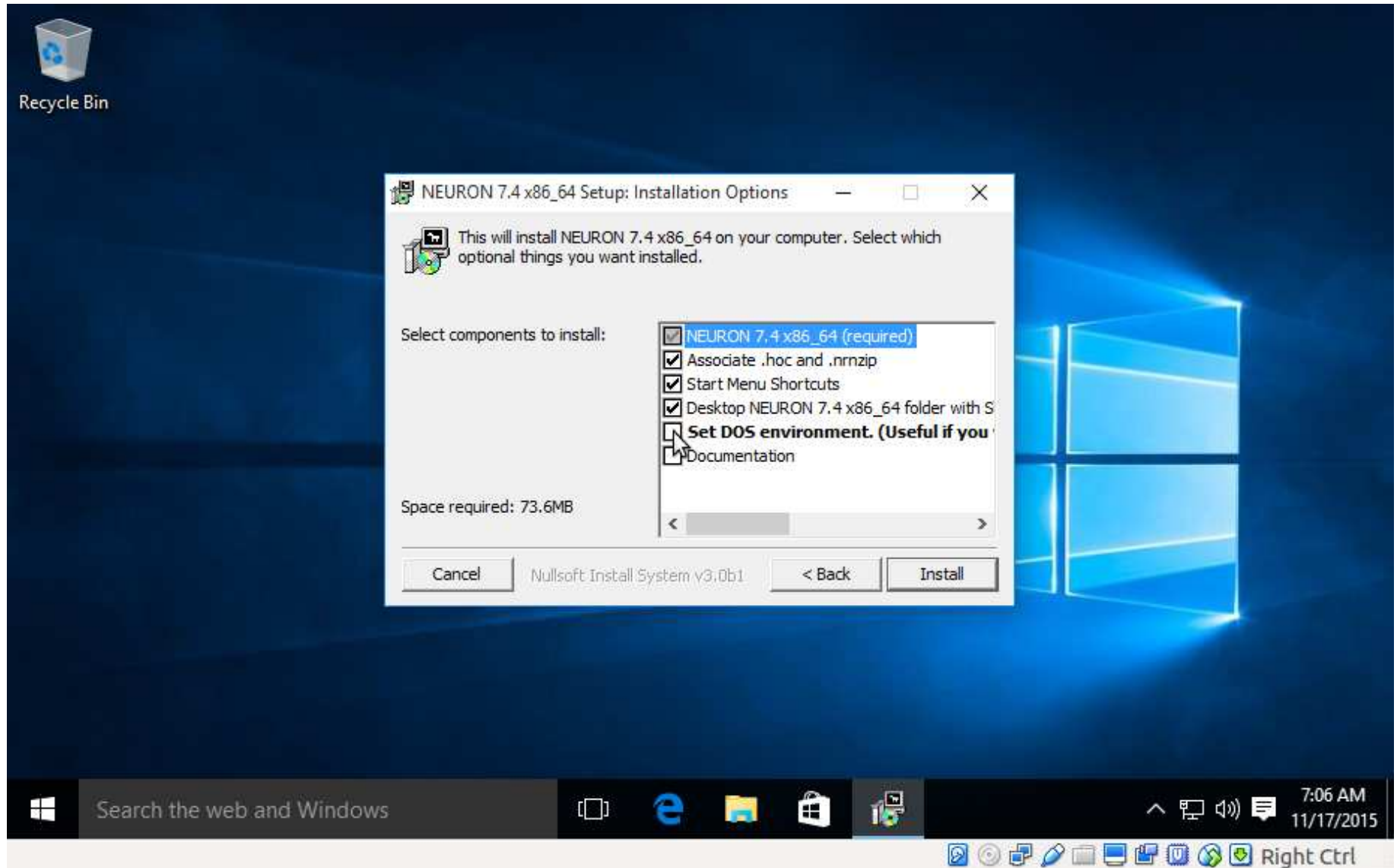
7:03 AM 11/17/2015

Right Ctrl

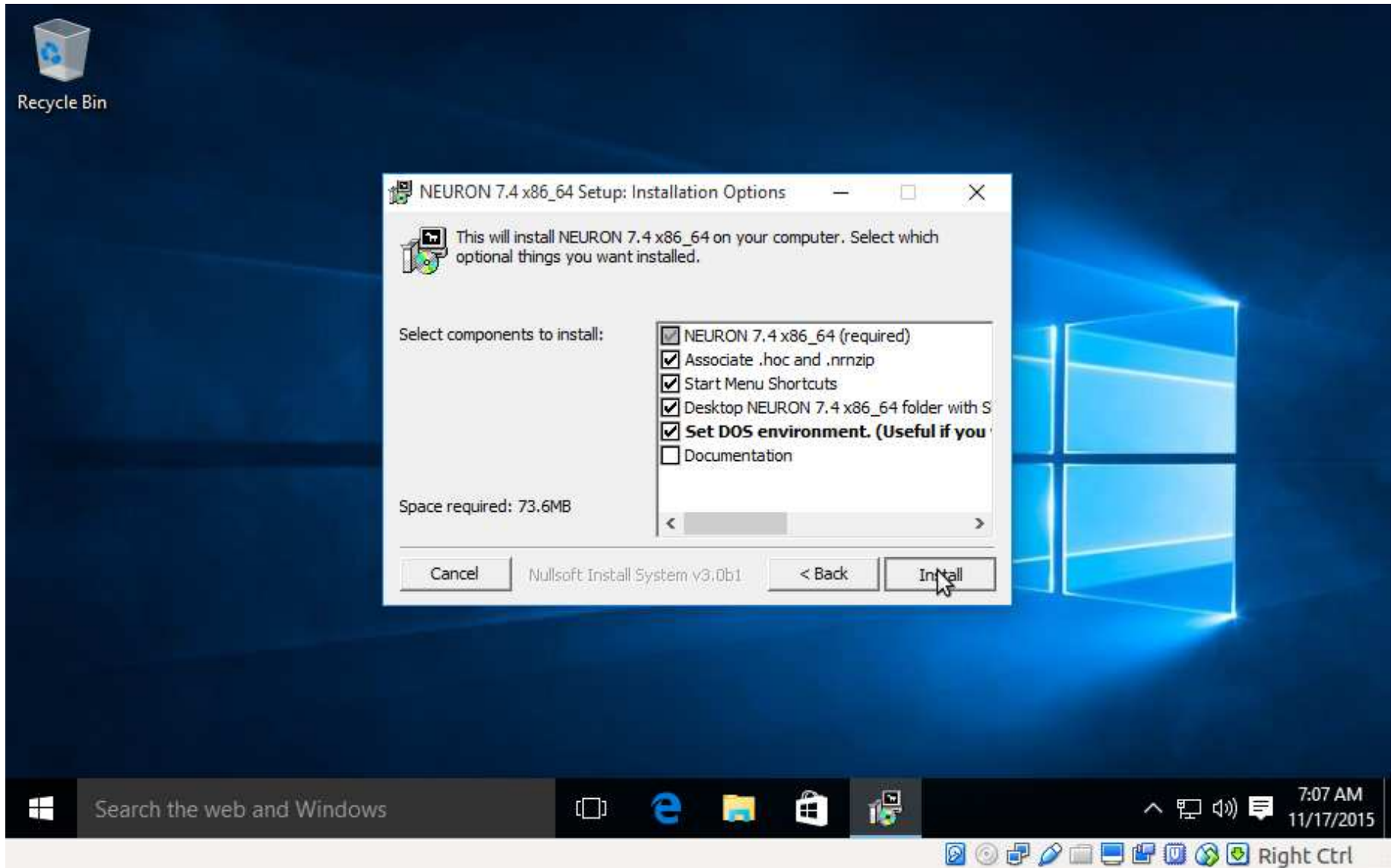
Install into selected destination folder



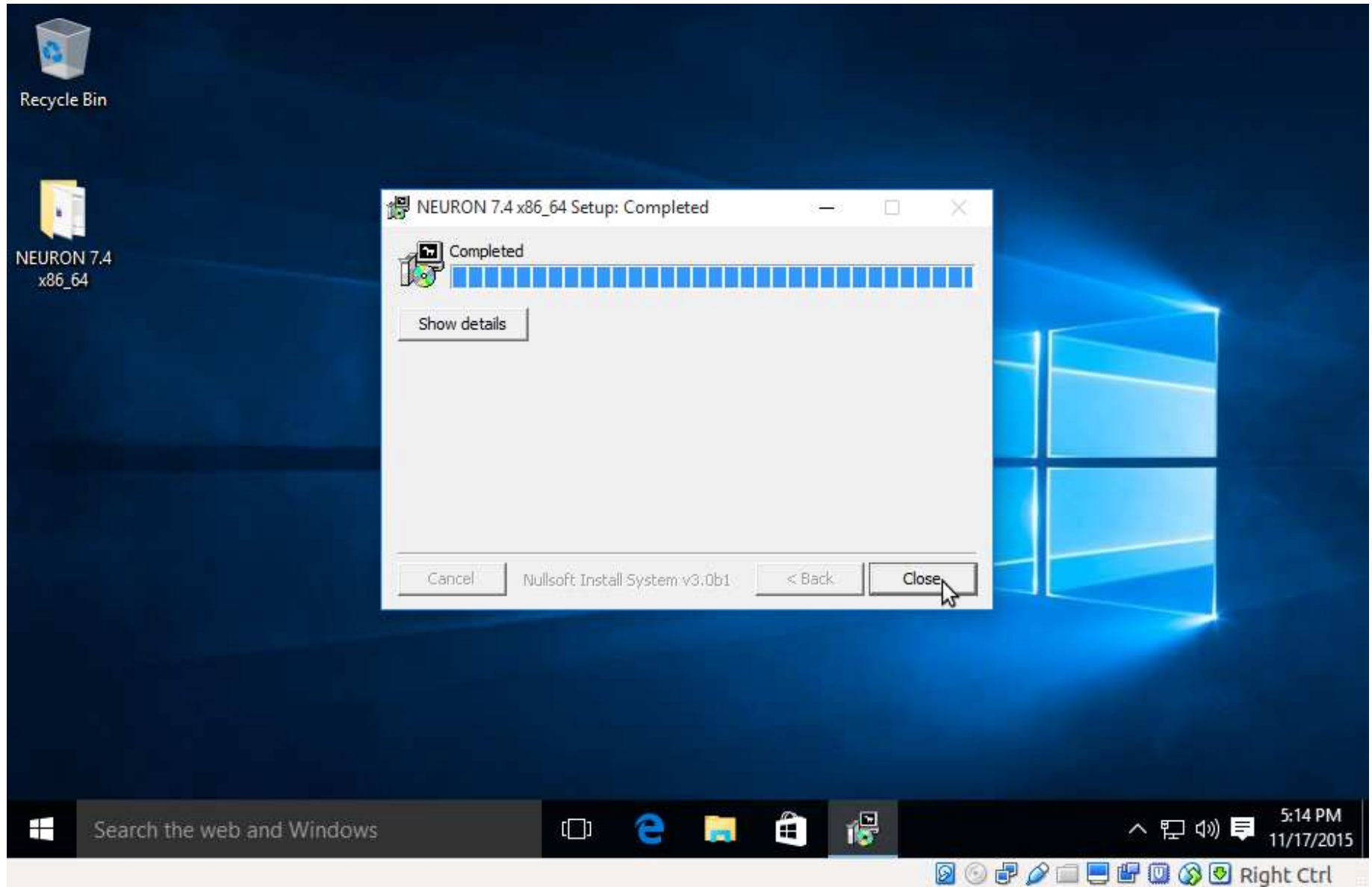
Useful if expect to launch IPython.



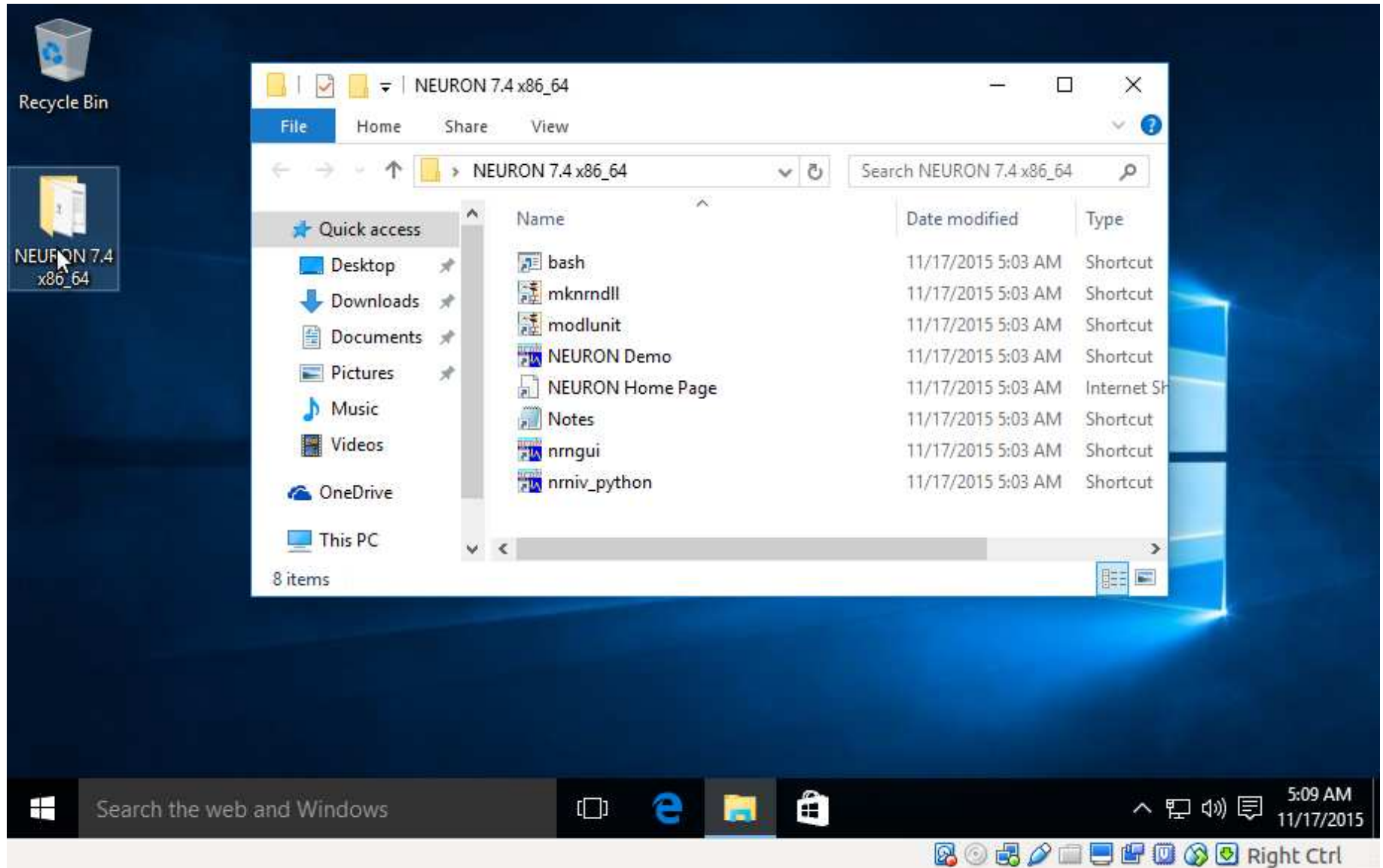
Install NEURON



NEURON installed



Test by double clicking 'NEURON Demo'



Selecting the 'Release' button starts a demo.

The screenshot displays the NEURON software interface on a Windows desktop. The desktop background is the standard Windows 8 blue logo wallpaper. A taskbar at the bottom shows the Start button, a search bar, and several application icons including Internet Explorer, File Explorer, and NEURON. The NEURON software is running with several windows open:

- NEURON Main Menu:** Shows a menu with options: File, Edit, Build, Tools, Graph, Vector, Window.
- NEU...:** A window titled "Choose one of the demonstrations" with a list of options: Patch: HH, Stylized, Pyramidal, Release (highlighted with a mouse cursor), Synchronizing net (artificial cells), LinearCircuit: Dynamic Clamp, Stochastic Single Channels: HH, and No model.
- Temp...:** A window showing a temperature value of 16.3.
- RunControl:** A window with various control buttons and input fields:
 - Init (mV): -65
 - Init & Run
 - Stop
 - Continue til (ms): 5
 - Continue for (ms): 1
 - Single Step
 - t (ms): 0
 - Tstop (ms): 5
 - dt (ms): 0.025
- NEURON Demo:** A terminal window showing the following text:

```
NEURON -- Release 7.4 (1370:16a7055d4a86) 2
Duke, Yale, and the BlueBrain Project -- Co
See http://www.neuron.yale.edu/neuron/credi

loading membrane mechanisms from c:/nrn/dem
Additional mechanisms from files
cabump.mod cachan1.mod camchan.mod capump
han.mod mcna.mod nacaex.mod nachan.mod rele
oc>
```

The Windows taskbar at the bottom shows the time as 5:12 AM on 11/17/2015. A "Right Ctrl" button is visible in the bottom right corner of the taskbar.

'Init&Run' button runs the simulation

The screenshot displays the NEURON software interface with several windows open. The 'RunControl' window is the central focus, showing the 'Init & Run' button being clicked by a mouse cursor. Other windows include 'NEURON Main Menu', 'I/V Clamp Electrode', 'Ion Fluxes', and two graph windows. The 'Ion Fluxes' window shows parameters for a pump model, and the graph windows show voltage and current traces.

RunControl Window Parameters:

Parameter	Value
Init (mV)	-65
Continue til (ms)	5
Continue for (ms)	1
t (ms)	5
Tstop (ms)	5
dt (ms)	0.025

Graph[0] x -0.5; 5.5 y -92; 52:

terminal.v(0.5)

Graph[1] x -0.5; 5.5 y -0.046; ...:

ica_nacax
ica_pmp_cadifpmp
ica_3_capump
ica_cachan

Ion Fluxes Window Parameters:

Parameter	Value
kinetic pmp (mol/cm2)	1e-013
beta	100
kmp (uM)	0.2
vmax (mA/cm2)	0
pcabar (cm/s)	2.5e-005
gnabar (mho/cm2)	0.12
gkbar (mho/cm2)	0.036

NEURON Main Menu: File Edit Build Tools Graph Vector Window

System Tray: 5:14 AM 11/17/2015 Right Ctrl

Exit by pressing 'NEURONMainMenu/File/Quit'

The screenshot displays the NEURON software interface with the 'NEURON Main Menu' window open. The 'File' menu is expanded, showing options like 'load session', 'save session', and 'Quit'. The 'Quit' option is highlighted with a mouse cursor. Other windows visible include 'Ion Fluxes' with parameters like 'kinetic pmp (mol/cm2)' set to $1e-013$, 'beta' at 100, and 'kmp (uM)' at 0.2. The 'RunControl' window shows 'Init (mV)' at -65 and 'dt (ms)' at 0.025. Two graphs are shown: 'Graph[0]' displays 'terminal.v(0.5)' with a peak around 1 ms, and 'Graph[1]' shows current traces for 'ica_nacax', 'ica_pmp_cadifpmp', 'ica_3_capump', and 'ica_cachan'.

NEURON Main Menu

- File
- Edit
- Build
- Tools
- Graph
- Vector
- Window

load session

load hoc

load dll

save session

working dir

recent dir

Print

Quit

Close Hide

Synaptic release

- Patch: HH
- Stylized
- Pyramidal
- Release
- Synchronizing net (artificial cells)
- LinearCircuit: Dynamic Clamp
- Stochastic Single Channels: HH
- No model

Temp...

Close Hide

celsius (denCl)

16.3

RunControl

Close Hide

Init (mV) -65

Init & Run

Stop

Continue til (ms) 5

Continue for (ms) 1

Single Step

t (ms) 5

Tstop (ms) 5

dt (ms) 0.025

Ion Fluxes

Close Hide

kinetic pmp (mol/cm2) $1e-013$

beta 100

kmp (uM) 0.2

vmax (mA/cm2) 0

pcabar (cm/s) $2.5e-005$

gnabar (mho/cm2) 0.12

gkbar (mho/cm2) 0.036

Graph[0] x -0.5; 5.5 y -92; 52

Close Hide

terminal.v(0.5)

Graph[1] x -0.5; 5.5 y -0.046; ...

Close Hide

ica_nacax

ica_pmp_cadifpmp

ica_3_capump

ica_cachan

Graph[2] x -0.5; 5.5 y -0.05; 0...

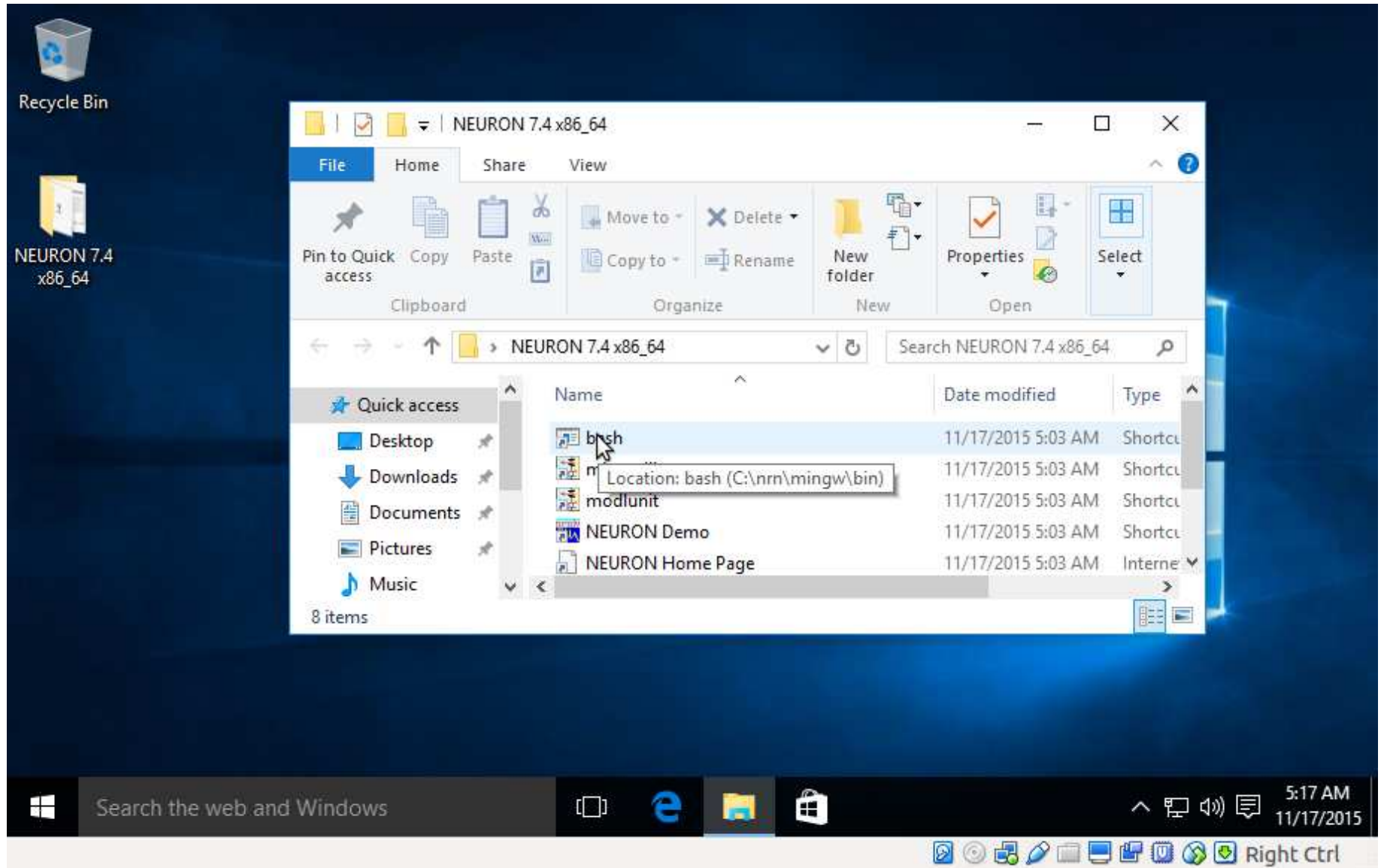
Close Hide

Search the web and Windows

5:15 AM 11/17/2015

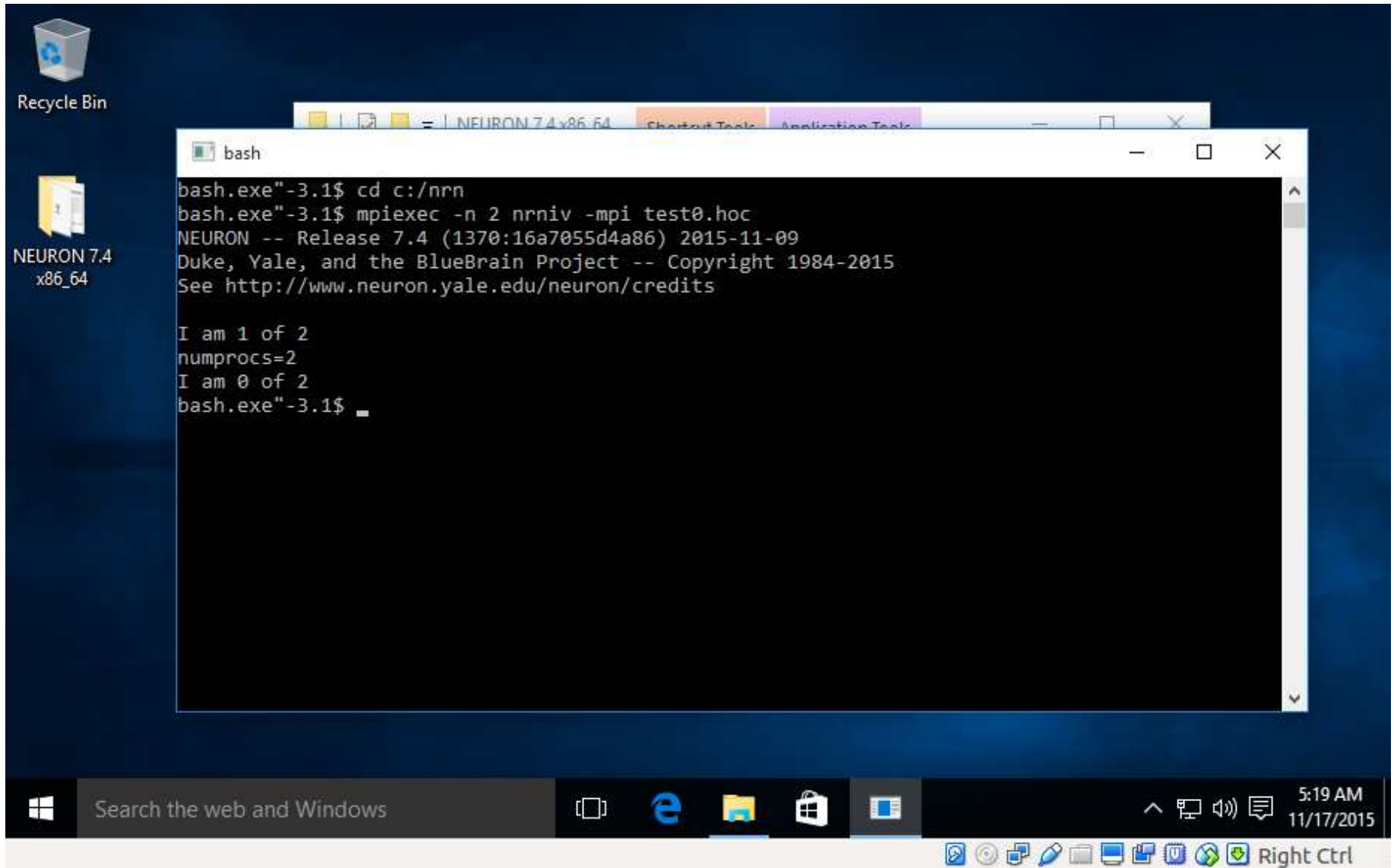
Right Ctrl

Test MPI by starting the bash terminal



MPI works?

```
mpiexec -n 2 nrniv -mpi /c/nrn/test0.hoc
```



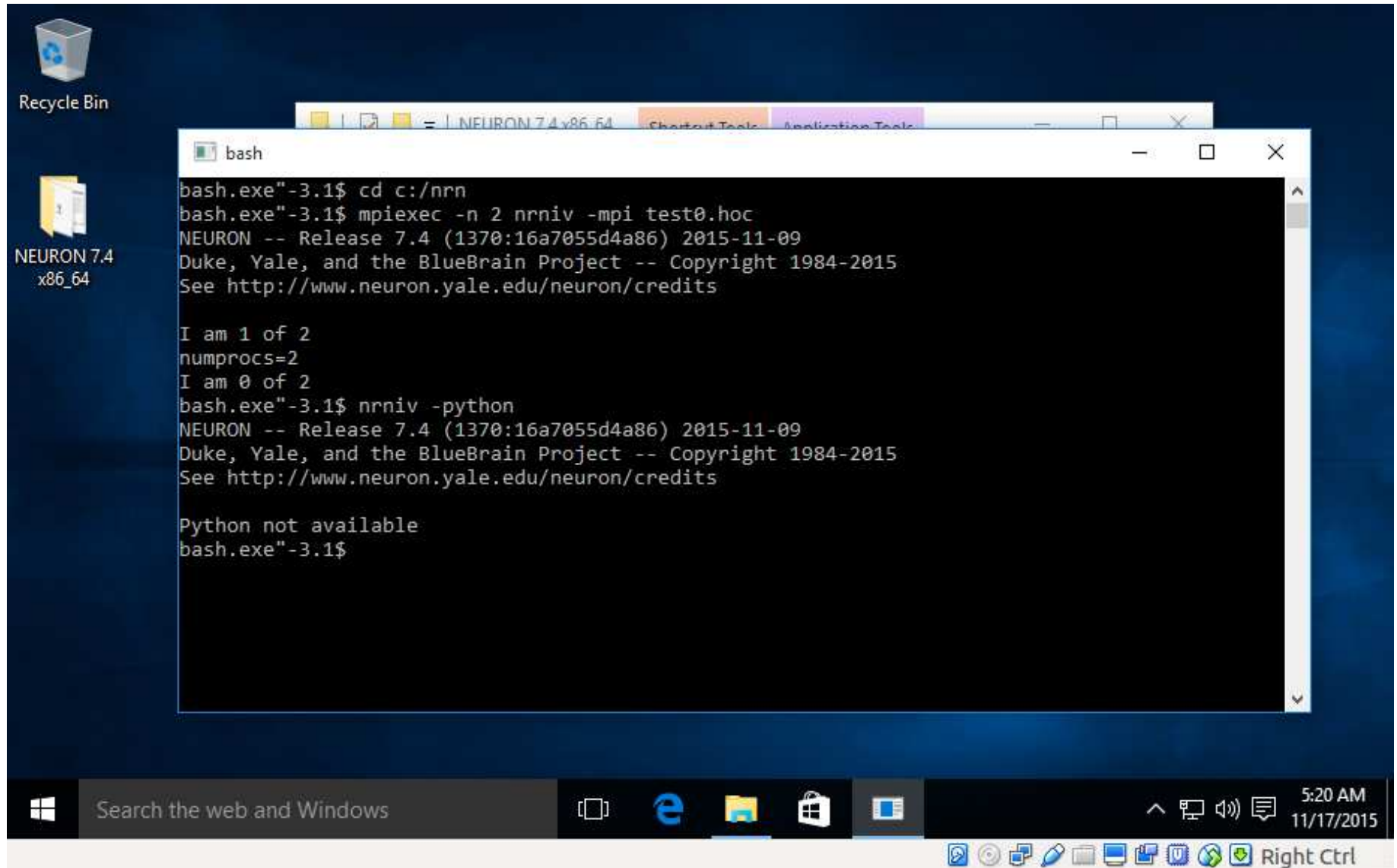
The screenshot shows a Windows desktop with a dark blue background. On the left side, there is a Recycle Bin icon and a folder icon labeled "NEURON 7.4 x86_64". In the center, a terminal window titled "bash" is open, displaying the following text:

```
bash.exe"-3.1$ cd c:/nrn
bash.exe"-3.1$ mpiexec -n 2 nrniv -mpi test0.hoc
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

I am 1 of 2
numprocs=2
I am 0 of 2
bash.exe"-3.1$ _
```

The taskbar at the bottom of the screen shows the Windows logo, a search bar with the text "Search the web and Windows", and several application icons including Internet Explorer, File Explorer, and a terminal window. The system tray on the right shows the time "5:19 AM" and the date "11/17/2015".

... but Python not yet installed.



```
bash
bash.exe"-3.1$ cd c:/nrn
bash.exe"-3.1$ mpiexec -n 2 nrniv -mpi test0.hoc
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

I am 1 of 2
numprocs=2
I am 0 of 2
bash.exe"-3.1$ nrniv -python
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

Python not available
bash.exe"-3.1$
```

Anaconda is an excellent distribution. another is Entthought Canopy

The image shows a Windows desktop environment. On the left side, there are icons for the Recycle Bin and a folder named 'NEURON 7.4 x86_64'. The taskbar at the bottom includes the Start button, a search bar with the text 'Search the web and Windows', and several application icons including Internet Explorer, File Explorer, and a shopping bag icon. The system tray on the right shows the time as 7:16 AM on 11/17/2015, along with volume and network icons. A secondary taskbar at the very bottom contains various utility icons and the text 'Right Ctrl'.

The central focus is a web browser window titled 'anaconda python - Bing'. The address bar shows the URL 'bing.com/search?q=anaconda python'. The search results page displays the following information:

- Search term: anaconda python
- Navigation tabs: Web (selected), Images, Videos, Maps, News, Explore
- Results count: 1,140,000 RESULTS
- Time filter: Any time
- Top result: [Download Anaconda now! | Continuum](https://www.continuum.io/download)
- Result description: Jump to: Windows | OS X | Linux. Get Superpowers with Anaconda. Anaconda is a completely free Python distribution (including for commercial use and redistribution).
- Related links: Why Anaconda?, Continuum Analytics: Doc..., Blog

The browser's address bar at the bottom of the window shows the URL 'https://www.continuum.io/downloads'.

NEURON assumes Python 2.7

Recycle Bin

NEURON 7.4
x86_64

Download Anaconda nc X +

continuum.io/download/

If you don't have time or disk space for the entire distribution, try [Miniconda](#), which contains only conda and Python. Then install just the individual packages you want through the conda command.

Anaconda for Windows

PYTHON 2.7	PYTHON 3.5
Windows 64-bit Graphical Installer	Windows 64-bit Graphical Installer

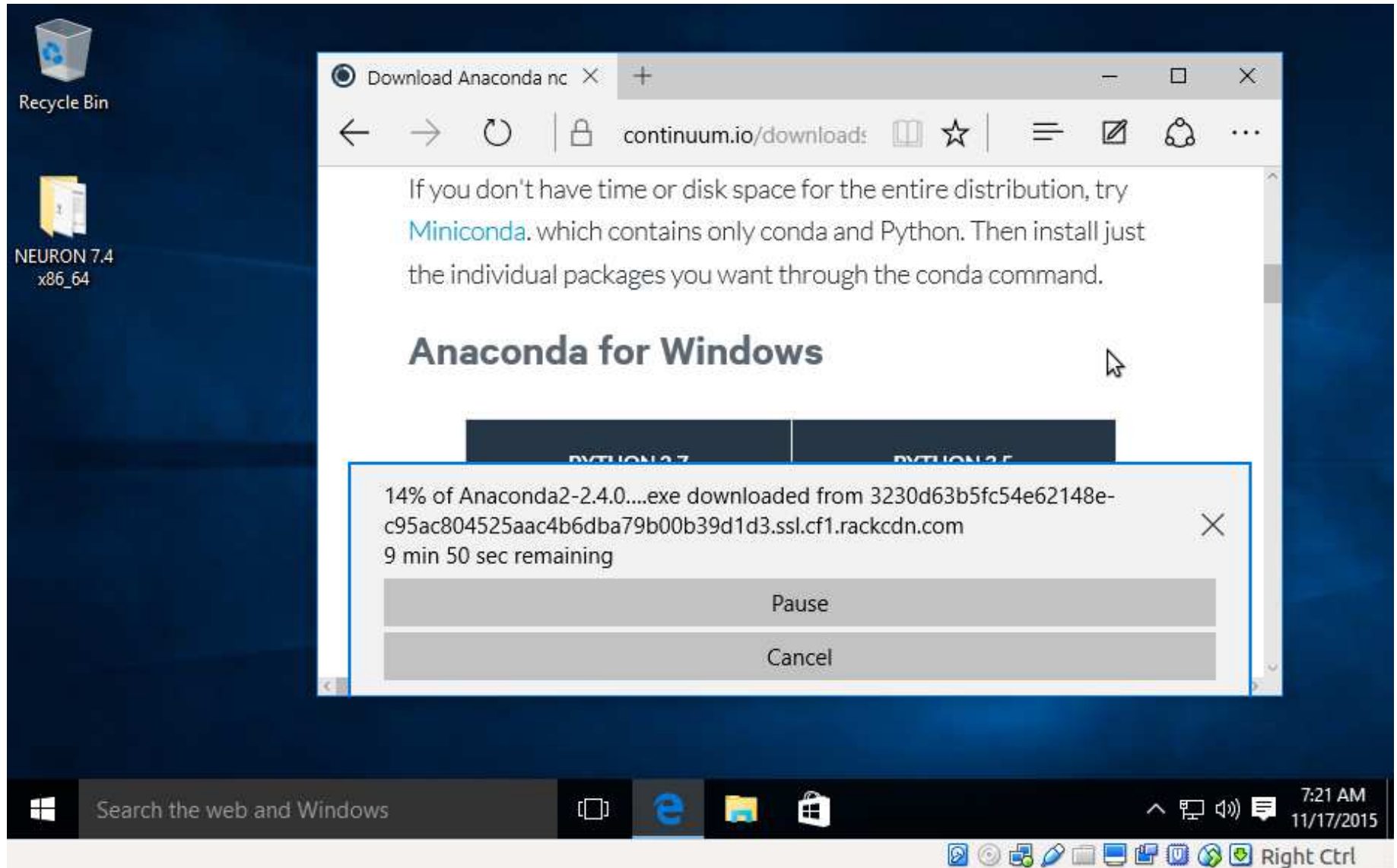
<https://3230d63b5fc54e62148e-c95ac804525aac4b6dba79b00b39d1d3.ssl.cf1.rackcdn.com/A>

Search the web and Windows

7:19 AM
11/17/2015

Right Ctrl

It is a large distribution



Run.. No need to View

The screenshot shows a Windows desktop with a dark blue background. On the left side, there is a Recycle Bin icon and a folder icon labeled "NEURON 7.4 x86_64". In the center, a web browser window is open to the "Download Anaconda" page on continuum.io. The page content includes a paragraph about Miniconda and a section titled "Anaconda for Windows" with two columns for "PYTHON 2.7" and "PYTHON 3.5", each containing a "Windows 64-bit Graphical Installer" button. At the bottom of the browser window, a download notification is displayed: "Anaconda2-2.4.0-Windows-x86_64.exe finished downloading." with "Run" and "View downloads" buttons. The Windows taskbar at the bottom shows the Start button, a search bar, and several application icons. The system tray on the right shows the time as 7:37 AM on 11/17/2015 and a "Right Ctrl" notification.

Download Anaconda nc × + - □ ×

← → ↻ | 🔒 continuum.io/download: 📖 ☆ | ☰ ✎ 🔔 ⋮

If you don't have time or disk space for the entire distribution, try [Miniconda](#), which contains only conda and Python. Then install just the individual packages you want through the conda command.

Anaconda for Windows

PYTHON 2.7	PYTHON 3.5
Windows 64-bit Graphical Installer	Windows 64-bit Graphical Installer

Anaconda2-2.4.0-Windows-x86_64.exe finished downloading. Run View downloads ×

Search the web and Windows

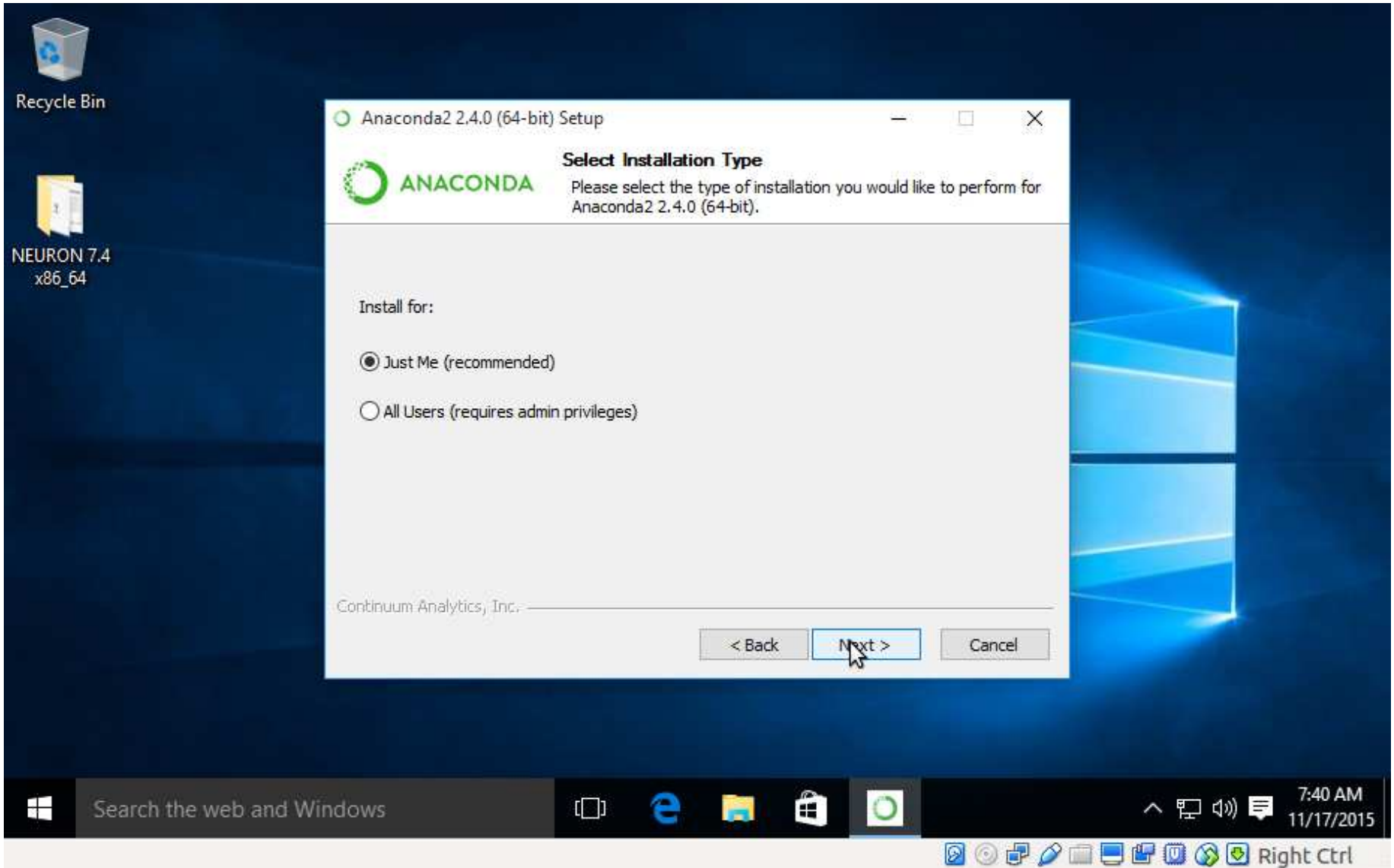
7:37 AM 11/17/2015

Right Ctrl

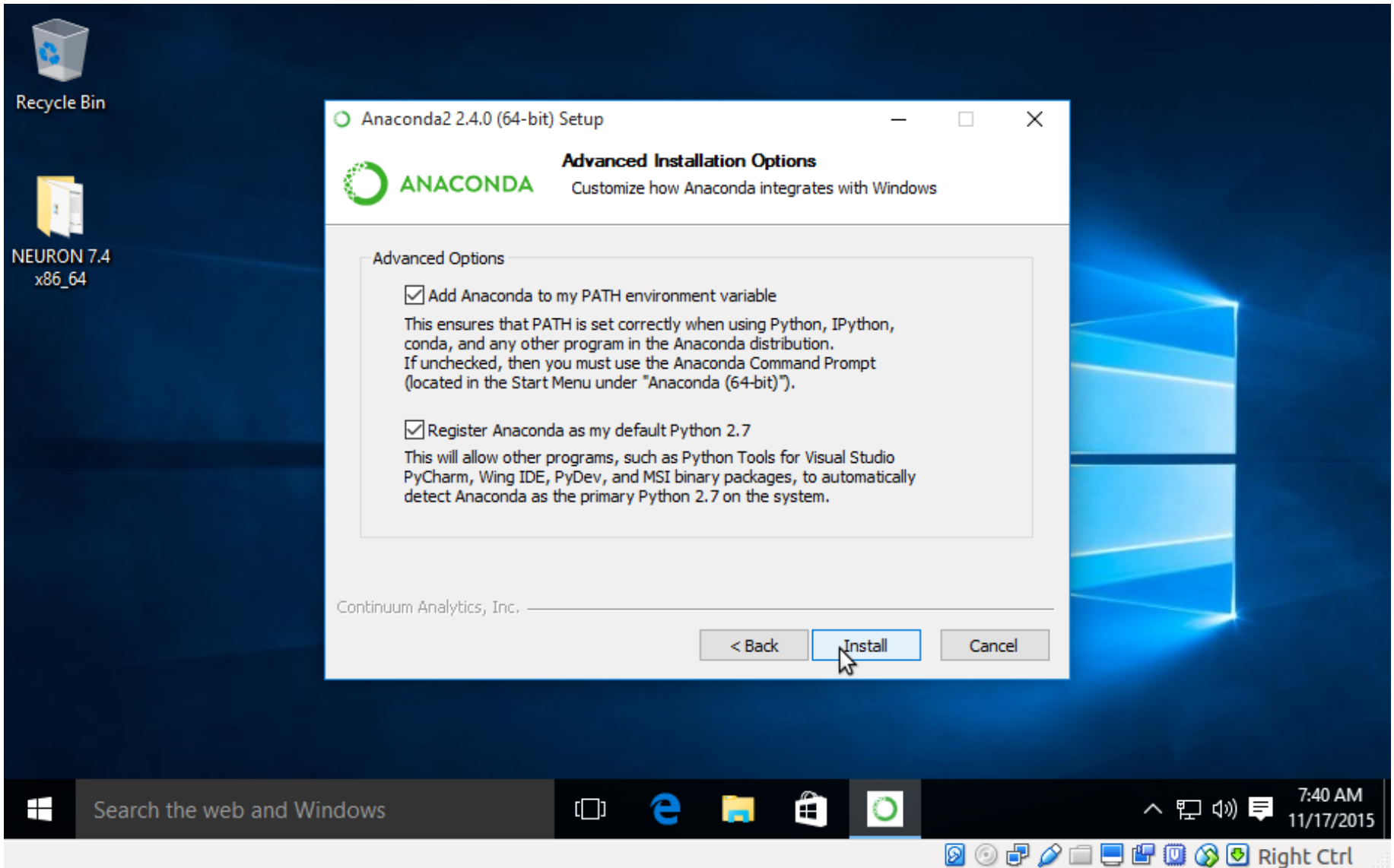
Looks good. Select 'Next'



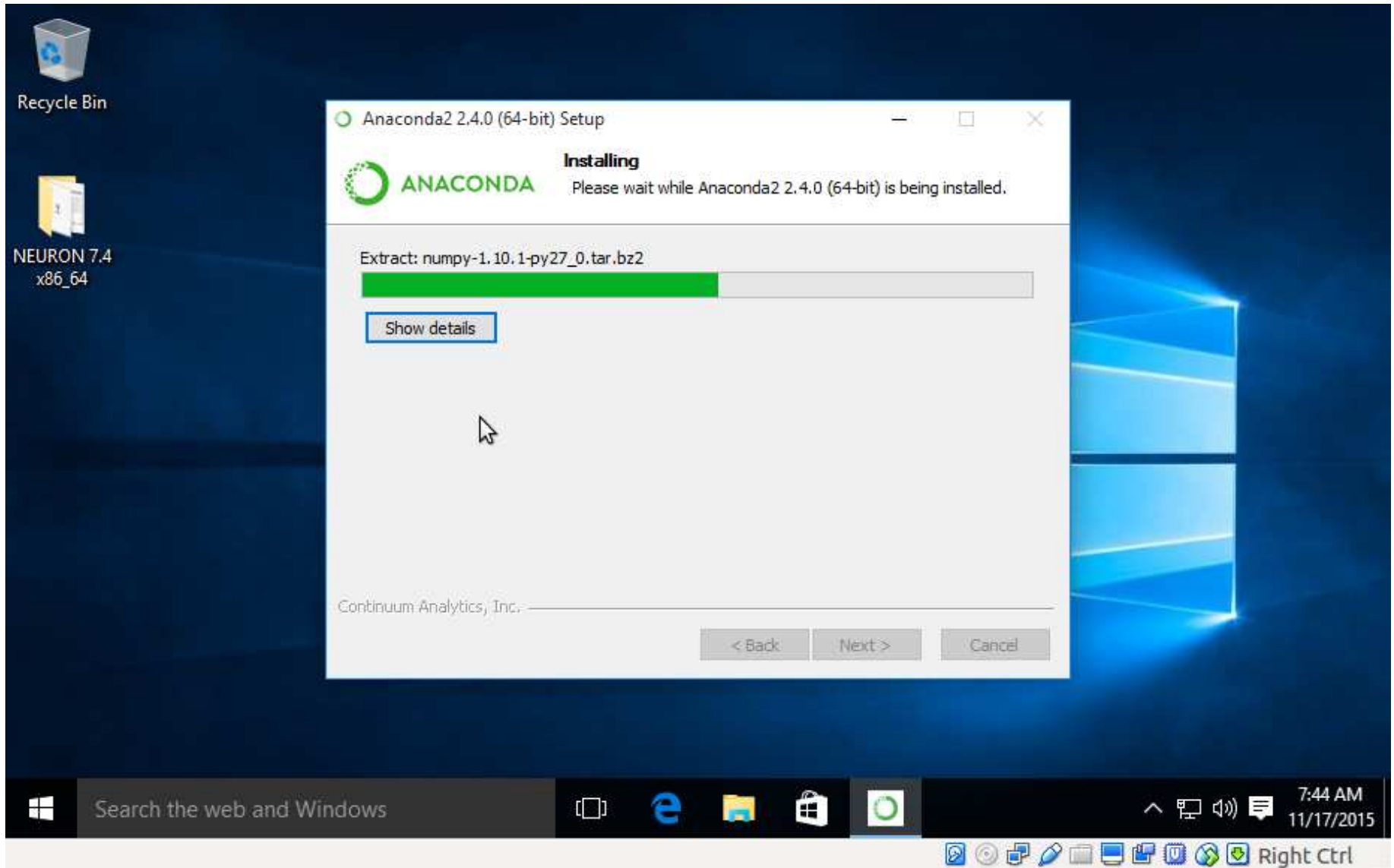
'Just me' is fine



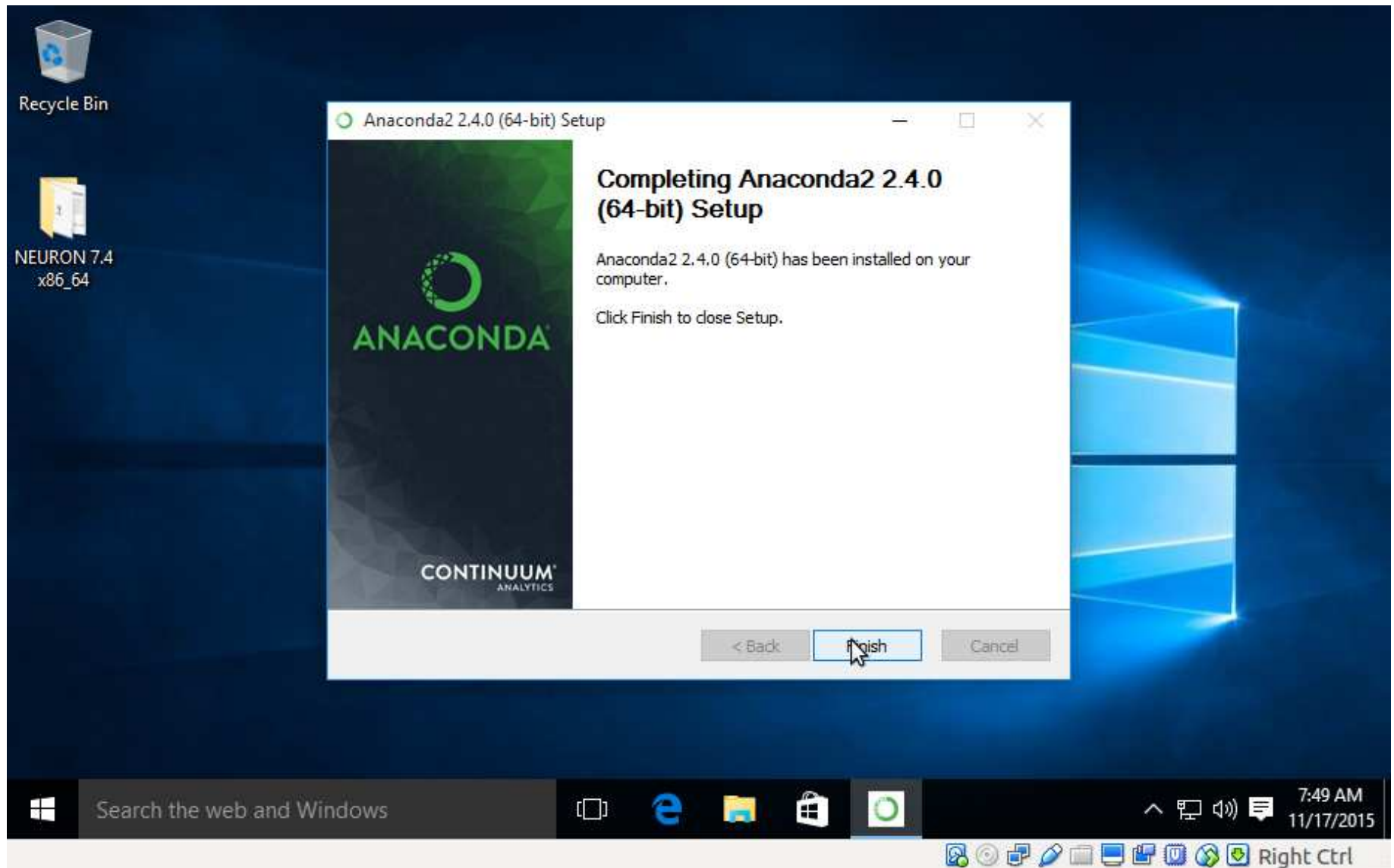
I accepted the defaults.



Takes a fair amount of time to install...

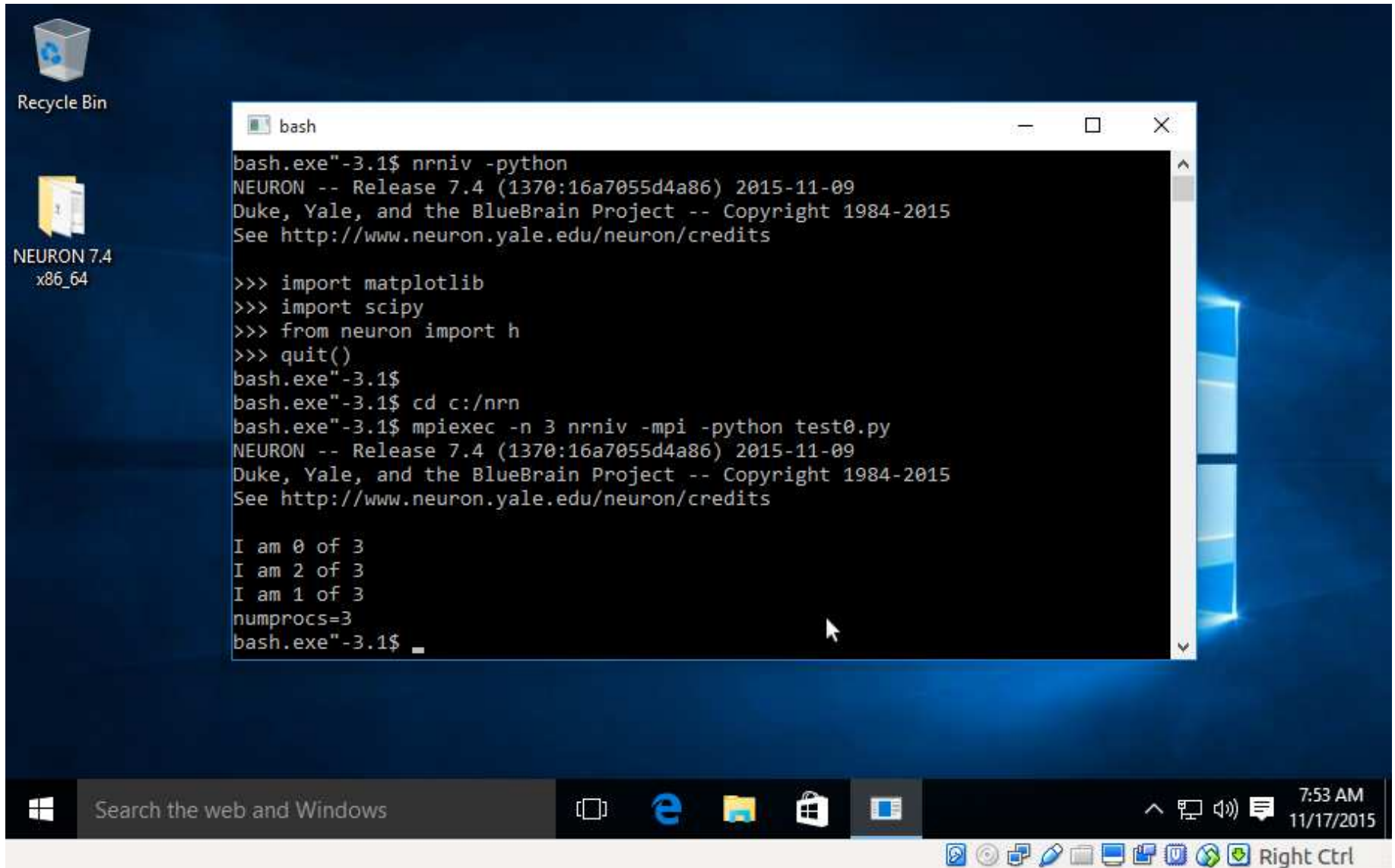


Anaconda installed



NEURON works with Python and MPI

```
mpiexec -n 3 nrniv -mpi -python /c/nrn/test0.py
```



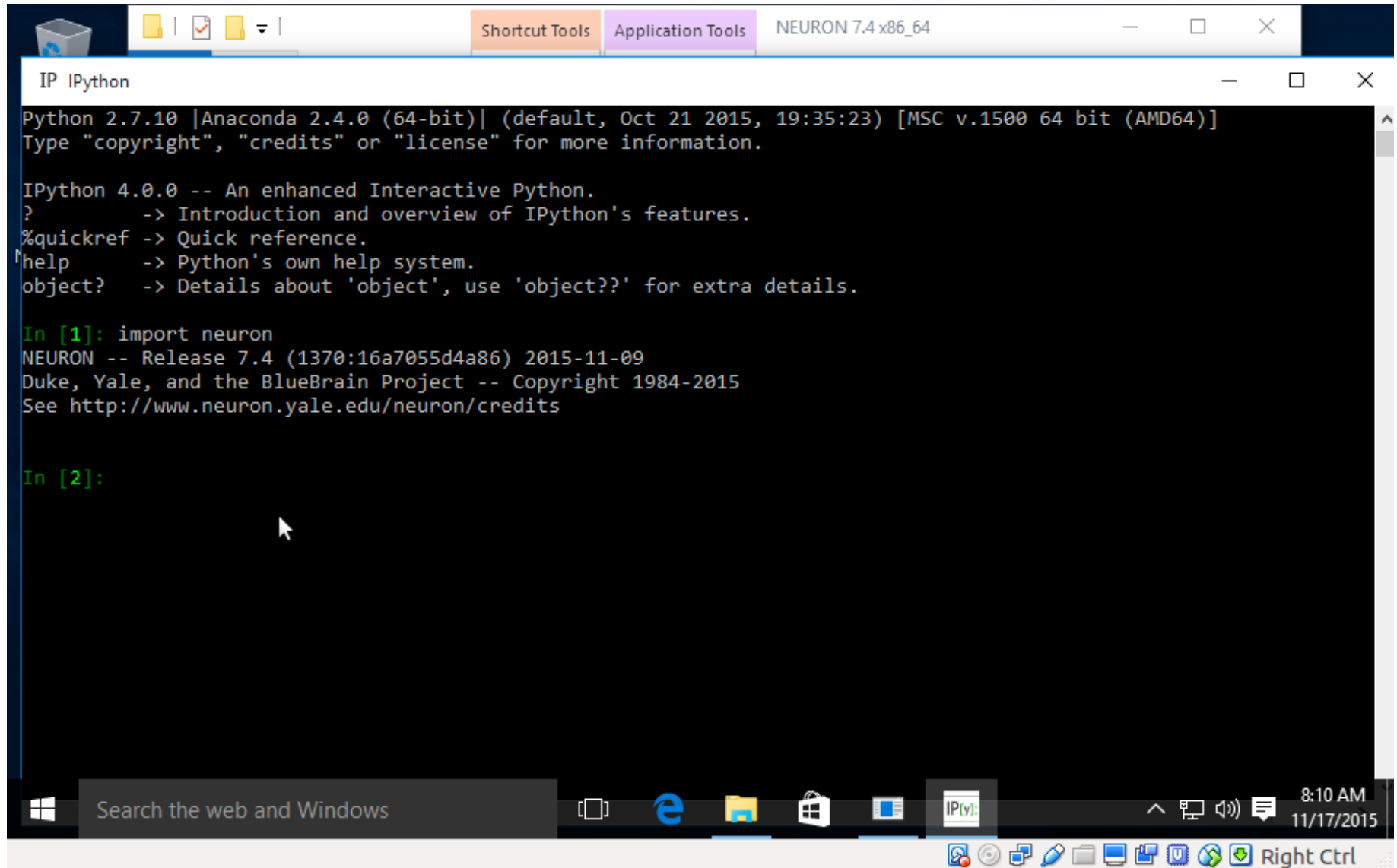
The screenshot shows a Windows desktop with a dark blue background. On the left side, there is a Recycle Bin icon and a folder icon labeled "NEURON 7.4 x86_64". The taskbar at the bottom contains the Start button, a search bar with the text "Search the web and Windows", and several application icons including Internet Explorer, File Explorer, and a terminal window. The terminal window is titled "bash" and contains the following text:

```
bash.exe"-3.1$ nrniv -python
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

>>> import matplotlib
>>> import scipy
>>> from neuron import h
>>> quit()
bash.exe"-3.1$
bash.exe"-3.1$ cd c:/nrn
bash.exe"-3.1$ mpiexec -n 3 nrniv -mpi -python test0.py
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

I am 0 of 3
I am 2 of 3
I am 1 of 3
numprocs=3
bash.exe"-3.1$
```

IPython can import neuron ...but...



```
Python 2.7.10 |Anaconda 2.4.0 (64-bit)| (default, Oct 21 2015, 19:35:23) [MSC v.1500 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

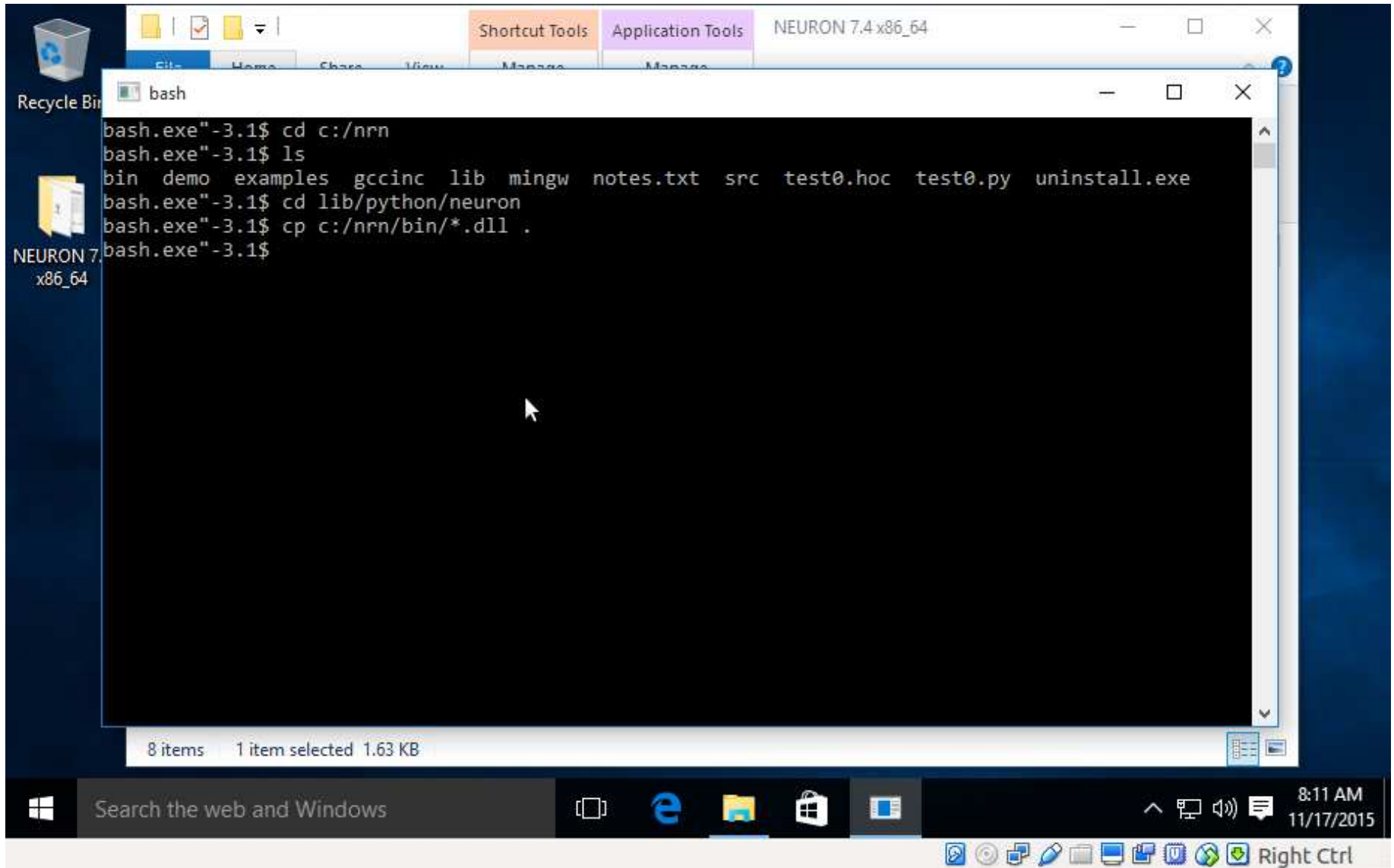
IPython 4.0.0 -- An enhanced Interactive Python.
?          -> Introduction and overview of IPython's features.
%quickref  -> Quick reference.
help       -> Python's own help system.
object?    -> Details about 'object', use 'object??' for extra details.

In [1]: import neuron
NEURON -- Release 7.4 (1370:16a7055d4a86) 2015-11-09
Duke, Yale, and the BlueBrain Project -- Copyright 1984-2015
See http://www.neuron.yale.edu/neuron/credits

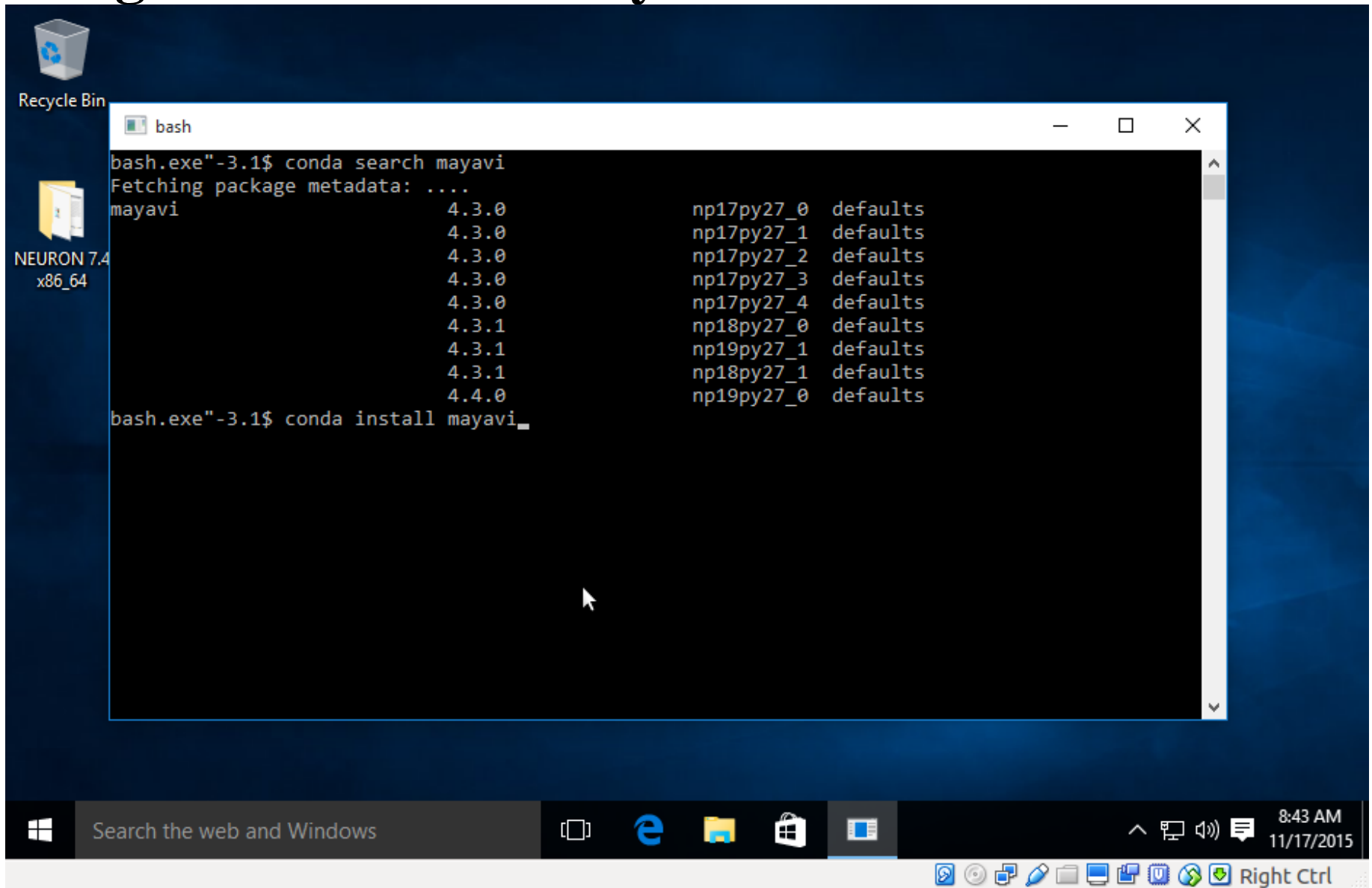
In [2]:
```

you might first need to copy all the dlls.

cp c:/nrn/bin/*.dll c:/nrn/lib/python/neuron



Conda can install many other packages. E.g. conda install mayavi



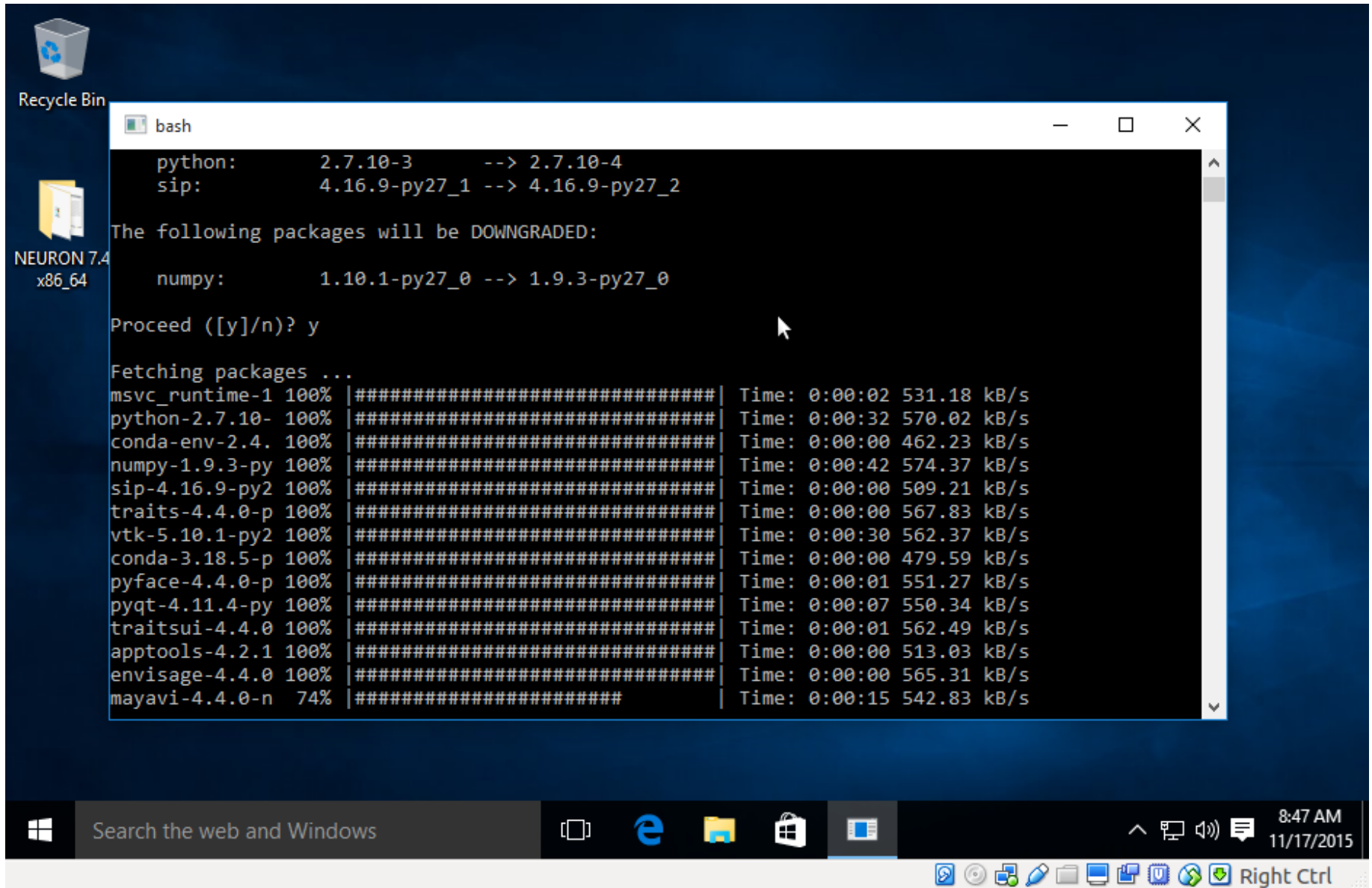
The image shows a Windows desktop environment with a dark blue background. On the left side, there are icons for the Recycle Bin and a folder named 'NEURON 7.4 x86_64'. A terminal window titled 'bash' is open in the center, displaying the following text:

```
bash.exe"-3.1$ conda search mayavi
Fetching package metadata: ....
mayavi                4.3.0                np17py27_0  defaults
                     4.3.0                np17py27_1  defaults
                     4.3.0                np17py27_2  defaults
                     4.3.0                np17py27_3  defaults
                     4.3.0                np17py27_4  defaults
                     4.3.1                np18py27_0  defaults
                     4.3.1                np19py27_1  defaults
                     4.3.1                np18py27_1  defaults
                     4.4.0                np19py27_0  defaults

bash.exe"-3.1$ conda install mayavi_
```

The taskbar at the bottom of the screen includes the Windows logo, a search bar with the text 'Search the web and Windows', and several application icons. The system tray on the right shows the time '8:43 AM' and the date '11/17/2015', along with a 'Right Ctrl' button.

Mayavi is useful for 3-D graphics.



Recycle Bin

NEURON 7.4
x86_64

```
bash
```

```
python:      2.7.10-3      --> 2.7.10-4
sip:         4.16.9-py27_1 --> 4.16.9-py27_2

The following packages will be DOWNGRADED:

numpy:       1.10.1-py27_0 --> 1.9.3-py27_0

Proceed ([y]/n)? y

Fetching packages ...
msvc_runtime-1 100% |#####| Time: 0:00:02 531.18 kB/s
python-2.7.10- 100% |#####| Time: 0:00:32 570.02 kB/s
conda-env-2.4. 100% |#####| Time: 0:00:00 462.23 kB/s
numpy-1.9.3-py 100% |#####| Time: 0:00:42 574.37 kB/s
sip-4.16.9-py2 100% |#####| Time: 0:00:00 509.21 kB/s
traits-4.4.0-p 100% |#####| Time: 0:00:00 567.83 kB/s
vtk-5.10.1-py2 100% |#####| Time: 0:00:30 562.37 kB/s
conda-3.18.5-p 100% |#####| Time: 0:00:00 479.59 kB/s
pyface-4.4.0-p 100% |#####| Time: 0:00:01 551.27 kB/s
pyqt-4.11.4-py 100% |#####| Time: 0:00:07 550.34 kB/s
traitsui-4.4.0 100% |#####| Time: 0:00:01 562.49 kB/s
apptools-4.2.1 100% |#####| Time: 0:00:00 513.03 kB/s
envisage-4.4.0 100% |#####| Time: 0:00:00 565.31 kB/s
mayavi-4.4.0-n 74%   |#####| Time: 0:00:15 542.83 kB/s
```

Search the web and Windows

8:47 AM
11/17/2015

Right Ctrl

from mayavi ... ; barchart(density)

