Installation instructions for Matlab and Octave

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Hello everyone, below are some guides for getting Matlab as well as Octave running on your system, as well as a recommendation and final thoughts section at the end. One of the most valuable skills to have is to be able to code, and one of the most valuable skills to code is to debug. There are an incredible amount programming languages in the market: Matlab/Octave provides a very-fast rapid-prototyping environment for numerical work at the sacrifice of run-speed. But, that is alright, as when your code works well (or rather, you see that it's even possible to do what you're trying to do), that is when you can port it over to C/C++, Python etc.

The only way to learn how to program is get your hands dirty: Get right in and start coding. You can only learn from practice. There is are a few tutorials at the end of the Octave section. Always comment your code since one of the trickiest things in Matlab is whether you are working with a row vector, column vector, or Matrix.

1 Matlab

- The Unbundled Student Version is 49$, the Bundled Version costs 99$ (which comes with some really interesting toolboxes; most notably packages for simulink, control, and optimization). Since we will not be using any specialty toolboxes *in this class*, the unbundled version is sufficient. As to getting the bundled version, just consider whether the extra tool-boxes would be useful for the future classes and projects concerning your major-focus.

- Here is a link to purchase either student version: Matlab Student Version.

- Installation is a breeze on both the Windows and Mac platform. Also, you are a paying customer, so if you run into any problems Mathworks will assist you very quickly.

2 Octave

- Open Source and free, nearly identical to Matblab (they quickly differ with respect to tool-boxes).

- Octave (now) comes with a pre-packaged GUI, and an impressively easy windows installation process.

- Octave has visual breakpoints and debugging features akin to Matlab, which is one of the most valuable tools.

- I do not have access to a Mac; I only tested the installation on windows 10 and it works right-out-of-the-box. I would be happy to test Octave on Mac should a student bring one to me at some point.

- What follows are some installation guides, but with Windows XP, Vista, 7, 8, 10 and the various Mac distributions, the installation guide may not work. Shoot me an email or buy Matlab.

Windows Installation Guide

1. Download the windows *.exe* installer for Octave:
   (a) Go to this link https://www.gnu.org/software/octave/download.html and click the link after "Windows binaries with corresponding source code can be downloaded from". It will take you to a new page.
   (b) Now click the file "octave-4.0.1-installer.exe" (and it will begin to download to your default download folder)

2. Run the installer *.exe* from step 1(b), and tell windows you allow this .exe to be ran upon your computer. Next you will get (at most) two warnings from the Octave installer, each of which can be ignored. The warnings are: i) You are running windows 8 or higher and ii) You don't have java installed. Concerning these warnings:
   - The GUI works fine on windows 10, so warning (i) can be ignored.
   - You want to avoid Java and all of it's security issues, at all costs. (personal opinion) Anyway, java (SDK) is only required if you are going to use java with Octave; something which we won't be doing, so step (ii) can definitely be ignored.

3. Now, everything in the wizard is pre-set, just accept the open-source license and use all of the default, pre-filled-in checkboxes and installation locations (like shortcuts to the desktop, associating .m files etc). What follows is a step-by-step guide
   (a) Welcome Screen, hit next.
   (b) License Screen, hit next.
   (c) Checkboxes and a dropdown leave them in their pre-filled form (although if you already have Matlab, you may not want to associate .m files with Octave); hit next.
   (d) Installation Location, sure it's fine; hit next
   (e) Now the wizard is installing everything...just wait
   (f) Completion Screen with two checkboxes marked (run Octave and view readme), just hit finish: the Octave GUI (graphical user interface) will now run.

   The first time the Octave GUI is ran, a wizard appears:

(a) Welcome Screen: Telling you that a config file is going to be built; this is so each user can customize the GUI; click next.

(b) Octave asks if Octave may be allowed to access the internet to give you "news": You might not want that feature, I certainly did not. Un-check this checkbox and click next.

(c) A conclusion screen; click finish

Now, if all went well the Octave GUI is now running. On your desktop are two icons: Octave (CLI) and Octave (GUI). The first is just a command line interface, and the second is the graphical user interface; I recomend using the latter, as the GUI has a built-in command line interface (useful for debugging, testing snippets of code, and displaying values–e.g.:t(end) where t is a vector). Check some tutorials on Octave; try this one

Mac Installation Guide

1. Installation via Homebrew looks to be the most reasonable option. Here is a link to the discussion Installing Octave for Mac Via Homebrew.

3 Tutorials

Matlab vs Octave tutorials? Well, they are so similar concerning their base function set that a tutorial in either is just fine. Maybe start with the Octave one, as it's quite introductory.

- Matlab Online Tutorial

- Octave Online Tutorial

A Recommendation form Harleigh If you like Octave, please by all means use Octave, and there is no need to purchase Matlab. I can provide help with both Matlab and Octave; neither group will be at any disadvantage. Concerning Matlab, I own the unbundled version. As for bundled or unbundled? I am sure the control and signals processing toolboxes will be useful for anyone planning on taking control classes offered by both the computer engineering and AMS departments. The symbolic toolbox will be useful for this class, though I have never used it. Throughout your major's coursework, there are a few textbooks worth keeping as they are great references (this classes text is one of them, AMS 20's text is as well). Matlab is no different in this respect: I am sure you will get plenty of use out of it to justify the cost. And, having your own personal copy (with multiple licenses, so you can install it on both your laptop and tower, should you have both) is just fantastic; you will get years of use from the software. Also, I use a proprietary numerical optimization package which only works in Matlab, which is the number one reason I currently use Matlab and not Octave.