

Principles of Robot Autonomy I

Section Logistics

Sections

- Modeled after sections in CS 106A/B/X/L
- Provide hands-on experience for commonly-used tools in robotics
 - AKA tools you'll be using for your homework and final projects
- Taking feedback from previous years to heart

Section Logistics

- First 15-30 minutes will be a presentation about the aims of the section, references, and a description of the hands-on activity you'll be doing
- Rest of the time (1.5+ hours) will be for you and a partner (your tablemate) to complete the hands-on activity
- There'll be a google form at the end of the handout where you submit your results

Do I have to stay the whole time?

- Once you complete the activity and submit your results, you can leave

Do I have to arrive on time?

- Yes
- ... unless you have an overlapping class conflict. In that case, you should still arrive ASAP and make a group with someone else that is arriving similarly late
 - If you're *the only one* that arrives late, then you can join an existing group
- Section slides and the activity handout will be posted online, so you can still catch up
- However, we *will not* stay after hours

Questions about Section Logistics?

Principles of Robot Autonomy I

Section 1: Introduction to Python2.7, Git, and Installing VMs

Aims

- Install Ubuntu virtual machine (VM) locally
 - Will be very useful for interfacing with your robots later!
- Learn how to use Git for version control
- Start working with Python 2.7 and some of its most common packages

Docker

- Docker is a lightweight application that runs software in **containers**
- A **container** is a standalone unit of software that “contains code and all its dependencies so the application runs quickly and reliably from one computing environment to another”
- In case you don’t have a Linux-based machine, it comes with a Linux OS and uses it to run these containers
- More information available at:
<https://www.docker.com/resources/what-container>

Git

- Popular source code version control system
- You probably already use it!
 - Github, BitBucket, etc. all support Git
- Replaces the days of
 - Important_doc.docx
 - Important_doc_v2.docx
 - Important_doc_final.docx
 - Important_doc_final2.docx
 - Important_doc_final2_USE_THIS_ONE.docx

Python 2.7

- We assume you already have some programming experience at the level of CS 106A
- As a result, rather than providing a full-blown tutorial about Python, we'll direct you to last year's Python + NumPy tutorial (hands-on!)
- It can be found online at:
http://asl.stanford.edu/aa274_win1819/pdfs/recitation/Tut3_NumPy.pdf

Section 1

- Focuses on Python and common use-cases for it in this course
- We'll ask you to perform a few basic mathematical operations and plot the results