Artificial Intelligence (CS303) Lab Courses

Lab 0: Introduction

Outline of this lab

- Project Information of CS303

- Course Arrangement

- Course Requirements

Project Information of CS303

- 4 Projects, roughly:
    - The first 3 have 3 labs each
    - Phase inspection (阶段性检查)

- Knowledge Involved
    - Problem Solving
    - Uncertain Knowledge and Reasoning
    - Machine Learning

Course Arrangement

- Explain the realization of the main algorithm in the theoretical study

- Collect common questions in projects and explain

- Share design ideas, experience, etc

Course Requirements

- Students should have basic independent programming skills

- Students should think deeply about algorithms and have the ability to apply algorithms and improve them.

- All project reports must be written according to the report template.

- Students should not copy other students' codes or seniors' reports. Once found, you or both will get 0 points. Please think twice when you plan to share.

Programming Language

- We Use Python in Our Project
    - Easy Syntax, Readability, High-Level Language, object oriented programming, free, etc.

- NumPy Package
    - fundamental package for scientific computing
    - It contains among other things:
        - a powerful N-dimensional array object
        - sophisticated (broadcasting) functions
        - tools for integrating C/C++ and Fortran code
        - useful linear algebra, Fourier transform, and random number capabilities
        - http://www.numpy.org/

Report Template

Title (e.g., Report for Project xxx)

Name

ID

1. Preliminaries

Describe any algorithm, software or codes that is used in your project.

2. Methodology

Describe the details of your representation/algorithm/architecture, etc.

3. Empirical Verification

Describe the experiments that you conducted to test/verify the quality of your program. This may include (but not limit to) the following:

- How were the experiments designed?
- What data did you use?
- How did you measure the performance?
- Experimental results
- Did the results meet your expectation about the program? Why or why not?

4. References

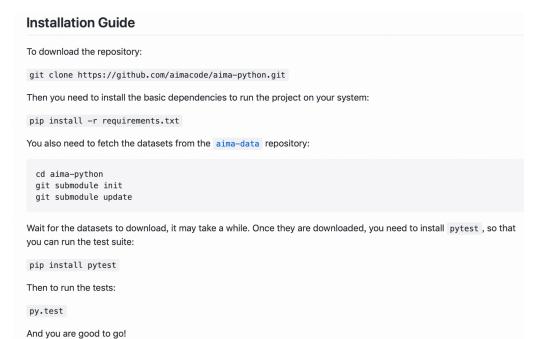List the references, please follow the IEEE format to prepare your references. The IEEE format can be found at:

http://ieeeauthorcenter.ieee.org/create-your-ieee-article/use-authoring-tools-and-ieee-article-templates/ieee-article-templates/templates-for-transactions/

Course Website and Available Code

- The website for this course: http://aima.cs.berkeley.edu

- Relevant code available at : https://github.com/aimacode

  support for multiple languages: python, java, javascript and so onA

- aima-python Installation

Installation Guide

To download the repository:

`git clone https://github.com/aimacode/aima-python.git`

Then you need to install the basic dependencies to run the project on your system:

`pip install -r requirements.txt`

You also need to fetch the datasets from the `aima-data` repository:

```
cd aima-python
git submodule init
git submodule update
```

Wait for the datasets to download, it may take a while. Once they are downloaded, you need to install `pytest`, so that you can run the test suite:

`pip install pytest`

Then to run the tests:

`py.test`

And you are good to go!

Advice for Study

- When you need to understand the knowledge points in the book, you can run the demo and read some related code.

- Seriously do every project in the computer class
    - Ps: The lab topics in the computer class are the topics of the current frontiers of articial intelligence. I hope everyone can think deeply.

Quick Start with Python

- https://learnxinyminutes.com/docs/python3/

- You can install python with anaconda which is a package manager
  https://www.anaconda.com/download/

- Python IDE: PyCharm
  https://www.jetbrains.com/pycharm/download/#section=mac

Teaching Assistant

- Yanglong Yu (喻杨龙),

- Fu Peng (彭福),

- We will try our best to help you, but not about debugging, etc.