AI LAB Instruction

AI Lab tutors & SAs

▶ https://bb.sustech.edu.cn/webapps/blackboard/content/listContentEditable.jsp?content_id=_468934_1&course_id=_6420_1&mode=reset

Outline

PROJECT INFORMATION

COURSE REQUIREMENTS

COURSE ARRANGEMENT

Project Information

3 Projects, roughly:

- Project 1: Information Exposure Maximization
  - Heuristic algorithm
  - Evolutionary algorithm (or Simulated Annealing algorithm)
- Project 2: Image Classification and Retrieval
- Project 3: Recommendation System

Course Structure

Lectures: 3 sections

- Problem Solving: AI as *search*
- Learning: *gain experience/knowledge* from data
- Knowledge and Reasoning: represent human knowledge *logically*.

Projects: 3 near-industry/academia-level projects

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' or senior students' codes and reports. Once found, it will be dealt with in strict accordance with the Plagiarism policy. Please think twice when you plan to share.

Plagiarism Policy

From Spring 2024, the plagiarism policy applied by the Computer Science and Engineering department is the following:

▶ If plagiarism is found in a student's assignments, course projects, or exams, the corresponding assignment, course project, or exam will receive a score of 0; If the same student is found to have plagiarized for the second time in the same course, the grade for that course will be 0 points.

▶ * If a student does not sign the Declaration Form or cheats in the course, including regular assignments, midterms, final exams, etc., in addition to the grade penalty, the student **will not be allowed to** enroll in the two CS majors through 1+3 mode, and **cannot receive any recommendation for postgraduate admission exam exemption and all other academic awards.**

Plagiarism Policy

▶ As it may be difficult to determine who actually wrote it when two assignments are identical or nearly identical, the policy will **apply to BOTH students**, unless one confesses having copied without the other knowing (**uploading your code to public sites like GitHub is considered as one having the knowledge**).

What is OK, and what isn't OK?

- It's OK to work on an assignment with a friend, and think together about the program structure, share ideas and even the global logic. At the time of actually writing the code, you should write it alone.

- It's OK to use in an assignment a piece of code found on the web, as long as you indicate in a comment where it was found and don't claim it as your own work.

- It's OK to help friends debug their programs (you'll probably learn a lot yourself by doing so).

- It's OK to show your code to friends to explain the logic, as long as the friends write their code on their own later.

- **It's NOT OK to take the code of a friend, make a few cosmetic changes (comments, some variable names) and pass it as your own work.**

No excuse will be accepted once plagiarism is discovered!

Assignment 0

Please submit **Assignment 0** (**Assignment Declaration Form**) to Blackboard **before the deadline：10/8/2024 22:00** , otherwise you will lose all points for class performance.

Course Arrangement

- ▶ Explain the information for each project and share useful materials

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

- ▶ Collect common questions in projects and explain

- ▶ Share design ideas, experience, etc

Practice

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/

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 on

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 artificial intelligence. I hope everyone can think deeply.

Quick Start with Python

▶ You can install python with anaconda which is a package manager

https://www.anaconda.com/download/

Install anaconda video: python_install.mkv

▶ Python IDE: PyCharm

https://www.jetbrains.com/pycharm/download/?section=windows

or

https://www.jetbrains.com/pycharm/download/#section=mac

Quick Start with Python

▶ https://learnxinyminutes.com/docs/python3/ or learnpython.py

▶ learnnumpy.ipynb

▶ Python Q&A.pdf

Practice1

- 2 Parts:
  - Python practice (0.5 points)
  - Numpy practice (0.5 points)
- DDL: Oct.8

The practice will be checked in this lab class or the next lab classes (before **Oct.8**) by teachers or SAs.

What will be tested:

- ✓ That you understand every line of your code, not just copy from somewhere
- ✓ That your program compiles correctly
- ✓ Correctness of the program logic
- ✓ That the result is obtained in a reasonable time

Grading:

- ✓ Submissions in this lab class: 1.1 points.
- ✓ Submissions on time: 1 point.
- ✓ Late submissions within 2 weeks after the deadline (before Oct.22) : 0.8 points.