COL333/671: Introduction to AI
Semester I, 2021

Course Introduction

Rohan Paul

Course Information

- Name
  - COL333: Introduction to Artificial Intelligence (UG)
  - COL671: Bridge course (PG)
  - Credits: 4
  - LTP: 3-0-2
- Slot F
  - Tuesday, Thursday, Friday. 11:00 – 11:50am.

Teaching Team

- Instructor
  - Rohan Paul
  - Email: rohan@cse.iitd.ac.in
  - Website: https://www.cse.iitd.ac.in/~rohanpaul/teaching
- Teaching Assistants
  - Aditya Senthilnathan
  - Shreya Sharma
  - Chintan Sanjaybhai Sheth
  - Aadish Jain
  - Namasivayam K
  - Siddharth Shrivastava
  - Prayushi Faldu

Teaching Mode

- Lectures
  - Microsoft Teams account created by the institute as per registration.
  - Combination of live sessions and asynchronous recorded material.
  - Class recordings will be made available on Impartus.
  - Any slide material will be made available.
  - Extra teaching days may be utilized (discretionary and with prior notification).

- Communication
  - Class mailing lists setup by admin.
  - Piazza signup link: piazza.com/iit_delhi/fall2021/col333col671 access code col333col671

Who should take this course?

- Relevant Background
  - Introduction to Programming COL100
  - Data structures COL106
  - Recommended: Algorithms, Probability and statistics, Logic.

Books and References

- Primary Reference
  - Artificial Intelligence: A Modern Approach (3rd Edition). Russell, Stuart J., and Peter Norvig. Link.

- Secondary Reference
  - Reinforcement Learning (Second Edition). Richard Sutton and Andrew Barto. MIT Press. 2018. Online.
  - Deep Learning. Ian Goodfellow, Yoshua Bengio and Aaron Courville. Online.

Evaluation Criteria (Tentative)

- Examination component: 60%

- Practical Component: 40%

- Margin: ~10% (discretionary)

Requirements

- Pass Criteria for Credit
  - 30% of the total score in the course

- Criteria for Audit Pass (NP)
  - 40% of the total score in the course with 30% in the examination component and 30% in the practical component

- Class Attendance
  - Class attendance is encouraged but not included in the evaluation.
  - Clarifications will be provided only in class. The student is requested to track announcements and clarifications given in class.

Assignments

- Detailed instructions will be provided for each assignment.
- The submission time will typically be 5pm.
- Please ensure access to Moodle.
- Any delays beyond the submission time will result in late penalty of X% per day (from the submission time). Typically, X is 10%
- No deadline extensions please.
- Requests to resubmit an evaluation for grace marks after deadline is not permitted.
- Python proficiency expected.

Exams

- Likely to be in the online mode as per university guidelines.
- Information regarding exam logistics will be provided before the exam.
- Ensure familiarity with Moodle and Gradescope.

Other Emergencies

- Requests for late submissions or re-appearing in an exam on the grounds of medical emergencies must be accompanied with a medical certificate from a qualified doctor indicating that you were unwell in the period of submission and a proof of prescription.

- Provided to the TA before the submission deadline not afterwards.

- Any other requests on other grounds such as law and order, basic infrastructure must be accompanied with written proof.
    - Formal proof and verification is necessary for consideration of any such requests.
    - Any decision will be taken on those as per institute guidelines and consideration of the documents. The documents may be submitted in the Department as per institute guidelines.

- Any request to appear in the re-minor will require formal proof that you were unwell or exceptional circumstances prevailed during the minor due to which you could not appear. The proof will be used by the Department and the Dean to decide if a re-minor will be permitted on not.

Academic Integrity

- <u>Please</u> listen to your conscience. <u>Please</u> do not cheat.
  - Please write code or other written submissions from scratch independently. Sharing of code or parts of it or posting it online will constitute a violation of the honor code.
  - Only submit work from your own efforts. Do not look at or refer to code written by anyone else. You may discuss the problem, however the code implementation must be original. Discussion will <u>not</u> be grounds to justify software plagiarism.
  - Code similarity s/w e.g., MOSS may be used check plagiarism in code and results may be released. The assessment and handling of plagiarism is the Department's prerogative.
  - Submission of code written by some one else or form internet sources will be excluded from any evaluation.

Honor Code Violations

- We are <u>duty bound</u> to follow the disciplinary procedures of the Department and the Institute in this regard.

- Plagiarism in assignment/exam will result in zero in the assignment/exam and an additional penalty on an absolute scale (at least -10 absolute). Department and institute procedures such as DISCO and an F-grade will follow.

- Copying or cheating in even a <u>sub-part</u> of an assignment or an exam will be counted as plagiarism in the <u>whole</u> assignment/exam. The whole assignment and exam will be made void with additional penalties and Dept. procedures.

- In case an assignment allows working in pairs, both students will receive penalty even if only one student may be involved.

- Names will be released/forwarded to the Dept. and the institute as per guidelines. Information will be shared with other faculty members for future courses and projects.

Course Organization

Topic list is tentative and will be updated as the lectures are presented.

Topics (tentative)
Introduction
Problem solving as search
Game Playing (adversarial search)
Constraint Satisfaction
Probabilistic Reasoning
Learning and Neural Networks
Markov Decision Processes
Reinforcement Learning
Advanced topics
Conclusions
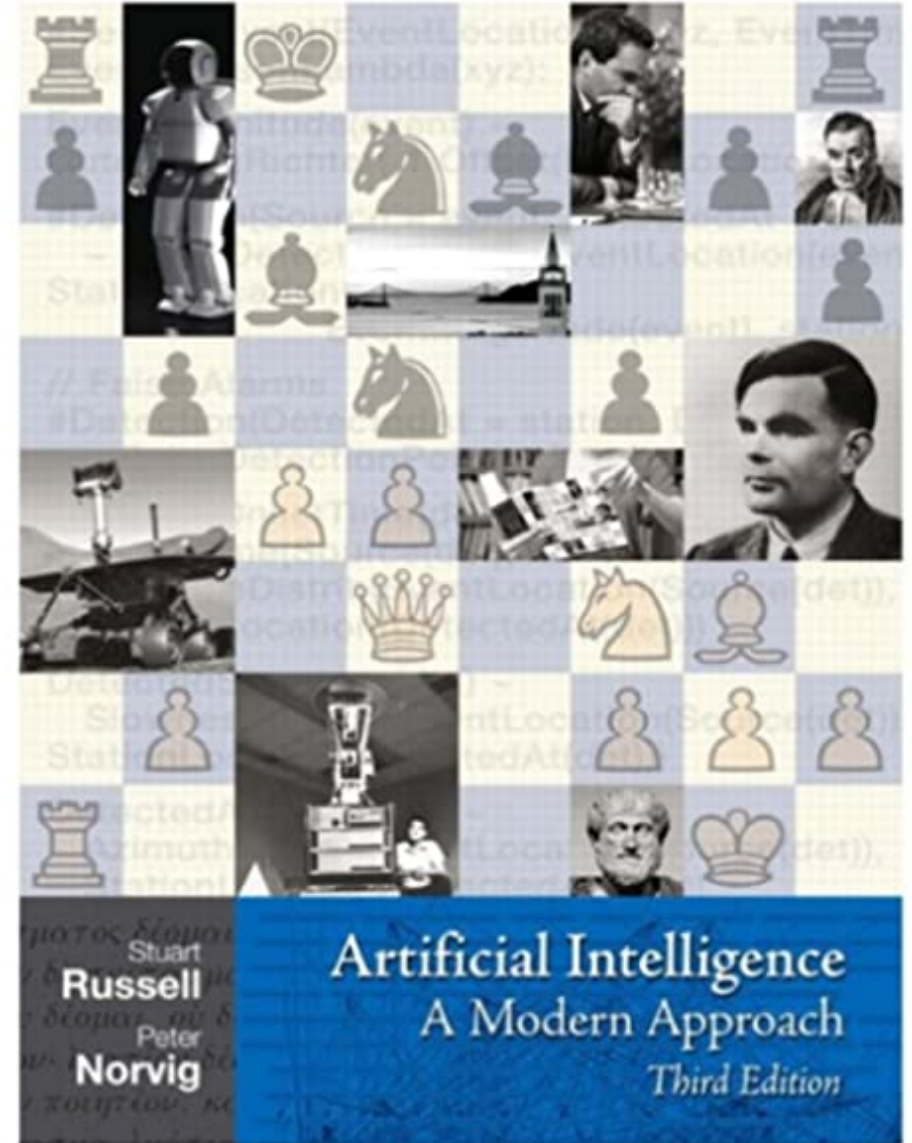
Course Objectives

- Understand the fundamental concepts in AI.
- Develop insights, *why is this a good model for a problem or why is this technique applicable here?*
- Some applications.
- Acquire a toolkit to model and solve problems using AI techniques.
- Preparation for advanced courses and research projects.

End of the course

- Foundation for related and advanced courses.

- Models-Inference-Learning paradigm.

- Recognize real-world applications where AI modeling can be applied.

- A toolkit for independent investigation in this area.

- Exciting area where many advances are taking place.

Next Time

- This Class
  - Course logistics
- Next Class
  - Introduction to AI.