CAP 379
ARTIFICIAL INTELIGENCE LABORATORY

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Course Outcome

CO1 ::: : discuss the role of Python in AI

CO2 :: apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.

CO3 :: demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.

CO4 :: analyze different datasets using different machine learning algorithms

Text Books and References

TEXT BOOK:

Prolog Programming for Artificial Intelligence by Ivan Bratko

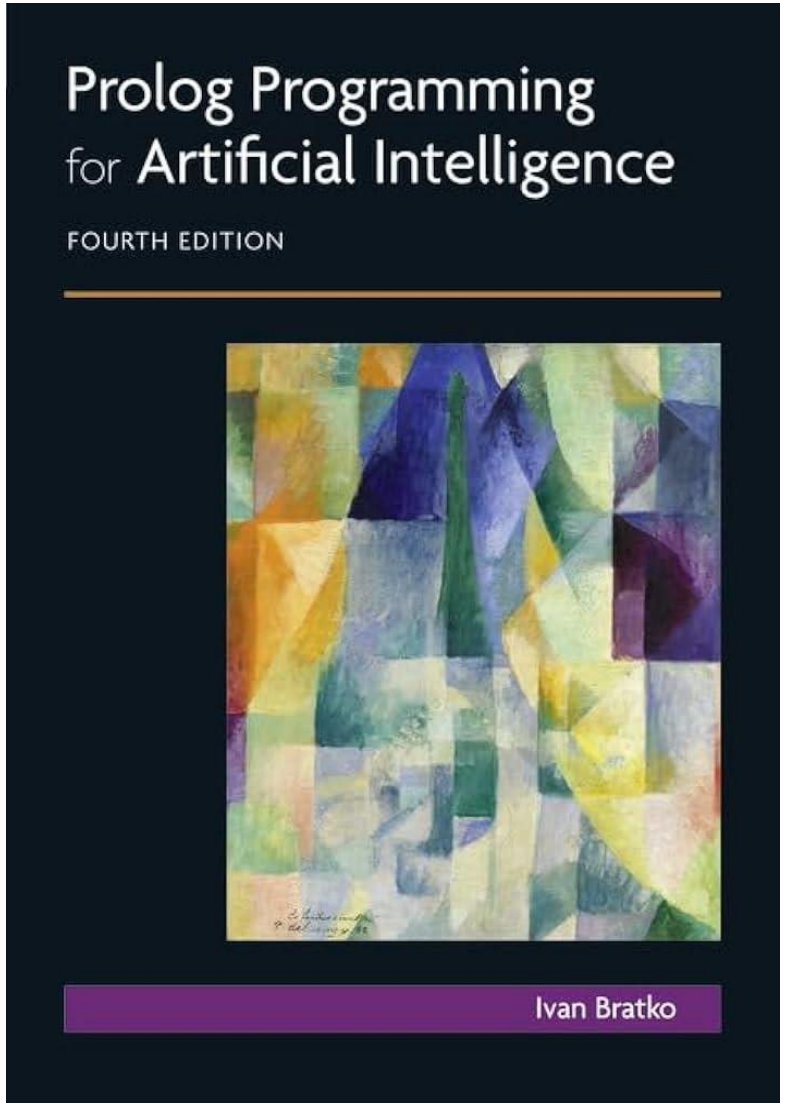
REFERENCES:

The Art of Prolog by Leon Sterling and Ehud Shapiro, MIT Press

Text Book:

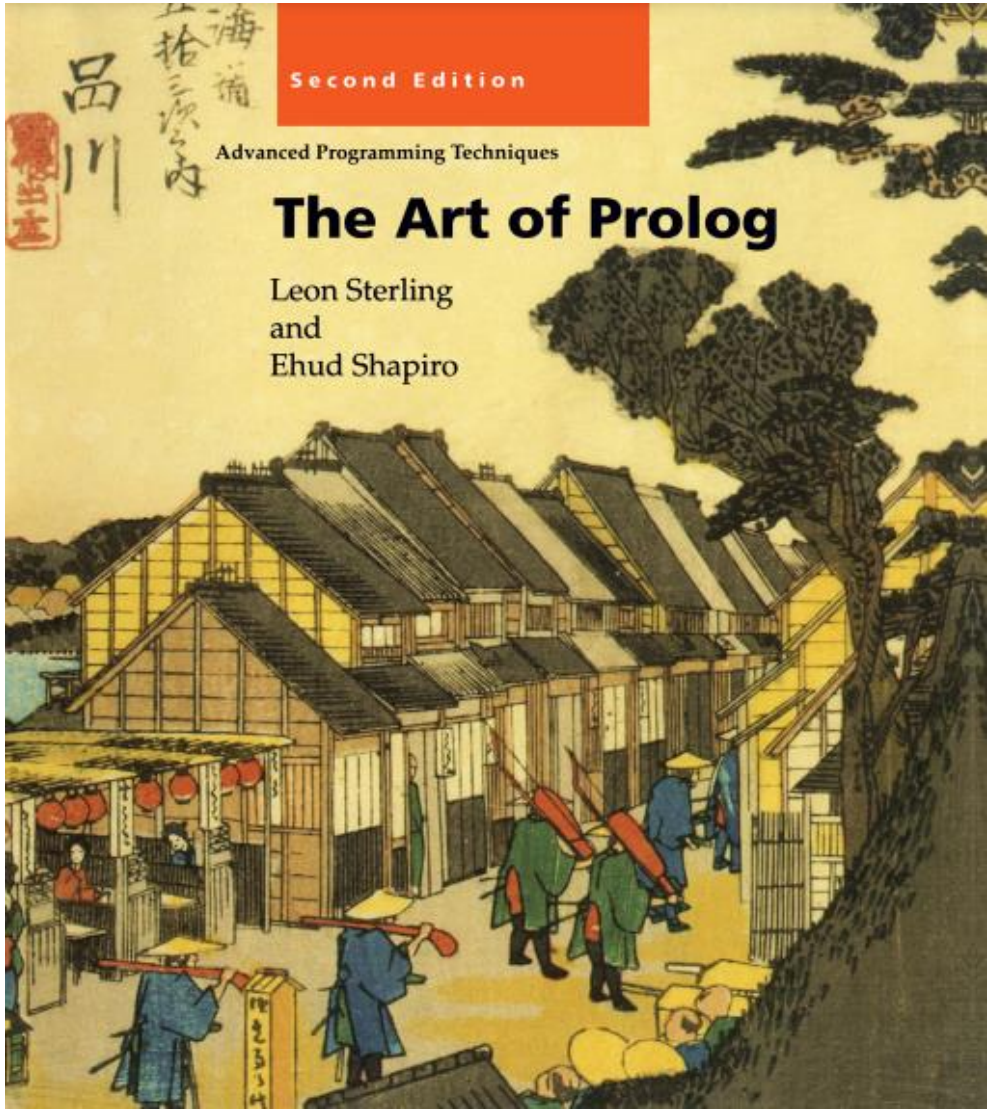
Prolog Programming for Artificial Intelligence

Author: Ivan Bratko



Reference Book:
The Art of Prolog

Author: Leon Sterling and Ehud Shapiro



Relevant Websites

S. No	Web Address	Salient Features
1	http://lpn.swi-prolog.org/lpnpage.php?pageid=online	Prolog Tutorials
2	https://www.tutorialspoint.com/artificial_intelligence_with_python/index.htm	AI with Python
3	https://www.edureka.co/blog/artificial-intelligence-with-python/	Guide to AI with Python
4	https://www.tutorialspoint.com/weka/weka_quick_guide.htm#:~:text=Weka%20-%20Installation%201%20Download%20the%20Mac%20installation,2%20Double	Weka Tutorial
5	https://www.swi-prolog.org/Download.html	Prolog Setup
	https://docs.weka.io/getting-started-with-weka/quick-install-guide	Weka Installation

Software / Equipment/ Databases

S. No	Web Address	Salient Features
1	https://www.swi-prolog.org/Download.html	Prolog Setup
2	https://waikato.github.io/weka-wiki/downloading_weka/	Weka Installation

Practical

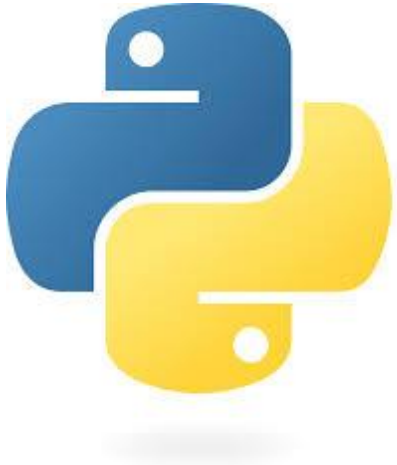
S. No	Practical
1	The structure of a Prolog program and how to use the Prolog interpreter. Facts, Rules and Queries.
2	Implementation of Monkey Banana Problem in Prolog
3	Implementation of Water Jug Problem in Prolog
4	Implementation of Medical Diagnosis System in Prolog
5	To implement Towers of Hanoi Problem using Prolog
6	Introduction to AI-centric Python libraries
7	Implementation of A* Algorithm in Python
8	Implementation of AO* Algorithm in Python

Practical

S. No	Practical
9	Implementation of Depth First Search in Python
10	Implementation of Best First Search in Python
11	Insights into Weka Machine Learning tool, its features, and how to download, install, and use Weka Machine Learning Software, Launching Explorer and Loading Data, File Formats and Pre-Processing Data
12	Insights into Machine Learning Algorithms using Weka 3.8
13	Naive Bayes Classifier, Bayesian Belief Networks, Decision Trees, Artificial Neural Networks
14	EM, Filtered Clusterer, Hierarchical Clusterer, Simple K Means

Tools and Language

- Python 3.10
- Prolog
- Weka
- PyCharm Professional (Optional)
- GitHub
- Jupyter Notebook / Lab



Grading policy

- Attendance – 5%
- CA - (03)– 45%
- End Term Practical– 50%

- CA Category : A0303 (Total 3 / Best of 3)

GitHub Classroom

- All assignments and study materials will be available in the GitHub repository.
- To access the repository, you must have a GitHub account.
- An invitation will be sent to the email linked to your GitHub account.
- Simply accept the invitation to gain access to:
  - All lecture materials
  - All lab materials