

# Project Report : Aima-Python code to accompany the book “AI: A Modern Approach”

August 23, 2016

Surya Teja Cheedella

## Introduction

I have been working with **aimacode** organisation as part of GSoC project. I have implemented Python codes to reflect pseudo-codes from the book “AI: A Modern Approach”. Written unit-tests and documentation of all the implemented algorithms. Written Jupyter notebooks which contains usage and explanations along with visualisations to make it easy for the beginners/learners to understand the concepts from the book.

## Proposal

The proposal for the project can be found [here](#).

## Code Commits

Most of my commits during GSoC are into the repository aima-python. But I have contributed to other repositories also. Here are the links to my GitHub contributions:

1. aima-python - <https://github.com/aimacode/aima-python/commits/master?author=SnShine>
2. aima-pseudocode - <https://github.com/aimacode/aima-pseudocode/commits/master?author=SnShine>
3. aima-data - <https://github.com/aimacode/aima-data/commits/master?author=SnShine>

Here are the most significant commits in aima-python repository:

1. [implemented forward-backward with new HiddenMarkovModel class](#)
2. [implemented matrix multiplication in utils.py and added tests](#)
3. [implemented fixed\\_lag\\_smoothing in probability.py](#)
4. [added wumpus environment to agents.ipynb](#)
5. [Fully implemented LRTA\\* agent with tests](#)
6. [Interactive TTT takes a player argument](#)
7. [adds visualisation for breadth\\_first\\_tree\\_search on romania map in notebook](#)
8. [adds interactive visual for breadth first search](#)
9. [adds visuals for uniform cost search and A-star search](#)

10. [adds method to load MNIST data in learning notebook](#)
11. [adds visualisations of MNIST handwritten digits](#)
12. [implements kNN classifier of learning module on MNIST data](#)
13. [implements faster kNN in NumPy in learning notebook](#)

I have accomplished most of my milestones mentioned in proposal. Visit this [mybinder link](#) to play with interactive notebooks which we developed during GSoC'16. Have a look at Search and Learning notebooks to view some cool visualisations and tutorials I have written.

## Acknowledgements

I would like to express my sincere gratitude to my mentors Peter Norvig and Ciaran O'Reilly for the continuous support throughout the project timeline.

I am very grateful to Google which provided me with this golden opportunity.