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A Survey on Current Apply in Teaching of AI

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Abstract - *Artificial Intelligence is also an associative field whose goal is to robotize activities that presently desires human intelligence. Among the longer term, intelligent machines can replace or enhance human capabilities in several areas. AI is the field of science of automating intelligent behaviours presently doable by humans. In the last decades there has been an associative explosion of logical formalism capable of copying with a spread of reasoning tasks that needs a particular illustration. Recent successes in A.I. embraced processed medical diagnosticians and systems that mechanically customize hardware to explicit user necessities. The sector of AI has been modified considerably in past two years and can still do thus. The main aim of the survey is to assemble the fundamental data concerning AI and the way usually it's used for teaching functions. The educator's survey tells concerning completely different fields of AI and what ought to be to realize to urge higher use of AI.*

Key Words: robotize, doable, logical formalism, customize hardware, assemble

1. INTRODUCTION

In EAAI Conference, throughout 2014, Fodd Keller conducted a survey within which he told concerning which topic they want to teach in AI and which topic they might prefer to teach. The distinction between what is tutored in several AI courses and what several AI colleagues would like to teach. They took survey on both educator and practitioners. I made a decision to review this issue on the behalf of educator's facet.

There are minimum of two events within the past twenty about years that checked out the challenges of AI education: the 2008 "AI Education Colloquium" command at the 2008 AAAI Conference and therefore the 1994 AAAI Fall Symposium entitled "Improving Instruction of Introductory Artificial Intelligence ." (AAAI 1994) is associate addition to a frequently command Educational Advances in AI Symposia collocated with AI conference and past AI Educational tracks at FLAIRS. To quote Marti Hearts, the program chair of the 1994 fall Symposium(Hearts 1994), "This conference was impelled by the will to handle the oft-voiced grievance that introductory AI could be a notoriously troublesome course to show well." With the regular progression of the sector and the recent successes like autonomous cars and IBM's Watson psychological system, this example has not become easier. We have a tendency to believe that now is a decent time to rethink the apply of teaching AI.

In this survey paper, I gift or judge one survey aimed toward educators. The aim of this survey is to capture current apply of teaching AI in addiction as gather input on planned changes. I gathered information regarding the kind of institutions at that our colleagues teach, necessities and course outcomes furthermore as elaborate data regarding topics area unit being coated, that topics colleagues would really like to hide, and reasons for any disparities between these topic lists.

2. SURVEYS

In order to establish current practice and desires, I conducted a survey of AI educators.

2.1 Educator's Survey

I invited AI educators to participate in an internet survey. In order to induce the precise input, we tend to requested knowledge on the sort of the institution our colleagues teach at, stipulations and learning outcomes for his or her AI courses furthermore as major topics lined. Furthermore, I gathered input on desired topics and reasons for non-inclusion conjointly what topics ought to be instructed.

In order to manage the input, we tend to asked our participants to list the topics beneath thirteen categories. The categories given are people who are used on the web site aitopics.org.

1. Please describe the type of institution at which you teach. Select all that apply.

   a. Liberal arts

   b. Science or engineering

   c. Undergraduate only in CS/IT

   d. Masters programs in CS/IT

   e. Doctoral program in CS

   f. Large(above 3000 students)

   g. Small

2. Please list the perquisite topics for your AI class.

3. Please list the first primary goals/outcomes for your AI course.

4. Please indicate the other AI related courses offered at your institution. Select all that apply.

a. Natural Language Processing

b. Graduate AI course

c. Robotics

d. Machine Learning

e. None

f. Other

5. Please enter the main topics covered in your class. List items in the appropriate text-boxes.

a. Natural Language

b. History

c. Philosophy.

d. Games and Puzzles

e. Cognitive Science

f. Applications

g. Represent and Reasoning

h. Ethics and Social Science

i. Robots

j. Vision

k. Speech

l. Machine Learning

m. Others

6. Please enter the major topics that you would like to cover but currently do not. List items in the appropriate text box.

[Same list of categories as for question 5]

7. What is a major obstruction in covering those topics?

8. More broadly, which AI techniques/topics do you think should be covered in an introductory AI course? Please list them in order of importance.

9. Out of the curiosity, what is the definition of AI?

10. Any last comments?

The educator's survey was distributed through the mails by creating Google forms.

3. EDUCATOR'S SURVEY EVALUATION

I received the 30 responses for the given google form survey which I would tell that I can do the data analysis. Most valuable data was collected from the data from the question five to eight. Due to the space limitations I will provide the data analysis of the most important questions only.

3.1 Institutional Background

From Question 1, I attempted to obtain the information about the background of our respondents. From the responses I achieved from the respondents, about (73%) institutions teach that have a background of the master program in CS and IT. About (33%) Doctoral programs teach this course. 30% teach this course that have background of science and engineering course. About (4%) institution that have background of the large, small and liberal arts teach this course respectively. Ti should be noted for the some institutional expert chose two or more option because they can have those various fields. Refer the figure 1.

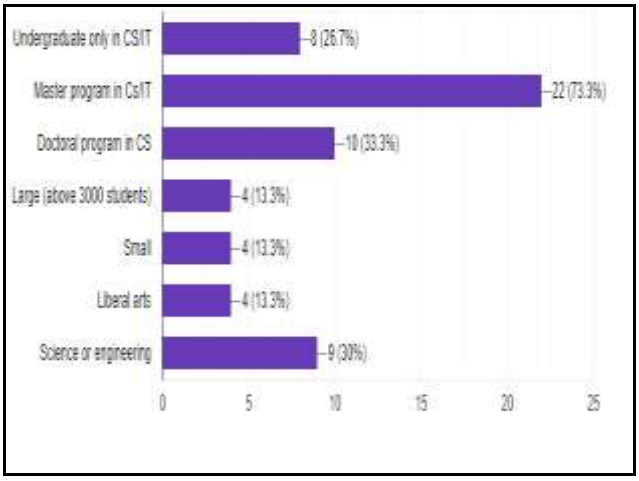

Fig 1:- Institutional Background

3.2 Requirements to the existing course

In the Question 2, I gathered the inputs to the requirement of the AI. From this survey I came to know some problem tracking solution through the AI. Many of them required data structures as prerequisites (40%). Next to data structures was Software Development (30%). Some responses contained the term "algorithms" (26%). Some used the term "Discrete Mathematics" (16%).

There were some responses which involved the Mathematical term "Statistics" (10%).

On the other side there were 16% of AI courses who do not have a prerequisites. Refer the figure 2.

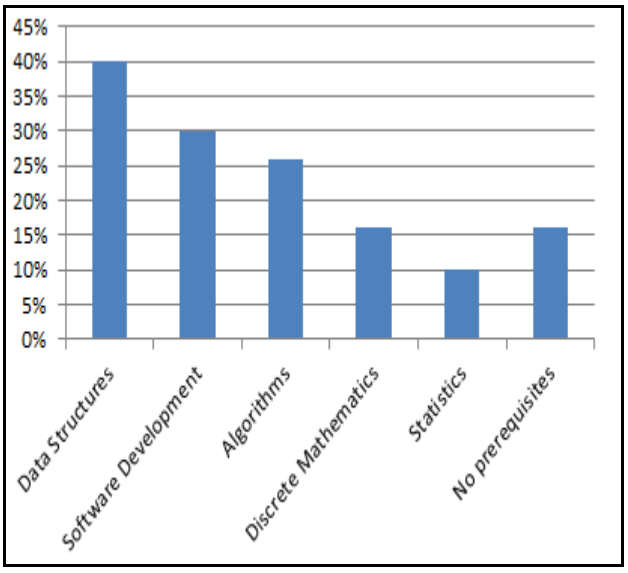

Fig 2:- Prerequisites

3.3 Goals and Outcomes.

From Question 3, I have accomplished the various goals and outcomes. The respondent's is being nourished here. It was difficult to evaluate the goals.

From the figure given below, the course should cover the basic and main ideas and software development phase respectively (33%). Some respondent thinks about covering the "research" (26%). "Solving highly advance work(cutting edge work)" was an idea of some respondent (16%). "Social" was also used (6%). Refer the figure 3.

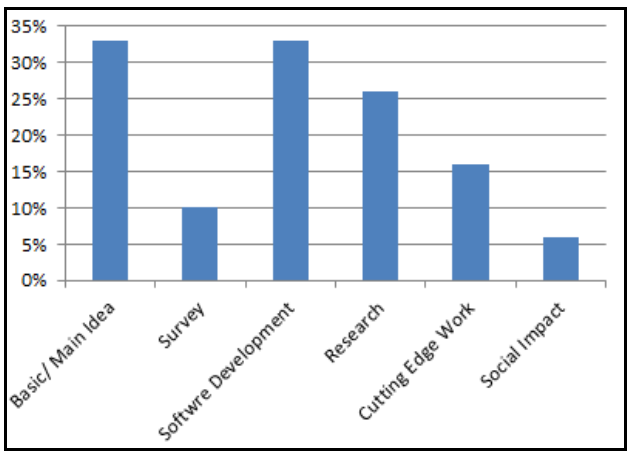

Fig 3:- Goals and outcomes

3.4 Other AI Courses

From Question 4, I acquired the additional AI courses offered at colleague's institutions. From the given below figure, 65% of survey participants offers machine learning course, 41% of participants offers Robotics course, 31% offers the Graduate AI course. 10% offers Natural language processing course while other 10 % offers other related courses. 13% offers none of the courses. Refer the figure 4.

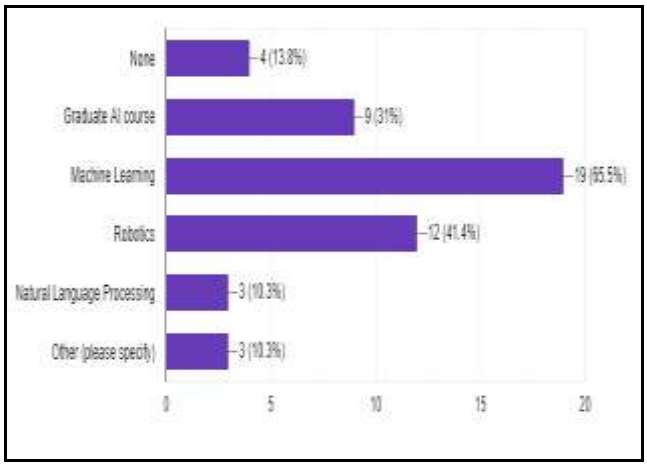

Fig 4:- Other AI courses

3.5 Coverage of topic in AI course

From Question 5-7 of the survey addressed issues of topic coverage in introduction to AI courses: which topics are covered (Q5), which topics instructors wish to cover but cannot (Q6), and the reasons why instructors don't cover all desired topics (Q7).

Consistent with course outcomes, Machine learning gets top billing with 63%. A surprisingly high coverage of the applications (60%) is being found in the survey that was conducted. Ethics & Social Issues and Robots both equally (40%) of response.

The new term "Knowledge Reasoning and Representation" has a coverage of 36%. Natural Language Processing has a coverage of 23% of the responses. Cognitive Science also share a mid-coverage of 20%.

Another new term "Speech" shares a coverage of 10 % and surprisingly vision shares a coverage of 16%. See figure 5.

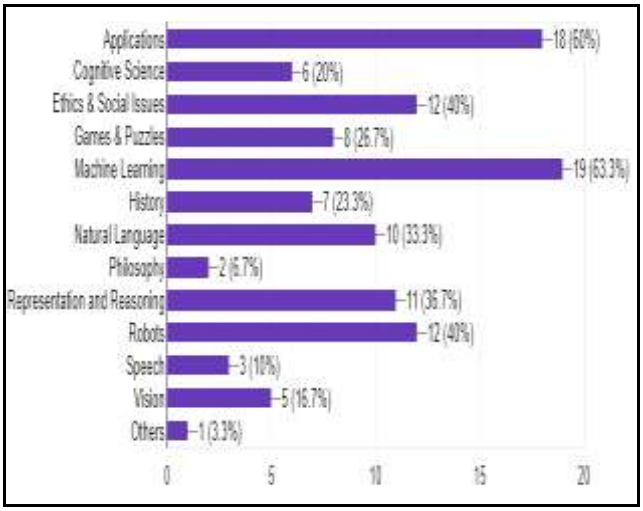

Fig 5:- Coverages of topics

3.6 Desired Topics

In this question I tried to conquer the desired topics to be added in AI course. From the given figure below, Machine learning is cited the most frequently. Following to it was the robotics and applications. Surprisingly there was response for the philosophy field. Unfortunately Knowledge Reasoning and Representation gains the lowest spot. Refer the figure 6

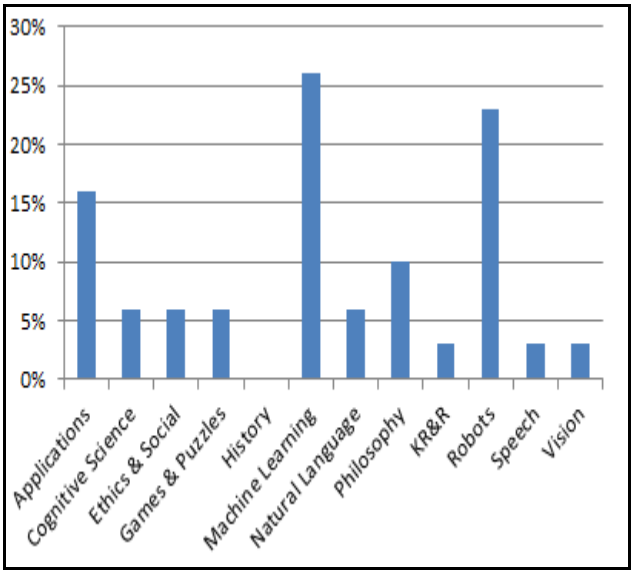

Fig 6:- Desired Topics

3.7 Obstruction to Adding Topics

From this question I tried to find the obstruction that prevents in the addition of the topic. The main reason is the time spending (60%) . The second problem is the lack of the suitable material (36%). The third main reason is the student's interest (12%). Refer the figure 7.

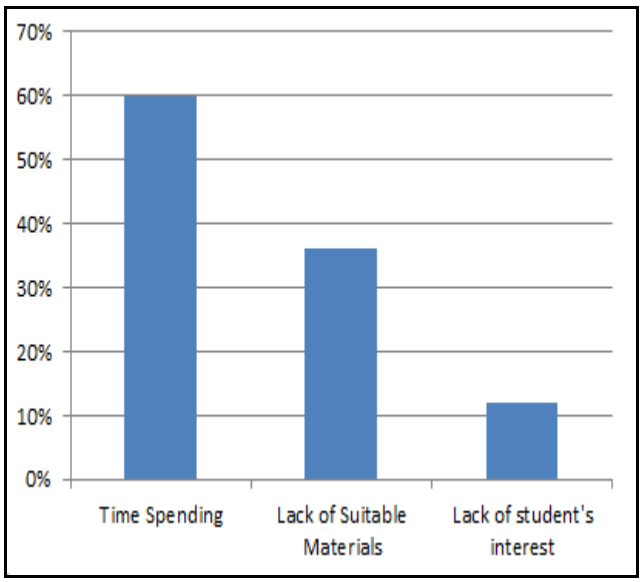

Fig 7:- Impediments in AI

3.8 Recommended Topics

While I presume that instructor's cover the topics that they seem important, there may be constraints that prevent them from following their wishes. As such, I acquired about what topics and techniques ought to be covered. I saw that Machine Learning, Gaming and Knowledge Reasoning and Representation covers the most. Also search covers the most part. Robotics and planning also covers the topics. Refer figure 8.

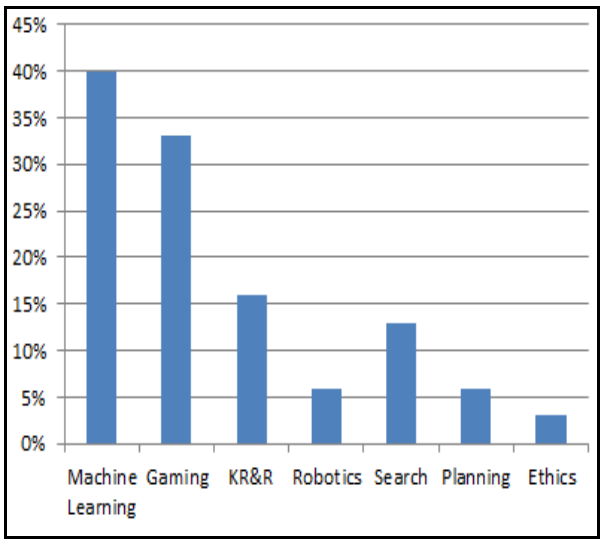

Fig 8:- Recommended Topics

3.9 Definition of AI

I invited the respondents to tell us about their definition of AI. About 40% were telling the lines of producing software that exhibits traits that we find in humans. 30% of responses were telling the AI as producing goal oriented agents. 13% were telling as a basic machine learning and 1% were telling as the AI as a learning a critical system and learning basic robotics.

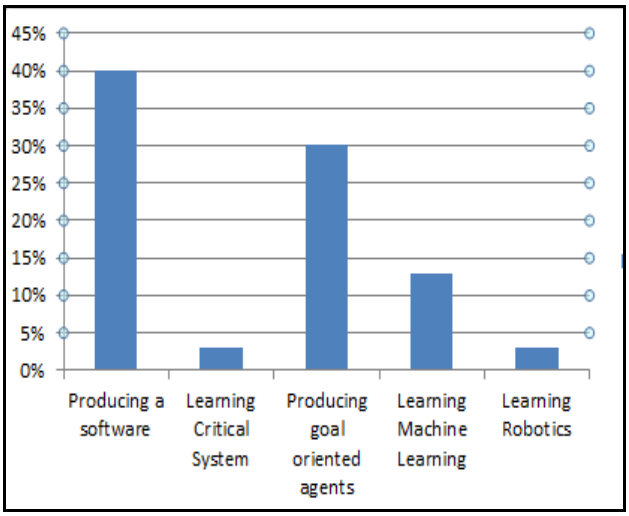

Fig 9 :- Defintion of AI

3.10 Comments

I invited respondent to further feedback they may have. About 36% gave the response as it is difficult to teach the AI course. Others selected as no comments while some gave response as learning well defined machine learning

4. CONCLUSIONS

From the survey, I documented the practice and teaching of AI. From the above survey the main thing that must be included most is appropriate machine learning.

From the survey it is found that some institutions requires robotics as a main topic which is a good thing for the students for learning the robotics at basic bachelor's level. Some institutions requires the AI course for learning the games and puzzles and also for knowledge representation and reasoning.

Also AI topics can be used as a tool for developing software from further two years

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