Survey Paper Project Task

(Due Date : End of 2nd project Semester)

Purpose

The purpose of this task is write a survey paper   in a particular active areas of   Internet of Things (IoT) network current research.   This will hopefully give you the opportunity to become closely familiar with the current research being done in this area, to have an appreciation of why the area is of interest and to realize what research topics remains to be done in that area. Besides , it may be published as a research survey paper and will also serve as a literature review and documentation for your term project report.

Paper Instructions

You   will write an individual survey paper report on a topic of interest to the networking community. This topic that is selected should be either <u>for one of t</u>he following **Internet of Things (IoT) concerns and challenges : Scalability   , Application of AI , Heterogeneity,** B**ig data Solutions , Energy Efficiency Requirements , Reliability , Access protocols , Security ,…etc .**
Alternatively you may write a <u>Survey on Surveys</u> articles already published on one topic of interest or on a group of these challenges above.
A good survey paper provides a concise but broad review of an area that is accessible to a wide range of readers who will not be researchers **directly** in the presented area. Thus, a survey paper normally covers : Review of the current progress and status of the networking subject , survey of the current research work done , a **critical** assessment of the work that has been done. (i.e the strengths and weaknesses of the existing state) , and a "value-added" discussion of potential future work in the area.

The source for descriptions of existing research work is normally a collection of research papers presented at respected international conferences and in well known international journals. To see highly professionally written survey papers , you can use the library system to access the journal "ACM Computing Surveys" or the Journal " IEEE Communications Surveys & Tutorials" .
These journals are dedicated to publishing survey papers. Tools such **as Google Scholar** can assist in searching all paper in particular domain. Its advanced feature allows you to search for particular feature such as : search in the title , by year , by publisher …etc.   The attachment folders includes several samples of survey papers in your project topic.
Please note that the sample paper and the majority of the papers presented in the ACM or IEEE journals will be larger in scope than the survey paper you are expected to write. Nevertheless, the structure and content of the surveys will be similar to what you should be doing.

There may be hundreds or thousands of papers available and you have only a few pages to capture the key work in the field. You will need to read the abstracts and conclusions for a relatively large number of papers and select a subset that covers your selected topic area for detailed reading and presentation in your survey. Picking heavily cited papers and those from key conferences and journals is often a good approach. Your survey paper should also be easily understandable. The first step to ensuring this is making sure that you, the writer, understand the papers you are surveying. It is very common to have to read a paper two or three times before you fully understand what it is saying. Allocate sufficient time for the reading of the papers not just for the writing of your survey. Also, bear in mind that your audience (those who will read the survey paper) are non-experts in the field. They will typically have general knowledge in network systems and related areas but not much more. Be sure to define/explain all terms used and to present information in a logical order (commonly chronologically by paper publication date). Additionally, the use of diagrams with in-text explanations is very important.

Paper Report Content

Much of the success of a survey paper is related to its presentation in addition to its content. Readers of survey papers reports are typically looking to quickly learn about a new area with which they are only partially familiar. To be able to support this, a survey paper needs to be well focused and clearly presented. First, and foremost, the paper must have an appropriate structure. Your survey paper report should consist of the following parts:

1. a descriptive title ("Survey of …") and your advisor name , name and students numbers on a separate title page,
2. an abstract (written last) which briefly describes the entire paper,
3. an introduction that summarizes what the paper presents without expecting the reader to have already read the paper .
4. A description which explains the paper subject and motivates interest in it,
5. The methodology used to classify the papers or to build a taxonomy of its contents.
6. The actual survey with analysis of each paper presented and the liberal use of figures to aid in the exposition,
7. A conclusion which summarizes the survey paper and which describes possible directions for future research.
8. A detailed bibliography of references presented in an easy to read and consistent format

In your survey report , figures taken from other research papers are accepted as long as appropriate credit is given (e.g. "Figure taken from [28]."). Note that, in general, this is not an acceptable practice and it is always better to create your own examples, etc. for use in figures. Diagrams reproduced from other papers must still be presented clearly. Hard to read bitmap images will result in lost marks. Re-draw the figures if necessary. Appropriate credit must, of

course, also be given when quoting passages of text from other papers. The paper report length should be between 20 to 25 double space pages including all figures and drawings

Paper Class Presentation

In addition to the survey paper report you need to prepare a power point presentation for the paper. You will asked to present it in class with 50 minutes given to each presentation.

Report Evaluation

The survey paper report will be worth as a percentage of your final mark with equal weight placed on content , paper quality and class presentation. The paper report and the PPT presentation will be due on the official last day of classes of semester before holiday and should be handed in to your instructor in MS word and PPT format via e-mail before midnight that day. The class presentation will be scheduled at a later time.

Paper Content Guideline

To assist you in writing your survey paper , a guideline for its content is listed below. Please note that these guidelines are suggestion for paper content only and you may follow it or design your own paper content according to the general survey paper instruction given to you.

Title : the title can be one of the following depending on your selection
1- **A Survey of Surveys: on IoT Internet of Things (IoT) -------------- Concerns and Challenges**
You may select concerns from what follows
 (Scalability , Application of AI , Heterogeneity, Big **data Solutions , Application of Blockchains Energy Efficiency Requirements , Access protocols , Reliability , Security ,…etc**

2- **A Survey of Surveys: on IoT Internet of Things (IoT) Concerns and Challenges**
Here , you survey published **survey articles** on a group of select concerns from the above. You may keep the title general and discuss the selected surveys challenges within the paper. Or add the concerns in the title
 If this title selected then the following can be a suggested contents

Contents:

- A general   review and discussion on   IoT networking and   smart world.
- A general review of IoT concerns , challenges , needs , requirements.
- A **taxonemgy for IoT related published challenges surveys** . This taxonomy will be the core of your survey paper and will reflect your research capability. Survey taxonomy of survey papers may be classified into various   categories. For instance: published Surveys on :
    - o   Survey of articles on Scalability
    - o   Survey of articles on security
    - o   Survey of articles on Access techniques and protocols to   Internet of Things.
    - o   Survey of articles on Application of AI and blockchain on IOT
    - o   Survey of articles on Reliability
    - o   …etc
- Based on the defined taxonomy , A Thoroughly review of published articles abstract are then presented   for each published papers   i**n recent literature** . These include :
    - o   Advantages and shortcomings of each article need to be discussed
    - o   Potential future research directions in this fields based on the literature review
- A proposal of your   novel idea for other surveys   to leverage   **IoT concerns and challenges** problem (this will be the topic for   future work proposal)
- A detailed bibliography of references

See Ref:
- Survey on smart homes Vulnerabilities, risks and countermeasures
- Secure routing for internet of things: A survey   This is on IOT routing but it is good in showing how topics can be organized for survey taxonomy
- A survey paper on congestion control schemes that shows how a taxonomy may be build for surveyed papers