

Assignment #3

Herewith is your assignment for this week. It is due by next lecture We need to discuss your progress Wednesday evening

Assignment objective : to familiarize you with your Networking problem and how to implement ML classifier techniques, to cope with different Networking problems.

Research Plan : The papers cover the following subjects:

- An IOT & sensor networks research subject (IOT reliability , IOT scalability , security ,etc)
- Application of ML Algorithm for solving the chosen networking problem .

Assignment Tasks : Do the following in order :

Group A

- 1- Read the paper titled (**A Bayesian-based Energy Aware Routing Algorithm for Mobile WSNs**) This paper gives you an example how classifier can be implemented to solve a network energy saving problem X
- 2- Read the paper titled (**A multi-classifier for VANNET**) This paper research shows how a ML combined-classifiers is used to provide firmer broadcast decisions on VANET.
- 3- **Read the paper titled (A Cooperative Learning Scheme for Energy Efficient Routing in Wireless Networks)** This is a novel scheme for energy efficiency in sensor network A US patent were awarded for this scheme X
- 4- **Read the paper titled (An Intelligent Routing Approach for Wireless Sensor Networks)** This is a continuation of the novel scheme for energy efficiency in sensor network A US patent were awarded for this scheme

Afterword you need to read three articles from the following :

Group B

- 5- Read the paper titled (**A Survey on Reliability Protocols in Wireless Sensor Networks**) This help you see the overall reliability problem in sensor networks X
- 6- Read the paper titled (**Reliability in Internet of Things: Current Status and Future Perspectives**) This paper discuss various parameters that impact reliability of IOT & how to overcome them & present a survey of research papers on IOT reliability X

- 7- Read the paper titled (**Machine Learning in IoT Security: Current Solutions and Future Challenges**) This help you see the overall application of ML for solving IOT security problem **The above papers are sample that show you how ML is applied & implemented to solve a networking security problems X**
- 8- Read the paper titled (**Survey on application of machine learning for Internet of Thing**). This paper is a survey that show you how ML is applied & implemented to solve a networking security problems

Assignment duties

- The papers in Group A help you to understand the energy efficiency research problem in sensor networks and how novel schemes are applied to solve the problem. Papers in group B show sample of current research interest in IOT networking and future ML implementation for solving a research problem such as reliability , security ...etc.
- Your assignment is to write a report of two sections for group A & B papers. The report is considered a literature review & summary for **two paper selected of the papers 3& 4** of group A and **two paper selected of the four papers** from group B . The report should covers **in short** : Summary Review of each article , type and methodology of the research work done in the article , the results concluded by the article , and Submit a short critique of the required readings. The critique should be about 1-3 pages report with a PPT file that summarizes the reviewed paper. The report should roughly cover the main points of the paper and a critical assessment of the work that has been done. (i.e the strengths and weaknesses of the article) . At the end of the report Write a **detailed summary** with title **Suggestion of a future research topic** that suggest a topic that you may consider a potential future work in the area **as concluded from group B papers** . You may add to this also previous topics considered as future research topic on Assignment II. **Due date of group A report is one 14 April 2023. Due date to group B report is next class meeting**
- You may Search google scholar for recent papers on IOT network reliability & Security and scalability and include the search results on your report at the reference section
- **Note :** The aim of this assignment & previous one is to get acquainted with **research topic** of IOT extracted from a large number of survey papers published in recent literature