Using Artificial Intelligence Along With Internet of Things and Their Applications

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ABSTRACT— . Maheshwari, 3-12-2019, maheswari9.r@gmail.com, BBCIT Kachiguda.
The Internet of Things (IoT) has received much attention over the past decade. With the rapid increase in the use of smart devices, we are now able to collect big data on a daily basis. The data gathered (and related problems) are becoming more complex and uncertain.Turning to artificial intelligence (AI) to efficiently deal with the problems created by big data.

This issue deals with the technology and applications of AI in the IoT and is a forum for scientists, engineers, broadcasters, manufacturers, software develop‑ ers, and other related professionals to discuss related issues. The topics addressed are progress, realworld applications, and security issues related to AI in IoT.. This paper is organized into three levels..Firstly it comprises overview and an outline progress of IoT. The second comprises addressing security issues in IoT. The last comprises two topics that present some interesting realworld applications that will benefit daily life. The first ,"I 2 oT: Advanced Direction of the Internet of Things,"gives an excellent vision of how AI technologies can be combined with IoT. Introducing the principle and conceptual model of intelligent IoT (I2 oT in short), which results from the integration of AI and IoT and is the most promising version of IoT.
Keywords: Robotics, I2oT,IoT-Internet of Things,Cyber Security, Network Robotics, Distributed Systems

I. INTRODUCTION

INtroducingthe two main for expanding the Internet to the Internet of Things (IoT). The first inovation is to expand the amount of information shared by databases and objects in the real world. The second inovation is to enable users not only to share information but also control objects in the real world. These make IoT much more attractive in society. In other words, IoT is a good advancement of the conventional Internet. In terms of technological development, however, IoT is still in its inovation and can be greatly increased by endowing IoT functions with much more intelligence. Significant progress has been made in artificial intelligence (AI) over the past decade. All AI technologies are necessary to make IoT more intelligent in evolving into I2 oT are now feasible. The main concern at this point of time is to understand effectively apply AI technologies to current IoT systems.

The role of Artificial Intelligence in Internet of Things a smart future! A future where machines are not merely dumb devices but intelligent creations that can work in tandem with human beings. A future that looks remarkably like the robotic utopia in I, Robot (Well, except the homicidal robots!). This future is not merely an imagination but a natural consequence of the two most dynamic technologies of today – Artificial Intelligence and Internet of Things.

Now the question arises…What is Artificial Intelligence and the Internet of Things?

Well, Artificial Intelligence deals with the creation of systems that can learn to emulate human tasks using their prior experience and without any manual intervention. (Basically Intelligent Systems!). Internet of Things, on the other hand, is a network of various devices that are connected over the internet and they can collect and exchange data with each other.

Why is Artificial Intelligence required for IoT?

According to Business Insider, there will be more than 64 billion IoT devices by 2025, up from about 9 billion in 2017. All these IoT devices generate a lot of data that needs to be collected and mined for actionable results. This is where Artificial Intelligence comes into the picture. Internet of Things is used to collect and handle the huge amount of data that is required by the Artificial Intelligence algorithms. In turn, these algorithms convert the data into useful actionable results that can be implemented by the IoT devices

AI and IoT Blended - What It Is and Why It Matters? Realizing the future and full potential of IoT devices will require an investment in new technologies. The convergence of AI (Artificial Intelligence) and IoT can redefine the way industries, business, and

economies functions. AI enabled IoT creates intelligent machines that simulate smart behavior and supports in decision making with little or no human interferenceCombining these two streams benefits the common person and specialists alike. While IoT deals with devices interacting using the internet, AI makes the devices learn from their data and experience. This blog highlights why we need IoT and AI to work together.

The US Air Force describe Social Media as "tool and platform people use for publish, conversation and sharing content online. These tools consist of blogs, wikis, podcasts, sites to share pictures and bookmarks"

For a difference, «social networking», refers to as" online place where user can create a profile, for socializing with others using a range of media tools including blog's, video's, image's, tag's, list of friends, forum's and message's"

II. PROCEDURE FOR PAPER SUBMISSION

A. Initial Review of topic
Where does AI unlock IoT?

At its core, IoT is about sensors implanted into machines, which offer streams of data through internet connectivity. All IoT related services inevitably follow five basic steps called create, communicate, aggregate, analyze, and act. Undeniably, the value of the "Act" depends on the penultimate analysis. Hence, the precise value of IoT is determined at its analysis step. This is where the AI technology portrays a crucial role. While IoT provides data, artificial intelligence acquires the power to unlock responses, offering both creativity and context to drive smart actions. As the data delivered from the sensor can be analyzed with AI, businesses can make informed decisions. The artificial intelligence IoT succeeds in achieving the following agile solutions:1.Manage, analyze and obtain meaningful insights from data.2.Ensure fast and accurate analysis.3.Balance requirements for localized and centralized intelligence.4.Balance personalization with confidentiality and data privacy5. Maintain security against cyber attack

Applications of Artificial Intelligence in Internet of Things is like a match made in Tech Heaven!!

While both of these disciplines have individual value, their true potential can only be realized together. There are many different applications across multiple industries that require Artificial Intelligence and Internet of Things. Some of these are given as follows:
1. Collaborative Robots
2. Drones
3. Smart Cities
4. Digital Twins
5. Smart Real World Examples
While Artificial Intelligence in the Internet of Things is a relatively new concept, it has already been successfully applied in many real-world applications. (Yes, this world is more tech-savvy than we thought!)

Some of these applications are given as follows:
1.Tesla Motors – Self Driving Cars
2.WildTrack – Endangered Species Preservation
3.Nest Labs – Smart thermostat
4.Automated vacuum cleaner – iRobot Roomba:Final Extension

Social In 2004, the pair founded WildTrack, a nonprofit organization that developed a footprint identification technique (FIT) and specialized software for researchers to track wildlife populations. WildTrack can identify individual animals with 95% accuracy, it says, all without getting up close or using camera traps. Furthermore, Jewell says WildTrack's technique can help solve one of the core challenges in any conservation effort: figuring out how many animals are in the wild, and where exactly they are.

While the process was inspired by indigenous trackers, Jewell says WildTrack's technology is still limited compared to their capabilities. "It's humbling in a way to look at what these expert [trackers] can do in the field," she says. "We can only still emulate a tiny bit of that." the following categories of needs:

Finding a cheetah across a dozen square miles of African bush can be difficult.But that same animal might lay down 200,000 footprints in a day. So finding its tracks is a lot easier.And it turns out that, beyond being useful for locating animals, tracks can tell you a whole lot more.This insight has led to a potentially revolutionary approach to wildlife conservation that's

about to be jump-started by deep learning and NVIDIA GPUs.. Zoe Jewell and Sky Alibhai are co-founders of WildTrack, a nonprofit devoted to monitoring endangered species. In time for World Environment Day, they've launched a program called ConservationFIT, where FIT stands for "footprint identification technology."

The program seeks to crowdsource photos of animal footprints, and then use those images to build algorithms that can identify the species, individual, sex and age-class of the animal who made them.The pair got their start in this endeavor during a two-year sabbatical in the 1990s. Their task was to monitor black rhinos for the Zimbabwean and Namibian governments during the height of a poaching crisis. They discovered their calling and never returned.

The black rhino population was being decimated because of the illegal trade in their horns. Governments had been using a combination of radio-collaring and de-horning as their primary protection methods.After 10 years of wandering the bushlands, Jewell and Alibhai determined that those methods were failing. This was not only because the collars failed regularly, but also because the constant immobilization of females for re-collaring had the unintended, and devastating, effect of reducing their birth cycles from having one calf every three years to one every 10 years.

Follow the Footprints
Over time, the game scouts who worked with them repeatedly asked why they didn't just follow the animals' footprints. It turned out the scouts could learn a lot more from the footprints than simply where the animals were going.

"To our amazement, these indigenous experts were able to identify not only species, but also individuals, just from their footprints," said Alibhai. "Time and again they would find a footprint, tell us the name of the rhino, and then track that animal down to prove the point."

The pair spent years on painstaking attempts to track footprints with techniques such as tracing them with acetate or developing roll after roll of celluloid. Two developments in the mid-1990s changed everything: the advent of digital cameras and their discovery of JMP Software, the statistical analysis software unit of the SAS Institute, which enabled them to develop sophisticated statistical models.

Those technologies led to the development of FIT, which today is able to use photos to classify footprints by species, individual, sex and age-class.

"It does everything from image manipulation, to the analytics, to mapping distributions," said Alibhai.

More Algorithms Needed to Meet Demand
So far, WildTrack has developed FIT algorithms for 15 species (including the black rhino that started it all), and demand for FIT has skyrocketed in the past year as field projects around the world look to ramp up monitoring of endangered species.

ConservationFIT was launched to help build algorithms faster by using photos uploaded from field biologists, trackers and citizen scientists armed with smartphones.Since the user make qualities and abilities public, it can become the users of several requests of advice, opinions, and information or help contacts. This process can help boost one's self-praising, mostly about perceived necessity toward the network of contacts.
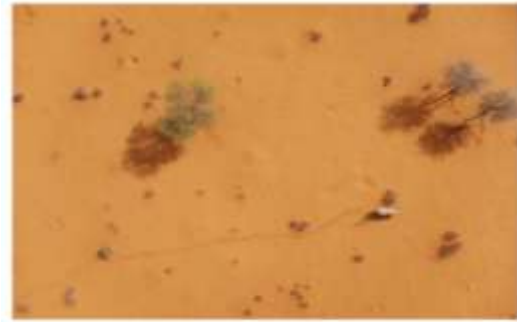
Figures
1. Timeline Share:

It's a threat to share your pics or thoughts on time line as anyone will be able to access the personal information

2. Access to interesting quiz's

- By giving access permission for this quiz's to know about your 10 best friends or who is your enemy and so on would access all our information about our profile.
- These provide as a unknown risk .

B. **Electronic Image Files**)

1. footprint identification technique (FIT)

2.Automated vacuum cleaner iRobot Roomba

3. Drones:

The best drone 2020:

Image credit: Future

1. DJI Mavic 2 Pro
Still the king of drones

Weight: 907g | Controller: Yes | Camera resolution: 20MP | Battery size: 3,950 mAh | Range: 8km

1. Freefly Systems Alta 8 and Freefly Systems Alta 6

C. Copyright Form
Referred the information site links that supported my paper for this topic.

## III. HELPFUL HINTS
A. Figures and Tables:

Table 1:

Table1Facebook Contents	Items
1.TimeLineUPdate	Pics Posting Status Updating What you feel like
2.Games	To get Likes Send request to unknown people
3Apps	Accessing
4Pages	Liking
5News Feed	Liking and sharing Saring them Liking

Table 2:

Safe	Risk
1.Friends	Friends of friends
2. Group	Pages
3 Likes in a grupe	Likes inin page
4 Notifications	News Feed
5Up coming Events	Events

1.Games:
2.More Apps
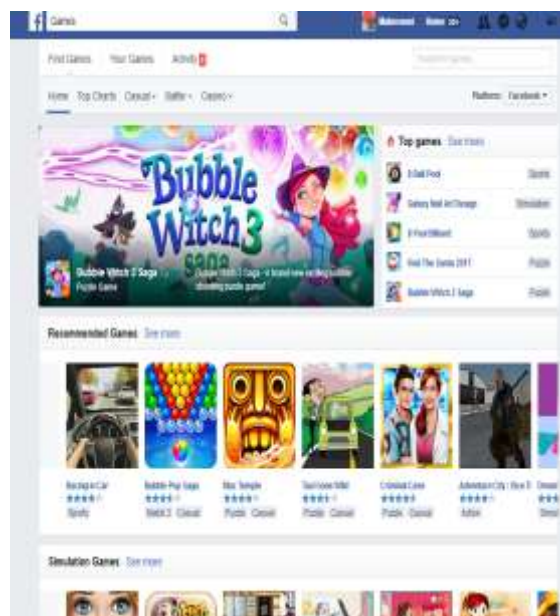
3. Alternate Apps to enjoying access to these addicted games (Risk):

B. Other Recommendations
Three key challenges we need to deal with:
1. Using Video to Dominate Social and Traditional Media
2. Pushing the Message to the Top of Social Media Feeds
3. Exploiting the Social Media Capability Mismatch

The top skills a social media manager needs to have to succeed and excel.
- Strategy planning. ...
- Tactics and execution. ...
- Community management. ...
- Understand how content works on a social web. ...
- Optimizing content and technology. ...
- Creative mindset. ...
- Writing skills. ...
- Be on top of the latest digital marketing trends.

IV. CONCLUSION

weaker existing computation power. The research in data science and artificial intelligence (AI) has been striving to give an answer to this problem. Thus, IoT with AI can become a huge breakthrough. This is not just about saving money, smart things, reducing human effort, or any trending hype. This is much more than that – easing human life. There are, however, some serious issues like the security concerns and ethical issues which will go on plaguing IoT. The big picture is not how fascinating IoT with AI seems, but how the common people perceive it – a boon, a burden, or a threat.

REFERENCES

[1] http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4149673J. U. Duncombe, "Infrared navigation—Part I: An assessment of feasibility (Periodical style)," IEEE Trans. Electron Devices, vol. ED-11, pp. 34–39, Jan. 1959.

[2] http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4149673Circuits and Systems Theory, New York, 1994, pp. 8–16.

[3] G. R. Faulhaber, "Design of service systems with priority reservation," in Conf. Rec. 1995 IEEE Int. Conf. Communications, pp. 3–8.

[4] W. D. Doyle, "Magnetization reversal in films with biaxial anisotropy," in 1987 Proc. INTERMAG Conf., pp. 2.2-1–2.2-6.

[5] http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=4149673J. G. Kreifeldt, "An analysis of surface-detected EMG as an amplitude-modulated noise," presented at the 1989 Int. Conf. Medicine and Biological Engineering, Chicago, IL.

[6] https://www.ieee.org/conferences_events/conferences/organizers/preparing_xplore_papers.htmlJ. P. Wilkinson, "Nonlinear resonant circuit devices (Patent style)," U.S. Patent 3 624 12, July 16, 1990.

[7] https://irobot.in/festive-season-sale-roomba-i7.aspx?utm_source=google&utm_medium=cpc&utm_campaign=iRobot+Vacuum+Cleaning+Product+Search+Exact+HYD&utm_term=Roomba+Buy&utm_content=ad8&gclid=CjwKCAjwgbLzBRBsEiwAXVIygEtMJwtZGcx4n3h287bvDuTQtR57zgB44cvb_WWqOiH164XdtXkr5RoCJIsQAvD_BwEhttps://blogs.nvidia.com/blog/2017/06/05/protect-endangered-species/

[8] https://www.linkedin.com/pulse/effects-social-networking-upon-society-idrees-ahmad.

[9] http://www.(URLJ http://sproutsocial.com/insights/social-media-skills/

[10] https://www.cnet.com/news/best-robot-vacuum-of-2020-irobot-roomba-neato-and-more/

[11] https://www.researchgate.net/figure/IoT-architecture-tree_fig2_328223360

[12] https://www.researchgate.net/publication/328223360_Artificial_Intelligence_in_Internet_of_Things/download

[13] file:///C:/Users/faculty/Downloads/Artificial_Intelligence_in_Internet_of_Things.pdf

[14] https://www.techradar.com/in/news/best-drones#1-dji-mavic-2-pro