

Four Types of Moral Holistic Values for Revolutionizing the Big Data Analytics in IoT-based Applications

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Abstract: The high data speed generated by sensor devices has led to an awareness of the potential impact of big data analytics (BDA) and the Internet of Things (IoT). This paper highlights 4 types of moral holistic values for BDA analyzer, system developer, data provider and user in integrating the BDA and IoT applications. Being ethical is about confronting ethical issues. Wisdom, glory morality, courage, and justice are important holistic values for handling data sharing, data collaboration and data analytics. Four moral holistic values will reduce the gap between IoT, human and practice to improve the performance and revolutionize the performance of BDA and IoT-based applications.

1 INTRODUCTION

The potential impact of BDA and the challenges of the IoT-based has been explored by the high speed data generated based on sensor devices. Huge memory allocation, high-speed processor and network communication has led to the challenges presented by big data size, such as gigabytes, terabytes, and petabytes, that are generated by IoT-based device. The analysis of the IoT data set is basically obtained from the integrated technologies. For example, the combined IoT-based system for smart city development and urban planning using big data analytics has been suggested by Rathore et al. (Rathore et al., 2016) Hence, the moral holistic values approach is needed for investigating various performances and analysis indicators that are associated with prediction, visualization and decision making.

M. Ge et al. (Ge et al., 2018) stated that the concern of big data collection, data processing, data analytics, data security, and the holistic value for the data provider or data analyzer have become important. This is because the management of big data requires a continuously expanding network. The function of the data provider and data analysis can be classified according to their focus on the development of a complete IoT system consisting of various types of sensor deployment, smart home sensors, vehicular networking, weather and water sensors, smart parking sensors, and surveillance objects

(Rathore et al., 2016). The tasks of data providers include customizing IoT hardware and software, combining multiple processing tasks, handling data management, conducting data analysis, managing projects and data collections, transforming database structures and maintaining cloud-HPC Platform (Lanza et al., 2016). These functions must be conducted in such a way as to lead to integrity, trustworthiness, justice, courage, and excellence. Based on the requirement of human-to-human or human-to-computer interaction, this paper highlights four types of moral holistic values for BDA analyzer, system developer, data provider and user in integrating the BDA and IoT applications, (Al-Turjman and Alturjman, 2018). Wisdom, glory morality, courage, and justice are important holistic values for handling data sharing, data collaboration and data analytics.

2 MORAL HOLISTIC VALUES

Quran describes that it is within the nature of the soul to commit crime (Saged et al., 2018). According to the Lord as Musa A. S stories, which have been passed down by Allah S.W.T in the Quran, fear resides within the soul. In addition, the soul is home to animate the defiant feeling to face malicious acts (Dawud, 2002; Miskawayh, 1977; Bakar, 2010) concluded, based on the agreement of scholars, that the

cardinal virtues existing in humans can be divided into four categories. If a man contributes his excellence, glory, courage, and justice to others and people can benefit from it, then he will be recognized and praised as as wise, noble, courageous and fair (Miskawayh, 1977). Being ethical is about confronting ethical issues based on the holistic value of wisdom, glory morality, courage, and justice. The first moral holistic value of this paper is wisdom.

2.1 Wisdom (al-hikmah)

Revolutionizing the big data analytics in the aspect of Islamic civilization involves the process of purification of the soul. This process is determined by the rational sense of mind. Furthermore, to discipline emotional strength and rational sense of mind forces the emotions to behave and push it toward goodness. Meanwhile, the power of lust can be disciplined by the power of emotion. This process involves the change of the rational sense of mind (Miskawayh, 1977). If the process of soul purification is successful, then the rational sense of mind will enhance the wisdom (al-hikmah). The emotional strength will trigger courage (shaja ʿat) and the power of lust will reveal the glory of morality (ʿiffat). Ultimately, justice (ʿadl) can be achieved when the three holistic values force the form of the cooperation privilege (fadhilat) (Miskawayh, 1977). Thus, these four cardinal virtues will drive the revolution of big data analytics.

According to (Miskawayh, 1977), there are six types of wisdom that can be identified in individuals; wisdom, retention, rationality, clarity of mind, quickness, soundness of understanding and capacity for learning easily. The society that emphasizes the importance of education and knowledge will be able to produce a better human civilization. Intellect is a very useful gift for humans in the quest for science and wisdom. The expression of ideas will encourage the production of a new creation. The reality is that the evolution of these creations occurs beyond the jurisdiction and control of humans. On the contrary, it is an inspiration that is the gift of Allah the Most Knowledgeable (al-ʿAlim). Although it seems to be naturally born, in fact it is the result of God's gift, following the correct and valid rules of thought (Yang, 2012).

Abu Bakar al-Razi (1987; 73) argues that humans have never been created for physical pleasure, but are created to seek knowledge and to practice justice. For a prosperous life, (Dawud, 2002) emphasized that every individual must familiarize himself with goodness, obedience to the practices of religion and distance themselves from evil and sin. People who live

in suffering are those who gird themselves with evil and immorality and are separated from kindness and obedience to God. Ibn Hazm (Dawud, 2002) mentions that if knowledge is spread among people who do not deserve it, it will ruin them. He mentions the parable of prescribing perfume to the person who has a headache, as it will cause the person to get even sicker. Miskawayh (Miskawayh, 1977) divides wisdom into two groups, wisdom from a theoretical and wisdom from a practical point of view. Wisdom from a theoretical point means the ability to deliver the right thought, while in the practical point, wisdom is the sense of ability to produce a good situation that promotes the right action. Individuals with discretion will ensure that each activity or product is produced in accordance with the measuring stick and symbolizes the wisdom of the mind. Besides intelligence, Miskawayh also included some other elements including retention, rational, clear mind, speed and firmness of understanding, and ability to learn easily.

Data policy of the fourth industrial revolution (4iR) is highlighting the relationship between risk and benefit. Islam encourages risk-sharing in our daily life, be it in the transaction or not. When a risk is shared among two or more parties involved in daily activities, the burden of the risk faced by each party is reduced. The intelligent policymaker recognizes the impact of culture, morals, and socialization of the 4iR practitioners to reduce the risk globally. According to Chen. J. (Liu et al., 2015), the intelligent system developer provides a proper infrastructure for users to gather and to share data wisely. The success of big data-driven and updating data bank property will be appreciated by the researchers. Intelligent algorithm and data training for machine, deep and extreme learning are the artificial infrastructures to stimulate data-driven. The wisdom for data processing, identifying, classifying and categorizing the huge dataset can be performed by behaving and pushing it toward goodness. Hence, the emotion to act has to be the rational sense of mind force.

For example, using the big data for predicting, measuring the performance indicator for disseminating analysis, enhancing intelligent data training for large-scale data analysis, and establishing the excellence library for data bank development. Therefore, to enhance the discovery of knowledge, wisdom is an important factor in assisting human intellectual ability, handling the artificial intelligence process (Alias et al., 2018) and analyzing the performance of BDA and IoT.

2.2 Glory Morality (al-[‘]iffah)

Humans become 'human' because of the advantages of his existing rational soul (al-nafs al-natiqah). The glory morality has a strong rational soul (Miskawayh, 1977). The existence of glory morality distinguishes humans from animals and angels. If the movement of the pious soul (al-nafs al-bahimiyyah) is normal behavior, then he is responsible for the rational soul without rejecting what is given to him and he is not immersed in lust. Furthermore, the moral holistic value of glory morality (fadilat al-[‘]iffah) will be followed by the privilege value of benefactors (fadilat al-sakha'), (Miskawayh, 1977). Miskawayh divides glory into twelve types namely; modesty, sedateness, self control, liberality, integrity, sobriety, benignity, self-discipline, good disposition, mildness, staidness and piety. In the formation of spiritual values and power within an educator, mujāhadah is the most important jihad.

Big data morality refers to the glory behavior to improve society, to understand the problem and to solve with a true interpretation. The examples of immoral behavior are accessing personal data or using public data without permission. Lack of glory morality can be seen in the process of analysing data and producing enabled data source. For example, the parochially altruistic acts determining ethical paths through a datafying world and understanding factual via a trusted data base. Referring to big data analytics process, we can understand the effects of decisions morally. We can determine the right outcome. If the outcomes are good, then the actions, intentions and moral decisions will be right. If the outcome is poor, then the actions, intentions, and decisions will be wrong. Thus, the invention of network communication of IoT device should have a glory morality, integrity, privacy, and autonomy.

2.3 Courage (al-shaja[‘]ah)

The power of anger comes from jealousy and envy (quwwah ghadabiyyah). If he can control his emotion, then he has the potential to develop the courage (shaja[‘]ah) with confidence. In addition, this person will have the courage to fight and justify the truth. The influence of anger can make him arrogant. In contrast, the absence of temper can make him become timid. Individuals who have the bravery, yet don't contribute it to other people, will be known as proud individuals. The normality of emotional soul (al-nafs al-ghadabiyyah) can affect the rational soul to face charges. He will be given the advantage of manners (fadilat al-hilm) and the benefit of boldness to remain

calm. Moreover, if the privilege of courage (fadilat al-shaja[‘]ah) enables him to control his temper, then he will be brave (shaja[‘]ah) to uphold justice and have faith in making the right decision for himself.

Miskawayh separated the eight types of courage into greatness of spirit, intrepidity, composure, fortitude, magnanimity, self-possession, manliness, and endurance. Fakhruddin al-Razi (Al-Razi, 1978), however, asserted that humans are the God creatures who have the intellect and wisdom other than the natural feeling and the orgasm. Such features of creation exposes humans to do damage on the face of the earth. This is because the combination of lust, emotional and intellectual emotions, can induce a person to be dominated by lust and excessive anger. Based on surah al-Baqarah (2:30), al-Razi (Al-Razi, 1978; Manawi and Akib, 2018)(tt: 4-5) explains that the damage on the earth is caused by lust, while the bloodshed is caused by angry emotions. However, the personality of an individual will be perfect by always purifying God and praising and admiring His supremacy.

Big Data is revolutionizing the peace and justice sector, declaration of data authorities, artificial intelligence processing technologies for case law analytics and big data analysis for decision making. An idea of data justice is needed to establish the rule of law, concern for the new public-private interfaces of big data, namely the disciplinary and frequently discriminatory nature of large-scale databases, activist organizations in the field of data and rights. For example, dealing with data-driven for business transformation, obtaining coward demographics data based and potential misuse of data to unintended consequences. These are the challenges for courage to deal with difficult issues and impossible circumstances. Data collection and analysis are shared between public authorities and the commercial firms. The shared declaration is provided by mobile phone, internet access and the user applications (apps). Thus, the related social justice concern with datafication will benefit everyone in society, data fully support efficiency in the public sector and public security. Hence, big data security for IoT domains should be an effective way in line with data recovery. Enhancing Data Protection Standards increase the recognition of the need for accessing a huge volume of the dataset across the world.

The process begins with developing a transference data guideline toolkit and clear knowledge repository of case studies for policymaker and policy leader globally. For instance, it requires trust and courage to make a report on data leakage or cyber-attack. It is illegal to transfer data that required cyber security and data security. Data leakage can be protected by advanced mathematical modeling in the encryption and

decryption of cryptography theory. Therefore, to prevent disclosing security breaches, they must be exercised with a sense of responsibility, integrity, honesty, courage and persisting for what is right.

2.4 Justice (al-^oadalah)

Miskawayh (Miskawayh, 1977) recognized the moral holistic values with truly understanding the term itself. Someone will be fair and just (al-^oadalah) if they can control rational nature, anger and lust. These three privilege values are interconnected with each other to support the justice attribute (fadilat al-^oadalah). Moreover, if the three powerful values are practised, then fairness and justice can be achieved globally (Miskawayh, 1977)(Miskawayh, 1964) classified that there are eight types of justice; friendship, concord, family fellowship, recompense, fair play, honest dealing, amiability and worship (al-ibadah). He said that man is both a social and political being by nature. He is born neither complete nor self-sufficient but with deficiencies. He cannot, therefore, live by himself alone but has to have the resources to help other people in order to preserve himself as well as to remedy his weakness and become complete through the co-operation of others (Miskawayh, 1977; Miskawayh, 1964; Miskawayh, 1951).

The concept of data justice is that everyone has the right to be treated fairly by the public and private authorities. Data justice affects different aspects of our lives. The production of digital data is fairness in the way people are made visible, represented and treated. Fair data principles emphasize enhancing the ability of machines to find and to use the data automatically (Alias et al., 2018).

In addition, these principles support its reuse by individuals in the e-community for case law analytics. Data analysis should be performed by fair measurement and fair decision making. Moreover, fair treatment is an important tool in justice work. Data provider, data repositon and data depositor should be treated fairly and with sensible principles in the digital library and the repository management. Big data sets can improve the accountability and functionality of the digital library and repository. Hence, worldwide data ecosystem will be encountered by the fair data system. Furthermore, inspiring the sense of wisdom and fairness of spirit is the main focus in the revolution of big data analytics and IoT applications. The moral holistic values help to bring the revolution of human development.

For instance, Khan et al. (Miskawayh, 1964) classified the value of the different phases of IoT data collection including all phases of its business value. To

decide ethical parts, all four holistic values are needed to establish the rule of law and data justice.

3 IMPLEMENTATION AND RESULTS

Since the inception of HPC systems, it was realized that IoT is a crucial tool to be utilized by the human. The behavior, psychological and physiological principles were influenced by the moral holistic value and good human factors. The billions of physical devices around the world are presently connected to the internet, gathering and sharing data information based on IoT innovations. Xie, R., et al., (Xie et al., 2018) stated issues such as huge communication costs, high-speed training for the machine learning process, security for managing a big data require the successful integration of holistic values and high generation of computer systems. In order to fulfill people's beneficial values, it is necessary to have a superior understanding of transition from small to huge data analytics, the idea of sharing for conducting the huge memory architecture of HPC, the integrity, safety and privacy values in preventing the leaking of data (Liu et al., 2015), trust in the network communication and the information bank sharing. Hence, for cloud as well as IoT dataset, authenticator-based information integrity validation techniques were analysed by Liu, C., et al. (Liu et al., 2015). An analysis regarding lightweight asymmetric encryption, the AA β (AA-Beta) was performed by Adnan, Isa and Hashi (Adnan et al., 2016). It is possible that the execution on the 'Things' is practiced as a way to enhance the network communication of IoT. In order to ensure the ability of authentication, privacy and integrity throughout the collection of sensed data, a flexible methodology which applied elliptic curve cryptography was proposed by Al-Turjman and Alturjman (Al-Turjman and Alturjman, 2018).

4 RESULTS AND DISCUSSION

Most research activities involve physical equipment, data collection and analysis of the IoT-based application. Next, the research proposed the prediction and decision making based on the analysis indicator of the parameter changes. For example, eye blinks, eye movements, and muscle stress are important biological sources to investigate the characterization of dynamic brain activation. We can build a holistic experience for data collecting process across IoT devices

that span ensuring the impact of IoT technologies and characteristics of the glory morality and ethical behavior.

By ensuring data quality, we will mitigate risks associated with bad data and eliminate data doubts. Trusted network communication among HPC is able to support the message passing paradigm and large sparse memory allocation. Second, the machine learning was chosen to implement ANN honestly. For fair decisions, a classification algorithm of machine learning is based on the most accurate classification rule on possibly-reweighted data, while the fairness enforcer checks the chosen weighted parameter. The training data is reweighted based on the output of the fairness enforcer and passed back the parameter changes to train the classification algorithm. Third, in parallelization process, data decomposition is a highly effective technique for breaking work into small tasks. Data derived from decomposition techniques are applied to explain fairness phenomena. Making decisions are also taking responsibility and learning courage to deal with the consequences. Lastly, to control the parameter changes process, web based software is developed. Thus, justice must begin with a decision concerning the integrated methods to be employed rationally.

5 CONCLUSION

The sustainable of big data analytics in IoT-based applications should be integrated with four moral holistic values. This cycle starts from things to data, information, knowledge, wisdom, glory morality, courage, justice, services, people and back to things. Intelligent information technology application constructs IoT cycle, which leads to a harmonious symbiosis. The harmonious attention obtains an accurate prediction, visualization and decision making. Thus, this paper highlights four privilege values to bridge the gap between IoT-based applications, people and practice which contribute to revolutionizing the big data analytics in IoT application holistically.

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