

# Emerging Technology and Innovations

Full Name	
Student ID	
Subject	ITC571 – Emerging Technology and Innovations
Assignment No	Annotated Bibliography
Due Date	
Lecturer's Name	

## **TASK 1 Annotated Bibliography 20%**

### Article 1

CITATION	Riggins, F. J., & Wamba, S. F. (2015, January). Research directions on the adoption, usage, and impact of the internet of things through the use of big data analytics. In <i>System Sciences (HICSS), 2015 48th Hawaii International Conference on</i> (pp. 1531-1540). IEEE.
SUMMARY	Riggins & Wamba (2015) have stressed on the importance of big data management in the current era of the Internet of Things, with the crucial nature of big analytics being appropriately highlighted in the study in question as well. The determination of the technical issues and problems related to the Internet of Things is also one of the substantial parts of this study. As such, the authors have proposed a framework on the basis of the idea that the general Internet of Things will undergo a rapid evolution into a significantly larger network. A review of the big data management aspects of individual, organizational and societal level has been provided through a detailed literature review, with the used methodology also including the comprehensive review of the developed framework in general.
CRITIQUE	While the research study in question has attempted to intricately provide a proper analysis of the main issue under consideration, the scale and overall magnitude of

	<p>the study is considerably smaller. The validity and accuracy of this kind of study in question requires the implementation of data collection on a much larger scale, with a review of the potential effects of the developed framework on a large scale needing to be completed for the sake of determining its overall benefits in the long run.</p>
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## Article 2

CITATION	Sun, Y., Song, H., Jara, A. J., & Bie, R. (2016). Internet of things and big data analytics for smart and connected communities. <i>IEEE access</i> , 4, 766-773.
SUMMARY	The work of Sun et al. (2016) has attempted to promote the overall concept of connected communities SCC (with elements of smart technology implementation and eventual use), with the said concept being derived from the idea of large-scale smart cities. The authors have stressed on the importance of the Internet of Things for the completion of the main objectives and requirements pertaining to the fulfillment of the concept of connected and smart communities (especially the objectives related to the management of big data in an appropriate manner). The use of IoT for big data management and the initiation of big data analytics have been noted to possess the potential to enable the implementation of real-time SCC control.
CRITIQUE	The determination of the effects of IoT implementation for the successful initiation of smart and connected communities on a wide range of regions is very beneficial for boosting the overall credibility of this kind of research study. While the work of Sun et al. (2016) has managed to provide relevant insights regarding a selected case study (TreSight), the use of multiple studies of such kind can enable the presence of a greater understanding pertaining to the topic at hand (while also enabling the determination of the flexibility of the idea in general in a range of situations).

## Article 3

CITATION	Rathore, M. M., Ahmad, A., Paul, A., & Rho, S. (2016). Urban planning and building smart cities based on the internet of things using big data analytics. <i>Computer Networks</i> , 101, 63-80.
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SUMMARY	Rathore et al. (2016) have attempted to provide a proper link between the use of the Internet of Things (and appropriate big data analytics) and the aspects of planning and building smart cities in an effective and efficient manner. The increase in the demands for greater and faster services, especially in urban agglomerations, has necessitated the development and eventual implementation of the Internet of Things on a much larger scale. The authors have used big data analytics for the sake of proposing a combined system based on the Internet of Things for the efficient completion of smart city development. The initiation of the proposed system has required the use of voltDB, S4 or Storm and Hadoop with Spark for enabling real time IoT data processing. The authors have concluded by providing an overview regarding the efficiency of the proposed system in the long run.
CRITIQUE	While the work of Rathore et al. (2016) has provided relevant insights pertaining to the main topic under consideration, the glaring absence of a detailed comparison with certain case studies or with examples of similar work in this topic has been noted. A comparison of this kind can enable the procurement of a greater degree of understanding regarding the efficiency of the proposed combine system in general as well. As such, the overall accuracy of the study can be enhanced as a result as well.

#### Article 4

CITATION	Perera, C., Ranjan, R., Wang, L., Khan, S. U., & Zomaya, A. Y. (2015). Big data privacy in the internet of things era. <i>IT Professional</i> , 17(3), 32-39.
SUMMARY	Perera et al. (2015) have provide a relevant discussion regarding the challenges and issues of the aspects of privacy while managing the big data in the current era of the Internet of Things. The solutions to the various operations as provided by the use of the Internet of Things all constitute the use of a large magnitude of data, a fact which can often compromise on the overall privacy features of the people such as the users. Indeed, data collection and management methods in the current IoT era have led to issues of privacy in the long run. The authors have discussed the main issues and challenges in the aforementioned aspects, while

	also providing a detailed overview of the main innovation and research opportunities in this context.
CRITIQUE	While Perera et al. (2015) have initiated the collection of a significant magnitude of research through observation and reviewing of the literature pertaining to the main topic under consideration, the collection and eventual use of primary data collected through the methods such as interviews (of relevant personnel involved in this sector) can help in the enhancement of the reliability of the developed conclusion in the long run. As such, the combination of the methods used in the work of Perera et al. (2015) and methods such as interviews can help in the better completion of studies of this nature.

#### Article 5

CITATION	Manogaran, G., Varatharajan, R., Lopez, D., Kumar, P. M., Sundarasekar, R., & Thota, C. (2018). A new architecture of Internet of Things and big data ecosystem for secured smart healthcare monitoring and alerting system. <i>Future Generation Computer Systems</i> , 82, 375-387.
SUMMARY	The research work of Manogaran et al. (2018) has provided intricate insights pertaining to the relationship of the Internet of Things and big data ecosystem management with the securing of the alerting and monitoring system in the smart healthcare context. The authors have proposed a relevant architecture for the storage and processing of scalable sensor data on a large scale, with the said architecture providing proper help in the management of the large amounts of data generated through the use of the Internet of Things. The use of Grouping and Choosing architecture and Meta Fog-Redirection has been initiated by the authors as well, with the researchers concluding that the proposed framework can help in the accurate prediction of the heart diseases (through the use of MapReduce based prediction model).
CRITIQUE	While the architecture framework proposed by Manogaran et al. (2018) has managed to provide favorable results in the context of healthcare monitoring and alerting, the observations of the effectiveness of the same has been noted to be quite limited. As such, the implementation of the proposed framework on a larger sample and situational context can help in the gain of a greater

	understanding pertaining to the accuracy of the overall efficiency of the former.
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### Article 6

CITATION	Suciu, G., Suciu, V., Martian, A., Craciunescu, R., Vulpe, A., Marcu, I., ... & Fratu, O. (2015). Big data, internet of things and cloud convergence—an architecture for secure e-health applications. <i>Journal of medical systems</i> , 39(11), 141.
SUMMARY	Suciu et al. (2015) have attempted to provide a relevant overview pertaining to the aspects and features of the Internet of Things, big data and cloud convergence, with a specific focus also being provided on the main relationship between them in the long run. As such, the authors have proposed a converged architecture of E-health built on a search based application known as Exalead CloudView. Furthermore, a detailed analysis of the existing methods and components of the secure integration of big data processing (along with the systems of cloud M2M based on certain RTUs) has also been provided as well. The authors have concluded by providing the potential directions which the aforementioned can take in the future, with the main findings of the proposed implementation methods also being provided as well.
CRITIQUE	The proposal provided in the research work of Suciu et al. (2015) has provided relevant details pertaining to the topic in question, with the proposed converged architecture of the E-health application aspects also being noted to be potentially successful on a large scale in the long run. However, the further testing of the proposed architecture (for the sake of gaining a more accurate idea pertaining to the overall effectiveness of the same) is necessary for this kind of research study in the future. As such, the implementation of a greater degree of testing can prove to be helpful in this context as well.

### Article 7

CITATION	Ahmed, E., Yaqoob, I., Hashem, I. A. T., Khan, I., Ahmed, A. I. A., Imran, M., &
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	Vasilakos, A. V. (2017). The role of big data analytics in Internet of Things. <i>Computer Networks</i> , 129, 459-471.
SUMMARY	The main impacts and roles of big data analytics in the Internet of Things have been analyzed and thoroughly discussed in the research work provided by Ahmed et al. (2017). The authors have also examined and analyzed the man issues and challenges associated with the successful use of the Internet of Things for the management of a large magnitude of data and information on a consistent basis. The review of the existing literature pertaining to the given research topic has been provided by the researchers as well. As such, the authors have concluded that the roles of big data analytics are immense, especially in the context of the Internet of Things. The management of the big data analytics of the IoT is thus a crucial matter for consideration in the given context.
CRITIQUE	While the research work of Ahmed et al. (2017) has been helpful in providing crucial insights and detailed overviews of the main role of big data analytics in the IoT, the lack of detailed data collection method use has been a glaring limitation of the said work. The use of methods such as interviews can help in the procurement of even more detailed and intricate knowledge regarding the reviewed topic at hand, with the use of the data obtained from the same being beneficial in the generation of an even more valid and accurate research conclusion.

### Article 8

CITATION	Manogaran, G., Lopez, D., Thota, C., Abbas, K. M., Pyne, S., & Sundarasekar, R. (2017). Big data analytics in healthcare Internet of Things. In <i>Innovative healthcare systems for the 21st century</i> (pp. 263-284). Springer, Cham.
SUMMARY	The Internet of Things has been very helpful in the smooth completion of various operation and tasks in industrial sectors of all kinds. Manogaran et al. (2017) have focused on the processing of a large magnitude of data in the healthcare context, with medical devices being scrutinized for the completion of the main research objective in the long run. The authors have proposed a relevant architecture pertaining to the Internet of Things, with the proposal also focusing on a logistic regression based on MapReduce. The researchers have concluded that the

	developed proposal can prove to be considerably helpful in its intended objective, provided the manner of implementation is correct.
CRITIQUE	The proposal provided by Manogaran et al. (2017) has been observed to be thoroughly researched and developed in accordance with the main needs and requirements of the situations whose issues which they aim to mitigate. However, the testing of the proposal in question should be conducted on an even larger scale, in order to validate the effectiveness of the same on an even greater manner. The inclusion of the aforementioned can be helpful in the appropriate completion of the research studies of this kind in the future.

### Article 9

CITATION	Perera, C., Vasilakos, A. V., Calikli, G., Sheng, Q. Z., & Li, K. C. (2018). Guest Editorial Special Section on Engineering Industrial Big Data Analytics Platforms for Internet of Things. <i>IEEE Transactions on Industrial Informatics</i> , 14(2), 744-747.
SUMMARY	While the Internet of Things has managed to provide relevant solutions to many of the problems and issues of the modern day world, they are often designed only to perform the main tasks pertaining to primary usage, with the completion of a minimal number of relevant operations being ensured as a result. This aspect has been focused on by the work of Perera et al. (2018), with the main intention being the discovery of useful solutions for the big data management aspects in general industrial contexts. The authors have conducted a review of the literature of six major manuscripts regarding the topic in question, with the aspects of decision making and the potential improvement of the Internet of Things' operational capability being discussed within the same.
CRITIQUE	Since the main topic selected by Perera et al. (2018) has considered the aspects of industrial big data analytics platforms in the context of the regular use of the Internet of Things, the use of even more detailed data collection methods is necessary for generating a reliable conclusion in the given context. Furthermore, the review of a larger number of manuscripts can enable the development of an even broader view of the research topic in question, thus enhancing the chances of the development of relevant solutions in this regard.

### Article 10

CITATION	Lee, I., & Lee, K. (2015). The Internet of Things (IoT): Applications, investments, and challenges for enterprises. <i>Business Horizons</i> , 58(4), 431-440.
SUMMARY	The work of Lee & Lee (2015) has focused on the Internet of Things in general, while also providing crucial insights pertaining to the issues, challenges, investments and applications related to the same in the context of the various enterprises in general. The authors have provided a specific focus on the presentation of the five major technologies of the Internet of Things which have been noted to be beneficial in the context of the service providing aspects of IoT based entities and the enhancement of the overall value of the customers in general. Furthermore, the discussions pertaining to the five main managerial and technical challenges in the implementation of the Internet of Things in various everyday operations have been provided as well.
CRITIQUE	The use of data collection methods which provide intricate and detailed information regarding the use of the Internet of Things and the main challenges associated with the same is necessary for the better completion of a more detailed conclusion in this regard. As such, the use of interviews can help in the enhancement of the credibility and validity of the generated results and conclusion in this context.

### Article 11

CITATION	Chen, F., Deng, P., Wan, J., Zhang, D., Vasilakos, A. V., & Rong, X. (2015). Data mining for the internet of things: literature review and challenges. <i>International Journal of Distributed Sensor Networks</i> , 11(8), 431047.
SUMMARY	The main aspects and details pertaining to the relationship between the Internet of Things and data mining have been focused on in the work of Chen et al. (2015). The authors in question have provided the overview of a systematic manner of reviewing the data mining aspects in various contexts. The surveying of the latest cases of application has been done as well, with the reviewing of certain algorithms and the associated issues and challenges also being provided in the

	given task. Finally, the authors have proposed a big and appropriate system of big data mining, with the relation of the same with the Internet of Things being highlighted as well.
CRITIQUE	The scale and magnitude of the study conducted by Chen et al. (2015) has been observed to not be very large. The implementation of the aforementioned study on a larger scale and the collection of the relevant information from a greater number of sources can help in the generation of more accurate results and a definitive conclusion in the given context.

## Article 12

CITATION	Witkowski, K. (2017). Internet of things, big data, industry 4.0–Innovative solutions in logistics and supply chains management. <i>Procedia Engineering</i> , 182, 763-769.
SUMMARY	Witkowski (2017) has attempted to provide certain solutions which can be deemed to be 'smart' in the areas of organization and technology. The implementation of the developed solutions through the use of logistics and the application of the same in a local, national and global context have been discussed as well. The author has attempted to consider the overall issues and challenges associated with the implementation of the solutions logistics, especially through the use of the Internet of Things. The main areas of focus have included industry 4.0, with the collection of relevant data being ensured through the conduction of a relevant literature review.
CRITIQUE	The use of data collection methods such as surveys and interviews can provide relevant and intricate details pertaining to the main topic of research chosen by Witkowski. As such, the use of the aforementioned methods in conjunction with the methods employed by Witkowski (2017) can provide results which are even more detailed, with the population chosen for the completion of the said methods needing to be comprised of proper employees and working personnel of the IT sector.