

Cyber Security and Artificial Intelligence for Cloud-based Internet of Transportation Systems

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Abstract: *The Internet of Things (IoT) has major implications in the transportation industry. Autonomous Vehicles (AVs) aim at improving day-to-day activities such as delivering packages, improving traffic, and the transportations of goods. AVs are not limited to ground vehicles but also include aerial and sea vehicles with a wide range of applications. To overcome this problem we are implementing Cyber Security (CS) based data transfer to Autonomous vehicle. Here a cloud is the mediator that which transfers sender files to autonomous vehicle with more security we are using CS based (Advanced Encryption Standard), and SHA-1 algorithms which are used to hide the transferred data into cipher text. The cipher text can be decrypted by the private key generated by sender to the particular AV.*

Keywords: Cyber Security, Cipher text, AES, Private key, AV, SHA-1.

REFERENCES

- [1]. R. Quinonez, J. Giraldo, L. Salazar, E. Bauman, A. Cardenas, Z. Lin, Securing Autonomous Vehicles with a Robust Physics-Based Anomaly Detector. 29th USENIX Security Symposium (USENIX Security 20). Boston, MA, August 2020.
- [2]. M. Masood, L. Khan, and B. Thuraisingham, Data Mining Applications in Malware Detection, CRC Press 2011.
- [3]. Y. Zhou, M. Kantarcioglu, B. M. Thuraisingham, B. Xi, Adversarial support vector machine learning. ACM KDD 2012: 1059-1067
- [4]. B. M. Thuraisingham, SecAI: Integrating Cyber Security and Artificial Intelligence with Applications in Internet of Transportation and Infrastructures, Clemson University Center for Connected Multimodal Mobility, Annual Conference, October 2019.
- [5]. B. M. Thuraisingham, P Pallabi, M. Masud, L. Khan, Big Data Analytics with Applications in Insider Threat Detection, CRC Press, 2017.
- [6]. K. W. Hamlen, V. Mohan, M. M. Masud, L. Khan, B. M. Thuraisingham: Exploiting an antivirus interface. Comput. Stand. Interfaces 31(6): 1182- 1189 (2009)
- [7]. L. Liu, M. Kantarcioglu, B. M. Thuraisingham: The applicability of the perturbation based privacy preserving data mining for real-world data. Data Knowl. Eng. 65(1): 5-21 (2008)
- [8]. B. M. Thuraisingham, M. Kantarcioglu, E. Bertino, J. Z. Bakdash, M. Fernández, Towards a Privacy-Aware Quantified Self Data Management Framework. SACMAT, pp 173-184, 2018 [9] K. W. Hamlen, M. Kantarcioglu, L. Khan, B. M. Thuraisingham, Security Issues for Cloud Computing. IJISP 4(2): 36-48 (2010)
- [9]. K. W. Hamlen, M. Kantarcioglu, L. Khan, B. M. Thuraisingham, Security Issues for Cloud Computing. IJISP 4(2): 36-48 (2010)
- [10]. Y. Li, Y. Gao, G. Ayoade, H. Tao, L. Khan, B. M. Thuraisingham, Multistream Classification for Cyber Threat Data with Heterogeneous Feature Space. WWW, pp 2992-2998, 2019 Scataglieni, S., Truyen, E., Perego, P., Gallant, J., Tiggelen, D.V., Andreoni, G.: Smart clothing for heart rate variability measures in military. HBIM J. 1, 74 (2017)

- [11]. H. Qiu, Q. Zheng, G. Memmi, J. Lu, M. Qiu, B. M. Thuraisingham, "Deep Residual Learning based Enhanced JPEG Compression in the Internet of Things", accepted by IEEE Transactions on Industrial Informatics, 2020
- [12]. G. Ayoade, V. Karande, L. Khan, K. W. Hamlen, Decentralized IoT Data Management Using BlockChain and Trusted Execution Environment. IRI, pp 15-22, 2018.