

Discretion-Preserving with Data Mining Drive Distribution Scheme with a Universal Social Grid Web for Vans Using Vast Data



Bassam T. Sabri^{1*}, Wasnaa K. Jawad²

¹ College of Business Information Technology, University of Information Technology and Communications, Baghdad 10066, Iraq

² College Informatics Systems Management, University of Information Technology and Communications, Baghdad 10066, Iraq

Corresponding Author Email: bassam.ali@uoitc.edu.iq

<https://doi.org/10.18280/isi.280124>

ABSTRACT

Received: 1 January 2023

Accepted: 30 January 2023

Keywords:

ridesharing, global social network, auto pooling, direction, criminal file

The proposed taxicab-sharing structure recognizes taxicab explorers' continuous ride requests sent from cutting edge cell phones. It plans proper cabs to get them through ridesharing and private riding, liable, as far as possible and financial necessities. An auto pooling decision for private auto owners whoever goes in a standard course. A redid setting careful security estimate and proposition for objective region is obliged by ensuring prudent steps. we propose an assurance saving intend to develop journey allotment. To partner, current security saving techniques can't be associated successfully and capably in journey sharing on account of the fascinating issues and essentials. Also, disguising the customers' differentiations is lacking considering the way that aggressors can break down the customer, from their get/drop-off regions. We use a social affair mark plan, for instance, our recommendation in, to ensure customers mystery. We similarly use a resemblance assessment strategy over mixed data, for instance, to engage a server to check the comparability of the customers' trip estimations without knowing the data. Once the server observes a customer who can share journey, it sends the customer's imprint to the Autonomous vehicle customer who can follow the imprint to the financier's person.

1. INTRODUCTION

Throughout ongoing years, the vehicle business has taken basic leaps in passing on computerization to automobile drive [1]. Independent Vans Autonomous vehicles are equipped with state of the art distinguishing and social capacities, course devices, computer image advancement, etc., to enable the vans self-appropriately ambition them-selves with no intervention from individuals. Independent vehicles might conceivably for the most part push transportation systems by reducing impacts, helping development streams, and diminishing travel time [2]. Nevertheless, the advancement used as a piece of Autonomous vehicles is exorbitant and the Autonomous vehicles' expense will be high [3]. Since Autonomous vehicles can ambition them-selves, they may not private contraptions any more extended, but instead on-demand profit. At this point people use have automobiles yet later on rather than possessing an Autonomous vehicle, numerous people can orchestrate an Autonomous vehicle from a taxicab association when they require [4]. This is a fascinating and promising way to deal with facilitate the significant expense issue of the Autonomous vehicles. Such on-demand organization will be reasonable and standard in Autonomous vehicles in view of the dismissal of the human driver effort [5]. Ride-allocation (or carpooling) grants Autonomous vehicles to be shared by customers, e.g., to share the expense of on-demand cab benefit. Since Autonomous vehicles.

drive themselves they will make ride allotment reasonable, unmistakable, and now and again significant [6]. Regardless, to form e sharing, customers need to reveal not simply their

trips' become/dewdrop-off regions, wing the time a man will venture out from home is generally important information to the gathering of hoodlums [7-10]. In this paper, our arrangement considers various cases for ride sharing and allows customers to endorse their tendencies, for instance, the most outrageous partition between journeys start end regions and a customer's contract dewdrop-off regions [11]. Our assessment has certified that the proposed plan can al-range drive sharing without revealing sensitive information. We have executed the planning using pythons' language on a absolute aide and estimated execution estimations [12]. The results have set up that the correspondence and limit overhead is commendable and be request time to figure out a common ride is close to nothing [13].

2. INTERRELATED WORK

2.1 Spatial change

Expected Classified Space Separation, Error-Based Renovation by examining the advantage of Hierarchical Space Division and Error-Founded Transformation [14]. The Classified Space Separation agreements data by using a latitudinal dividing technique for rearranging the changed data [15]. This method is stout against the attack done by adversaries who have the subset of data set information yet frail against the people who have a goal distribution. The Error-Founded Transformation carries restricted errors into the data that are reversible with the help of the protected hash

work [16]. The Error-Founded Transformation change is feeble in contradiction of the people who have establishment learning of data dispersal. They additionally proposed Classified Space Division by joining Classified Space Division and Error-Constructed Transformation [17]. But, since the spatial reshape framework keeps up bearings of Points of Attention, it is unsafe when the opponent has institution data of extraordinary Points of Concentration transport and some part of information base [18]. expected the partition organized change strategy called Metrical Safeguarding Technique. This process changes over an amazing longitudinal record in a measurement space into another measurement space datasets by using detachment between Points of Concentration. Thusly, the data owner changes his data objects into a division based metric dataset and subcontracts the changed over data set to an expert association [19]. As such, the expert centre can't endeavour the first orchestrate of Points of Concentration while the inquiry taking care of multiplication ensures the right reply [20]. The server calculates a rundown structure on the mixed dataset b empower capable request. For question setting up, the data owner instructs every customer of the change. At request time, a reliable customer applies the change work (with a key) to the inquiry and sends the changed inquiry to the server [21]. By then, the server shapes the inquiry and reports the results back to the customer. In the long run, the customer unravels the recuperated results again into the veritable results. Figure 1 (left) shows the instance of catch centres and its Points of Interest. Recognize that there are 2 hook centres and 8 Points of Interest around them. The table in Figure 1 explains the changed Points of Concentration list by using the OPES for each focal point in stays. The path1, path3, path4, path5 are named to catch 1, and others allocated to remain 2. The changed information base stores the solicitation apportioning encoded eliminate among stay and Points of Interest [22].

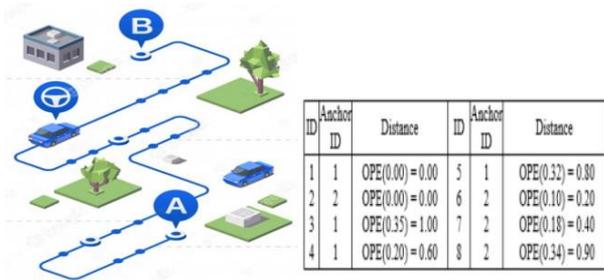


Figure 1. Anchors and POI circulation and encoded POI record

2.2 Protection preserving semantic multi-keyword ranked search

The topic of multi-watchword torpid semantics situated look for over mixed rain cloud data and recuperating the main reports is grasped here [23]. We describe another arrangement named Concealed Semantic Investigation based multi-expression situated look for which courses of action multi-watchword inactive semantic position look. By using LSA, the expected arrangement could return the right organizing reports, just as the records including the terms torpid semantically related to the inquiry watchword [24]. For example, when the customer inputs the watch-word "vehicle" to pursuit reports, the normal strategy returns the records containing "van", just

as the records with the articulation "auto". We take an immense structure of term-statement proposition data foster a semantics space wherein terms and chronicles are solidly related are set near one another. To meet the trial of supporting such multi-watch-word semantics without security breaks, we propose the idea: The Multi-Keyword Raid Search using "Torpid Semantic Analysis" [25].

2.3 Multi-keyword classified search with unspecified identification obligation

Since a cloud data working with administ0tion including three one-of-a-kind substances, the data owner, the data customer close by his identification, and the cloud server [26]. The data owner first records on cloud using anonymity computation for disseminated registering organizations. Before redeemable customer enlistment info to data set show on raincloud impenetrable estimation set up the data and later that obscure data is saved to record-keeping data set. The data owner has a collection of data records to be moved to the raincloud server in the encoded outline. To engage looking limit over convincing data application, the data owner, will initially shape a mixed accessible record prior to re-appropriating, and a while later subcontract both the rundown and the encoded document gathering to the cloud server [27]. The work oversees adequate computations for giving out identifiers (identifications) to the customers on the cloud in a way that the identifications are obscure using a dispersed estimation with no central trained professional [28]. Given are N centre points, this errand is for the most part a difference in the numbers {1... N1} with each identification being known just to the centre to white is assigned. Our guideline estimation relies upon a strategy for subtly sharing fundamental data and results in systems for solid sharing of mind-boggling data [29]. To filter the report gathering for given expressions, an embraced customer having an ID gets a relating secret entrance T through pursuit control parts, for example, convey encoding. On tolerating T from a data customer, cloud server is responsible to look the rundown and a while later offers back the relating set of mixed documents. To propel the report recuperation accuracy [30], the inquiry yield should be situated by the raincloud server proposing to some situating models (e.g., put together planning) and giving out secretive identification [8] to the customer on raincloud to make the data on cloud more got [31]. Likewise, to decrease the expense of correspondence the data customer might send an elective number close by the secret entryway T so the cloud server simply sends back top-k chronicles that are generally pertinent to the request question. At last, the gain to influence part is endeavouring to supervise unscrambling abilities given to customers and the data social affair can be revived the extent that implanting's new chronicles, exhorting existing ones, and deleting the current reports [32].

3. PLANNED SYSTEM

We propose a continuous taxi allotment request which will ping the explorers very distant in a period and financially savvy quiet both to voyagers and taxicabs. Insurance will to the voyagers depending upon their tendency by giving separate ride also [33]. Regarding as safety is concerned each taxi customers' compact request has a choice to report any kind of extra, which resolve send SMSed and Mail to cautions to

selected flexible numbers in a lively and basic manner [34]. The attendant will similarly dispatch a message to director people with the Geographic processing system space of the taxi where the emergency was instigated. Also, we introduce and adapt an auto reviewing submission for private auto owners who need to part their van in the midst of their overall journeys [35]. By and large, most auto owners track a standard way on a dull reason. Several customers who go to a comparative region mean-while can be assembled on a run of the mill-lion between auto owner and the traveler. amount to cost spent on the ride can be essential considering e travel detachment and time spent for the ride. Each taxi rider with a versatile should be enrolled to our application self-administering depending upon the piece of the customer. Insurance of each customer will be kept up by giving pseudo person and individual information are kept secure and will not be conferred to various customers for any reasons substitute adaptable numbers are used to trigger any kind of emergency and the ride status will be dispatched on friendly applications as you request to be posted on your rides [36].

Keep in mind that each layer might have a varied number of neuronal and activating function, and weighting are trained for each node to maximize the final output. As a product, the quantity of trainable constraints increases as the number of layers increases. Gratify memo that, in direction to preserve things by way of easy as feasible, I've left out several aspects that may or may not be relevant to the company, but which an information technologist must be cognizant of. Specifically For prosperity, modified security measures for customer the prosperity and bad behaviors record are figured in light of the course. The goal of portraying bad behaviors and prosperity records is to outfit customers with security recommended information. People are anyway not correspondingly introduced and exposed against all bad behaviors' sorts. Age, sex and an assortment of individual components, tendencies and choices expect a central part in the comprehension of a singular's security [37]. Since such informational collection not be immediately accessible, we utilize rather the limitation capacities of a customer's wireless to in some cases record and locally store her bearing follow. This enables us to portray the bad behavior list level with which a customer is pleasing. for example, the typical bad behaviors rundown of the spots toward her [38]. Exactly when enough bad behaviors information exists to engage the assumption for the not really far off future bad behaviors document of a space, we present modified security: the customer is ensured assuming her pleasant bad behaviors document level reciprocals or outperforms the anticipated bad behaviors document of her current region. Activities are explained in Figure 2.

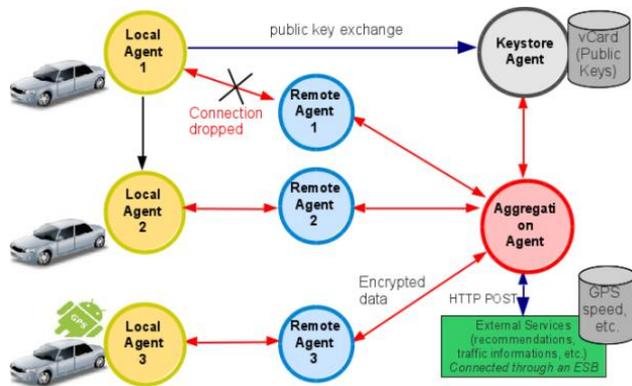


Figure 2. Architecture diagram

3.1 Several parts of users and web heaving

There are quatern sections in our request I. Executive, ii. Voyager, iii. Auto peeler and iv. Taxicab driver. Each customer should be selected with our request beside Admin as he endorses customer enrolment and produces pseudo character. Regardless taxicab driver and car-pooler are enrolled with their van conspicuous evidence numbers and Deeper Neuronal Nets are a kind of neuron net. All Deeper Training models are Neuron Nets, however not all Neuronal Networks is Machine Learning (ml) models, one may argue. In general, "Depths" Learning is an approach to an algorithm with at most two latent layers (so four layers in totals includes inputs and result). Considering recreating the neuronal process three times at the same time: since every node (balanced sum & activated function) produces a value, the first deep layer would have multiple outputs flexible numbers. Later check is done the vehicle can be followed back by our application at whatever point. taxi owners can revive the clamoring state and free state of their taxicabs as a ride is started or wrapped up. Web crawling is a technique of isolating data from various web applications through gain to influence and adaptabilities for region-based assumption to be done by expert center [39]. All information as far as spots should be been aware. The information contain control cut plans from power office, condition from environment division, and criminal records from police office. Each division are unquestionable web applications and they have their own specific Administrator level people shielding the datasets. expert center should request the various divisions so that the data's can be left from various web servers through web organizations. So an interest will be sent unreservedly to each division and it will deliver as notification on the organizations pages. If they recognize the sales sent from our expert community, we can get to the web applications datasets. Model Development of the Sequence classes of Pythons is the simplest approach to create a Neuronal Net with Pyrenn. Let's apply it to the Activation functions from the prior example, resulting in a model with only one Dentine sheet. It remains the greatest fundamental deposit since it distributes altogether of the impulses to all of the neuronal, with each neuronal producing single production.

3.2 Several parts of users and web heaving

Head should set up request by placing vans in maps. n no of vans is set on guides to show demo. As customer login to the request, he should pick whether he wants to travel private alone or needs a shared ride. that point the customer should pick the source, objective and should request the organization. customer current position will be separate on the aide as and when customer enters the request.

We develop and join a Global Social Network as in Figure 3 which engages to woods gives that the customer might face on a space, by evaluating other customer protests around there. Everything customers can post grumblings through Geographic system network by taking photographs of the issue they went up against over there somewhere. Our requests thusly embed the GPSs network esteems, date and time the snap was taken in the image. A little explanation can similarly be given so the manager can without a very remarkable stretch perceive the discord and the watermark ensure the exactness of the issue. The Dbs. will be compelling considering that and any customer can mistreat a complaint. If various customers misuse a discord it is recognized as phony and killed thusly

making our application exceptional. Thusly, the director has the expert to upset a customer who mishandles the fights. The guest customer is given the workplace of audit the grumbings posted by substitute customers around there. The guest customer doesn't need to enroll with the application is to see the complaints.

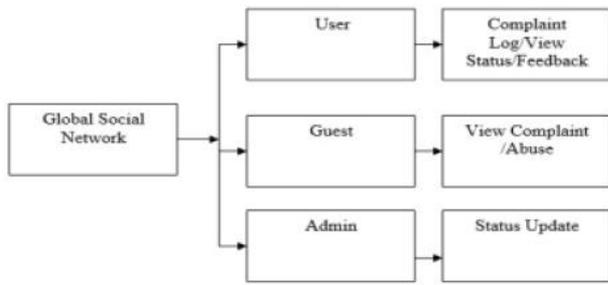


Figure 3. Processes of GSNs

3.3 Taxicab pointed and ride distribution

The headwaiter will attempt to find the close by taxicab by a creative hunt cycle and observes a best match to the client prerequisite and will dispatch forget. A short charge sheet is given for the ride demand and the ride cost will be controlled in like manner as the journey is done. Assuming that the solicitation type is a journey sharing solicitation then the travelers can be gathered by common affirmations and can be obliged in light of time, space and money related obliges. The travelers inside the vehicle will be mentioned to give consent for another corner who is mentioning a ride share administration. If and provided that every one of the travelers inside the van acknowledges the solicitation the cabbie is implied to get the new traveler. Eventually, it's time to put our Deeper Training models through its paces. We must "code" it, or, to put it another way, specify the Optimization, Losses functions, and Measurements in order for it to execute. I frequently utilize the Ad amination estimator, which is a conjugate gradient replacement optimizing approach (the best amongst the adaptive optimizing) [38]. The majority of the parameters are dependent on the use case. You should employ a (bin) Bridge loss in (bin) classification issues, which compares each of the anticipated probabilities to the actual output of the class in terms of metrics, don't use this word prefer to measure Accuracy as well as the F1-score, which combines Precision and Recall; the latter, however, must be implemented as it is not currently included in Pyrenn.

3.4 Penetrating calculation

Consider the under-neath example graph displayed in the Figure 4 for description of the looking through calculation that is basically utilized here is explained.

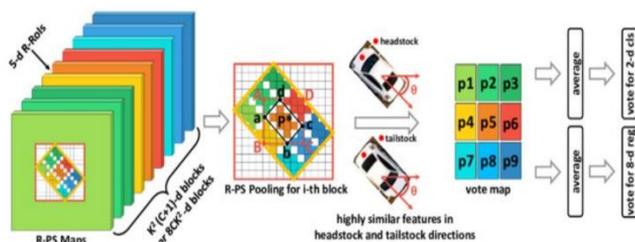


Figure 4. Taxi searching algorithm

Contemplate the under-model diagram showed up in the Figure 4 for depiction of the looking for estimation that is essentially used here is explained. Acknowledge that there is an interest r and right now Tour the grid cell g_7 is the place where Q_0 (become points). The primary network cell to be found and picked is g_7 here. Some other cell would be picked unpredictable by the looking for computation just in case it holds Eq. (1). To rapidly find all of the systems that the Eq. (1) holds, the taxi looking at computation first tests all cells in quite a while per the solicitation in the once-over secured by spatial common record and finds the essential organization cell g_{fi} which fails to hold Eq. (1).

$$Ti_7 + t_{curr} < Q_0 \quad (1)$$

where, Ti_7 talks the movement time between cross section cell g_7 and g_i . Later a taxi is started using the request estimation, a concise charge leaf is given for the ride request and the ride cost will be controlled as necessary the place where the ride is finished. If the interest shape is a journey allotment requesting then the voyagers can be collected joint certifications and can be fit considering time, space and cash related obliges. The explorers inside the auto will be requested to give continue for another corner who is wishing a journey part benefit. If and just assuming all of the voyager inside recognizes the interest the taxicab driver is intimated to get the new explorer [40].

3.5 Carriage pooling and poster peer group

An alternate methodology is made to support auto combining for typical course customers and the owner's courses are invigorated on their enlistment strategy as in Figure 4. An auto pooling solicitate can be given by a customer by saying the course unpretentious components that should be taken later regularly. The attendant will find a real auto shaft will prompt both car-pooler's and requesters. In case both recognize the recommendation, then, at that point, they will be pinged and followed by your request. Beak will be remembered for light of the kind of movement, travel detachment and time considering the requirement said while saving for a journey. security can be refined by having emergency triggers and by posting the movement information on friendly medias. Security will be held to the explorers depending upon their tendency by giving individual ride and using pseudo characters.

3.6 Modified context aware safety estimate and commendation

Security information anyway is most significant when obliged the present or not really far off future. The customer bearings have an imperative impact in expecting the characteristics which are isolated from the course trace of customer. The expert association predicts the security levels on the off chance that enough conjecture characteristics are open for future depending upon GSNINF, police records, environment records, and power cut schedules. Customer heading proposition recorded by his flexible application and the GSNINF follow helps anticipating the bad behaviors document level with which the customer is pleasing. The ordinary bad behaviors document assessments of customer's course should be same or more significant than the close by future region bad behaviors list esteems. The qualities depend on upon the weightage of infringement gave insights about

those spaces. The assumption is done in 3 levels showing red, yellow, green considering the security estimate through heading follow which deals with the customer in his objective region and furthermore guarantees the person is avoiding any and all risks around their Figure 5.

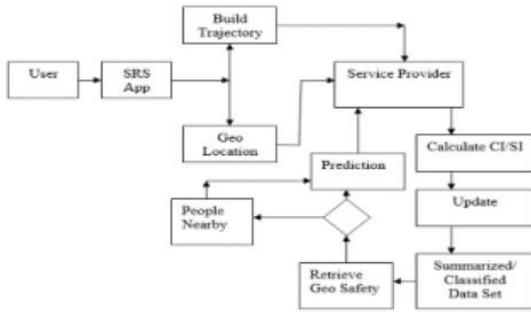


Figure 5. Operation on criminal index calculation

4. CONCLUSION

We have arranged a security saving ride sharing groundwork for Autonomous vehicles. Specific occasions of journey sharing can be arranged out by our game plan with pondering the clients' propensities. Our examination plan can realize entrancing security highlights. In this manner, we assembled has shown that our up a valuable ride-sharing come auto pooling request which connects with the client to go to their destinations on the fly successfully and reasonable subject, quite far, and cash related limitations, guaranteeing the affirmation and security concerns and guarantees the client for staying away from any pointless danger on the goal relying on the changed setting cautious thriving levels.

REFERENCES

[1] Jain, A. K., Mao, J., Mohiuddin, K.M. (1996). Artificial neural networks: A tutorial. *Computer*, 29(3): 31-44. <https://doi.org/10.1109/2.485891>

[2] Basu, J.K., Bhattacharyya, D., Kim, T.H. (2010). Use of artificial neural network in pattern recognition. *International Journal of Software Engineering and Its Applications*, 4(2): 23-33.

[3] Priyanga, H.Y., Ruliandi, D. (2018). Application of pattern recognition and classification using artificial neural network in geothermal operation. In *Proceedings, 43rd Workshop on Geothermal Reservoir Engineering Stanford University, Stanford, California*, pp. 12-14.

[4] Smith, C.D., Jones, E.F., Furnish, M.D. (2001). Load-cycling in cubic press. *Shock Compression of Condensed Matter*, (620): 651-654.

[5] Shang, C., Palmer, A., Sun, J., Chen, K.S., Lu, J., Bi, J. (2017). VIGAN: Missing view imputation with generative adversarial networks. In *2017 IEEE International Conference on Big Data (Big Data)*, Boston, MA, USA, pp. 766-775.

[6] Bala, R., Kumar, D. (2017). Classification using ANN: A review. *International Journal of Computational Intelligence Research*, 13(7): 1811-1820.

[7] Nikzad, M., Movagharnejad, K., Talebnia, F. (2012). Comparative study between neural network model and

mathematical models for prediction of glucose concentration during enzymatic hydrolysis. *International Journal of Computer Applications*, 56(1): 43-48.

[8] Lazli, L., Boukadoum, M. (2013). Hidden neural network for complex pattern recognition: A comparison study with multi-neural network based approach. *International Journal of Life Science and Medical Research*, 3(6): 234-245. <https://doi.org/10.5963/LSMR0306003>

[9] Kepka, J. (1994). The current approaches in pattern recognition. *Kybernetika*, 30(2): 159-176.

[10] Sharma, P., Kaur, M. (2013). Classification in pattern recognition: A review. *International Journal of Advanced Research in Computer Science and Software Engineering*, 3(4): 298-306.

[11] ThippeSwamy, R.D.K. (2017). Training feed forward neural network with b backpropagation algorithm. *International Journal of Engineering and Computer Science*.

[12] Kattan, A., Abdullah, R. (2011). Training of feed-forward neural networks for pattern-classification applications using music inspired algorithm. *International Journal of Computer Science and Information Security*, 9(11): 44-57.

[13] He, S., Lau, R. W., Liu, W., Huang, Z., Yang, Q. (2015). Supercnn: A superpixelwise convolutional neural network for salient object detection. *International journal of computer vision*, 115: 330-344. <https://doi.org/10.1007/s11263-015-0822-0>

[14] Ruiz-del-Solar, J., Loncomilla, P., Soto, N. (2018). A survey on deep learning methods for robot vision. *arXiv preprint arXiv:1803.10862*.

[15] Li, S., Deng, W. (2020). Deep facial expression recognition: A survey. *IEEE transactions on affective computing*, 13(3): 1195-1215. <https://doi.org/10.1109/TAFFC.2020.2981446>

[16] Hasani, B., Mahoor, M.H. (2017). Facial expression recognition using enhanced deep 3D convolutional neural networks. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshops*, pp. 30-40. <https://doi.org/10.1109/CVPRW.2017.282>

[17] Khorrami, P., Paine, T., Huang, T. (2015). Do deep neural networks learn facial action units when doing expression recognition? In *Proceedings of the IEEE International Conference on Computer vision Workshops*, pp. 19-27. <https://doi.org/10.1109/ICCVW.2015.12>

[18] Bargal, S.A., Barsoum, E., Ferrer, C.C., Zhang, C. (2016). Emotion recognition in the wild from videos using images. In *Proceedings of the 18th ACM International Conference on Multimodal Interaction*, pp. 433-436. <https://doi.org/10.1145/2993148.2997627>

[19] Vazquez, R. (2010). Izhikevich neuron model and its application in pattern recognition. *Australian Journal of Intelligent Information Processing Systems*, 11(1): 35-40.

[20] Hühnerbein, R., Savarino, F., Åström, F., Schnörr, C. (2018). Image labeling based on graphical models using Wasserstein messages and geometric assignment. *SIAM Journal on Imaging Sciences*, 11(2): 1317-1362. <https://doi.org/10.1137/17M1150669>

[21] Zeng, X., Ouyang, W., Yan, J., et al. (2017). Crafting gbd-net for object detection. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 40(9): 2109-2123. <https://doi.org/10.1109/TPAMI.2017.2745563>

- [22] Sala, P., Dickinson, S. (2015). 3-d volumetric shape abstraction from a single 2-d image. In Proceedings of the IEEE International Conference on Computer Vision Workshops, pp. 1-9. <https://doi.org/10.1109/ICCVW.2015.108>
- [23] Grauman, K. (2010). Efficiently searching for similar images. *Communications of the ACM*, 53(6): 84-94. <https://doi.org/10.1145/1743546.1743570>
- [24] Dahikar, S.S., Rode, S.V. (2014). Agricultural crop yield prediction using artificial neural network approach. *International Journal of Innovative Research in Electrical, electronics, Instrumentation and Control Engineering*, 2(1): 683-686.
- [25] Jha, K., Doshi, A., Patel, P., Shah, M. (2019). A comprehensive review on automation in agriculture using artificial intelligence. *Artificial Intelligence in Agriculture*, 2: 1-12. <https://doi.org/10.1016/j.aiaa.2019.05.004>
- [26] Niedbała, G. (2019). Application of artificial neural networks for multi-criteria yield prediction of winter rapeseed. *Sustainability*, 11(2): 533. <https://doi.org/10.3390/su11020533>
- [27] Liakos, K. G., Busato, P., Moshou, D., Pearson, S., Bochtis, D. (2018). Machine learning in agriculture: A review. *Sensors*, 18(8): 2674. <https://doi.org/10.3390/s18082674>
- [28] Asht, S., Dass, R., Fallis, A., et al. (2012). Pattern recognition techniques: A review. *International Journal of Computer Science and Telecommunications*, 3(8): 25-29.
- [29] Siegel, L. (1979). A procedure for using pattern classification techniques to obtain a voiced/unvoiced classifier. *IEEE Transactions on Acoustics, Speech, and Signal Processing*, 27(1): 83-89. <https://doi.org/10.1109/TASSP.1979.1163186>
- [30] Khlebus, S.F., Hasoun, R.K., Sabri, B.T. (2022). A modification of the Cayley-Purser algorithm. *International Journal of Nonlinear Analysis and Applications*, 13(1): 707-716. <https://doi.org/10.22075/IJNAA.2022.5559>
- [31] Sabri, B.T., Yaseen AL-Falahi, N.A., Salman, I.A. (2021). Option for optimal extraction to indicate recognition of gestures using the self-improvement of the micro genetic algorithm. *International Journal of Nonlinear Analysis and Applications*, 12(2): 2295-2302. <https://doi.org/10.22075/IJNAA.2021.5375>
- [32] Hussein, R.R.A., Hamza, Z.F., Sabri, B.T. (2021). Forecasting the number of COVID-19 infections in Iraq using the ARIMA model. *Journal of Applied Science and Engineering*, 24(5): 729-734. [https://doi.org/10.6180/jase.202110_24\(5\).0006](https://doi.org/10.6180/jase.202110_24(5).0006)
- [33] Ali, B.S., Ucan, O.N., BAYAT, O. (2019). Development of a Enhanced Ear Recognition System for Personal Identification. In 2019 IEEE 5th International Conference for Convergence in Technology (I2CT), pp. 1-5. <https://doi.org/10.1109/I2CT45611.2019.9033829>
- [34] Ali, B.S., Ucan, O.N. (2018). Lossy Hyperspectral Image Compression Based on Intraband Prediction and Interband Fractal. In Proceedings of the Fourth International Conference on Engineering & MIS 2018, pp. 1-10. <https://doi.org/10.1145/3234698.3234705>
- [35] Fu, K.S. (1976). Pattern recognition and image processing. *IEEE transactions on computers*, 100(12): 1336-1346. <https://doi.org/10.1109/tc.1976.1674602>
- [36] Zheng, L., He, X. (2005). Classification techniques in pattern recognition. Václav Skala - UNION Agency. <http://hdl.handle.net/11025/920>
- [37] Qazi, K.A., Nawaz, T., Mehmood, Z., Rashid, M., Habib, H.A. (2018). A hybrid technique for speech segregation and classification using a sophisticated deep neural network. *PloS One*, 13(3): e0194151. <https://doi.org/10.1371/journal.pone.0194151>
- [38] Mehta, R., Arbel, T. (2018). RS-Net: Regression-segmentation 3D CNN for synthesis of full resolution missing brain MRI in the presence of tumours. In Simulation and Synthesis in Medical Imaging: Third International Workshop, SASHIMI 2018, Held in Conjunction with MICCAI 2018, Granada, Spain, Proceedings 3, Springer, Cham, pp. 119-129. https://doi.org/10.1007/978-3-030-00536-8_13
- [39] Kumar, A., Raj, B. (2017). Audio event and scene recognition: A unified approach using strongly and weakly labeled data. In International Joint Conference on Neural Networks (IJCNN), Anchorage, AK, USA, pp. 3475-3482.
- [40] Friedman, M. (1937). The use of ranks to avoid the assumption of normality implicit in the analysis of variance. *Journal of the American Statistical Association*, 32(200): 675-701.