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Suggestions for Future Research: Need advanced data cleaning methods

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Brad's Notes: Used Random Forest in feature selection

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Suggestions for Future Research: Undoubtedly, this paper's research is not without limitations. All SPFs, developed and transferred, suffer from omitted variable bias (Lord and Mannering, 2010) which results in errors associated with the estimates of the independent variables' coefficients. Collecting data about more variables common to all the seven states is a challenge but worth the endeavor. Random parameters are also not taken into consideration. Mannering et al. (2016) assert that omitting random parameters inhibits the capturing of unobserved heterogeneity effects. However, incorporating random parameters renders the SPFs to be not transferable to other settings (Mannering et al., 2016). Incorporating finite mixture effects and random effects into the SPFs may also deter SPF transferability (Lord and Mannering, 2010). Furthermore, the generalized additive model and the hierarchical model structures are not attempted because they are also difficult to transfer to data of jurisdictions elsewhere (Lord and Mannering, 2010). Other than the regression techniques that are difficult to transfer, it should be noted that there are several viable techniques that could've been attempted. The transferability of Conway-Maxwell Poisson, gamma, negative multinomial, multivariate and generalized estimating equation SPFs (Lord and Mannering, 2010) is worth investigating. Another shortcoming is that the Tobit, RF, tree and hybrid models, recommended, are not applicable to before-and-after countermeasure deployment analysis using the empirical Bayes (EB) method prescribed by the HSM. The EB method depends on weights which are a function of the overdispersion of the NB model. Yet, Tobit, RF, tree and hybrid structures are applicable for evaluating the safety of alternative road designs.
doi:`https://doi.org/10.1016/j.aap.2018.09.024`. `https://www.sciencedirect.com/science/article/pii/S0001457518306754`.

Brad's Notes: Interesting. Comparison of different models (ML and statistical) on different datasets from different states.

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Not ML

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Suggestions for Future Research: None

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Brad's Notes: Interesting for Text Mining

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Not ML

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Hall, Thomas, and Andrew P. Tarko. \Adequacy of negative binomial models for managing safety on rural local roads." *Accident Analysis & Prevention* 128 (2019): 148{158.

Suggestions for Future Research: Future research should compare safety e ects estimated on rural local roads with those e ects on well-studied rural arterial roads. If the similarity of e ects on both road types are con rmed, then this could allow transferring at least part of the knowledge of highway safety factors (for example, crash modi cation factors) to rural local roads to facilitate the development of road screening and safety improvement measures for these roads. While the current study focused on rural local intersections, future research should extend further to cover rural local segments. A similar statistical methodology may be used in examining the e ect of segmentlevel variables related to the road curvature, driveways and access points, and the presence of roadside obstructions, among other factors. Segments may also o er further opportunities for safety improvements through the alignment, cross-sectional, and roadside components.
doi:https://doi.org/10.1016/j.aap.2019.03.001. https://www.sciencedirect.com/science/article/pii/S0001457518306808.

Brad's Notes: Not ML

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Harb, Rami, Xuedong Yan, Essam Radwan, and Xiaogang Su. \Exploring precrash maneuvers using classi cation trees and random forests." *Accident Analysis & Prevention* 41, no. 1 (2009): 98{107. doi:https://doi.org/10.1016/j.aap.2008.09.009. https://www.sciencedirect.com/science/article/pii/S0001457508001887.

Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Interesting?

Hong, Zihan, Ying Chen, and Yang Wu. \A driver behavior assessment and recommendation system for connected vehicles to produce safer driving environments through a \follow the leader" approach." *Accident Analysis & Prevention* 139 (2020): 105460.

Suggestions for Future Research: Finally, several extensions of this work are proposed. First, di erent levels of connectivity for longer tests with more vehicles within other networks, especially in rural areas, would be worthwhile. Second, the data library could be improved by introducing more trajectory data in addition to other types of data describing the driving situations, particularly weather, road conditions, and the driving culture (i.e. social norms) in the area/city/country where the driving data is collected. Third, the proposed system is extendable to an on-line case which can be updated in real-time. Fourth, as stated in Section 5.2, the importance of compliance rate could be further explored with a set of more systematically designed experiments. With additional training data and more robust simulations, the attractiveness of this system for deploying a wider range of tra c management interventions and individual driver guidance is indeed possible.
doi:`https://doi.org/10.1016/j.aap.2020.105460`. `https://www.sciencedirect.com/science/article/pii/S0001457519307377`.

Brad's Notes: Not ML

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Islam, Zubayer, Mohamed Abdel-Aty, Qing Cai, and Jinghui Yuan. \Crash data augmentation using variational autoencoder." *Accident Analysis & Prevention* 151 (2021): 105950.

Suggestions for Future Research: Future studies can train crash prediction models on more complex and non-linear algorithms that do not perform well on small datasets. Using VAE as a data generation tool in the pipeline would de nitely aid in generating substantial data to train on non-linear models. Furthermore, there could be more work relating VAE that could have one more class in between crash and non-crash: crash-prone. The training data of this region could be derived from the false positives from our VAE model.
doi:https://doi.org/10.1016/j.aap.2020.105950. https://www.sciencedirect.com/science/article/pii/S000145752031770X.

Brad's Notes: Interesting. Data augmentation.

Jacobe de Naurois, Charlotte, Christophe Bourdin, Clement Bougard, and Jean-Louis Vercher. \Adapting arti cial neural networks to a speci c driver enhances detection and prediction of drowsiness." *Accident Analysis & Prevention* 121 (2018): 118{128. doi:https://doi.org/10.1016/j.aap.2018.08.017. https://www.sciencedirect.com/science/article/pii/S0001457518304743.

Brad's Notes: Too Old

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Jacobe de Naurois, Charlotte, Christophe Bourdin, Anca Stratulat, Emmanuelle Diaz, and Jean-Louis Vercher. \Detection and prediction of driver drowsiness using arti cial neural network models." 10th International Conference on Managing Fatigue: Managing Fatigue to Improve Safety, Wellness, and E ectiveness". *Accident Analysis & Prevention* 126 (2019): 95{104. doi:https://doi.org/10.1016/j.aap.2017.11.038. https://www.sciencedirect.com/science/article/pii/S0001457517304347.

Brad's Notes: Not our data. Driving simulator.

Jahangiri, Arash, Hesham Rakha, and Thomas A. Dingus. \Red-light running violation prediction using observational and simulator data." *Accident Analysis & Prevention* 96 (2016): 316{328. doi:https://doi.org/10.1016/j.aap.2016.06.009. https://www.sciencedirect.com/science/article/pii/S0001457516302056.

Brad's Notes: Too Old

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Brad's Notes: Too Old

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Jetto, Kamal, Zineb Tahiri, Abdelilah Benyoussef, and Abdallah El Kenz. \Cognitive anticipation cellular automata model: An attempt to understand the relation between the tra c states and rear-end collisions." *Accident Analysis & Prevention* 142 (2020): 105507. doi:https://doi.org/10.1016/j.aap.2020.105507. https://www.sciencedirect.com/science/article/pii/S0001457519316859.

Brad's Notes: Not ML, Not our data

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Jha, Alok Nikhil, Niladri Chatterjee, and Geetam Tiwari. \A performance analysis of prediction techniques for impacting vehicles in hit-and-run road accidents." *Accident Analysis & Prevention* 157 (2021): 106164.

Suggestions for Future Research: The work can be extended by applying other classi cation and regression models, such as self-organizing maps, random forest, neural networks, clustering techniques, rough sets and deep learning techniques.
doi:`https://doi.org/10.1016/j.aap.2021.106164`. `https://www.sciencedirect.com/science/article/pii/S0001457521001950`.

Brad's Notes: Nothing new. We did a thing.

Ji, Ang, and David Levinson. \An energy loss-based vehicular injury severity model." *Accident Analysis & Prevention* 146 (2020): 105730.

Suggestions for Future Research: Future research could extend the model by studying more crashes with di erent collision angles and establishing the relationships between crash types and their respective values. It may also depend on whether fragile or weak structures of vehicles receive the crash impact. Other factors that signi cantly in- uence the energy absorption by vehicles are also expected to improve estimation outcomes. Extensions to consider elastic collisions and restitution coe cients may provide additional useful insights for realistic crash studies.
doi:`https://doi.org/10.1016/j.aap.2020.105730`. `https://www.sciencedirect.com/science/article/pii/S0001457519315519`.

Brad's Notes: Predicting injury based on relative masses of vehicles.

Jiang, Feifeng, Kwok Kit Richard Yuen, and Eric Wai Ming Lee. \A long short-term memory-based framework for crash detection on freeways with tra c data of di erent temporal resolutions." *Accident Analysis & Prevention* 141 (2020): 105520.

Suggestions for Future Research: The limitation of this study is that cases with very poor data quality (e.g., no data recorded in more than one stations) are deleted in data preprocessing. However, this kind of missing data accounts for a large proportion of all cases. Future work needs to propose proper methods to supplement these missing data and improve prediction performance.

doi:https://doi.org/10.1016/j.aap.2020.105520. https://www.sciencedirect.com/science/article/pii/S0001457519317713.

Brad's Notes: Interesting for taking temporal resolution into account. Real-time applications?

Jin, Mengxia, Guangquan Lu, Facheng Chen, Xi Shi, Haitian Tan, and Junda Zhai. \Modeling takeover behavior in level 3 automated driving via a structural equation model: Considering the mediating role of trust." *Accident Analysis & Prevention* 157 (2021): 106156. doi:https://doi.org/10.1016/j.aap.2021.106156. https://www.sciencedirect.com/science/article/pii/S0001457521001871.

John C., Ferguson, McNally Michael S., and Booth Richard F. \Individual characteristics as predictors of accidental injuries in naval personnel." *Accident Analysis & Prevention* 16, no. 1 (1984): 55{62. doi:https://doi.org/10.1016/0001-4575(84)90006-X. https://www.sciencedirect.com/science/article/pii/000145758490006X.

Brad's Notes: Too Old

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Kao, Henry S.R. \Feedback concepts of driver behavior and the highway information system." *Accident Analysis & Prevention* 1, no. 1 (1969): 65{76. doi:https://doi.org/10.1016/0001-4575(69)90005-0. https://www.sciencedirect.com/science/article/pii/0001457569900050.

Brad's Notes: Too Old

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Katanalp, Burak Yigit, and Ezgi Eren. \The novel approaches to classify cyclist accident injury-severity: Hybrid fuzzy decision mechanisms." *Accident Analysis & Prevention* 144 (2020): 105590. doi:https://doi.org/10.1016/j.aap.2020.105590. https://www.sciencedirect.com/science/article/pii/S0001457520305522.

Katrakazas, Christos, Mohammed Quddus, and Wen-Hua Chen. \A new integrated collision risk assessment methodology for autonomous vehicles." *Accident Analysis & Prevention* 127 (2019): 61{79.

Suggestions for Future Research: None
, doi:https://doi.org/10.1016/j.aap.2019.01.029. https://www.sciencedirect.com/science/article/pii/S0001457518306614.

Brad's Notes: Perhaps Interesting. I think they combined two types of data in the analysis.

Katrakazas, Christos, Athanasios Theo latos, Md Ashraful Islam, Eleonora Papadimitriou, Loukas Dimitriou, and Constantinos Antoniou. \Prediction of rear-end con ict frequency using multiple-location tra c parameters." *Accident Analysis & Prevention* 152 (2021): 106007. doi:https://doi.org/10.1016/j.aap.2021.106007. https://www.sciencedirect.com/science/article/pii/S0001457521000385.

Keramati, Amin, Pan Lu, Amirfarrokh Iranitalab, Danguang Pan, and Ying Huang. \A crash severity analysis at highway-rail grade crossings: The random survival forest method." *Accident Analysis & Prevention* 144 (2020): 105683.

Suggestions for Future Research: None
, doi:https://doi.org/10.1016/j.aap.2020.105683. https://www.sciencedirect.com/science/article/pii/S0001457519317749.

Brad's Notes: Highway-Rail Grade Crossing, found two correlated countermeasures, with temporal e ects.

Khan, Md Nasim, and Mohamed M. Ahmed. \Trajectory-level fog detection based on in-vehicle video camera with TensorFlow deep learning utilizing SHRP2 naturalistic driving data." *Accident Analysis & Prevention* 142 (2020): 105521. doi:https://doi.org/10.1016/j.aap.2020.105521. https://www.sciencedirect.com/science/article/pii/S0001457519316422.

Khan, Shah Khalid, Nirajan Shiwakoti, Peter Stasinopoulos, and Yilun Chen. \Cyber-attacks in the next-generation cars, mitigation techniques, anticipated readiness and future directions." *Accident Analysis & Prevention* 148 (2020): 105837. doi:https://doi.org/10.1016/j.aap.2020.105837. https://www.sciencedirect.com/science/article/pii/S0001457520316572.

Brad's Notes: Not ML

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Khattak, Zulqarnain H., and Michael D. Fontaine. "A Bayesian modeling framework for crash severity effects of active traffic management systems." *Accident Analysis & Prevention* 145 (2020): 105544.

Suggestions for Future Research: There are several avenues for future research. The crash severity results from this study can be compared with individual models representing frequency of crashes and crash types. The insights about the effects of ATM systems on crash severities can be enhanced with data from additional deployments across different states. ATM systems are unique and these deployments are rare across the country, with limited high-quality data, which makes the current study one of the first to analyze the severity impact of ATM systems. The current study will serve as a base for future studies to draw a comparison against performance of ATM systems as more data becomes available. **Further, a comparison between econometric models and machine learning algorithms can be conducted and used to estimate models with high prediction accuracy.** Finally, the ATMs impact on freeway crash severities was examined in this research. However, future research could focus on examining similar severity impacts on freeway interchange influence areas. The speed of vehicles involved in a crash is an important factor that could influence the crash severity. However, the only speed estimates available are those provided on the police report, which are either estimated by the drivers involved or the responding officer after the crash. Given the potential inaccuracies in this data, speed estimates were not used. Future studies could collect these real-time at-fault speeds (Khattak et al., 2018a) using connected vehicle data, which could provide useful insights into the impact of this variable on crash severity prior to involvement in a crash event.

doi:`https://doi.org/10.1016/j.aap.2020.105544`. `https://www.sciencedirect.com/science/article/pii/S0001457519317762`.

Brad's Notes: Not ML, but interesting for recommending a comparison between econometric models and ML algorithms.

Khattak, Zulqarnain H., Michael D. Fontaine, Wan Li, Asad J. Khattak, and Thomas Karnowski. "Investigating the relation between instantaneous driving decisions and safety critical events in naturalistic driving environment." *Accident Analysis & Prevention* 156 (2021): 106086.

Suggestions for Future Research: Furthermore, the use of random parameter logit model with heterogeneity in means and variance may help in improving the prediction power of the severe plus moderate injury category at the cost of neglecting the ordinal nature of severities. It may also make sense to try machine learning algorithms such (K-Nearest Neighbor Classifier and Random Forest) instead of discrete choice models, which could yield better prediction power for disaggregate severity levels since they don't rely on making assumptions about the functional form of the data and require fewer parameters to tune. Since the main objective of this paper was to perform exploratory analysis of ASCT's impact on signalized intersection crash severity, crash frequency and individual crash type models were not considered in this research. Another reason was that the authors have already developed crash modification factors for ASCT (Khattak et al., 2017a) and considered those to be more useful to both practitioners and researchers. However, an interesting future research direction would be to examine how the results of crash frequency and individual crash type models compare with the crash severities presented in this paper and the CMFs developed by the authors. The optimization algorithms vary across the ASCT systems and may provide differing benefits thus, future studies could also look at crash severity effects of other ASCT systems as opposed to the two systems analyzed in this research and draw a comparison. Likewise, the emergence of automated traffic signal performance measurement systems provides an additional technology that could be compared against ASCT. With the development of connected and automated vehicles (CAV), CAV-enabled signal controls may also be analyzed in the future to see whether they provide any additional safety benefits compared to the ASCT systems analyzed in this research. Since crash trends vary across states, data from additional states across the United States can also provide significant insights about the crash severity effects of ASCTs. Another promising research direction could be to analyze the different econometric models and machine learning algorithms in order to see which modeling approach could provide better prediction accuracy with the severe plus moderate injury category,

since that category had the lowest number of observations. doi:https://doi.org/10.1016/j.aap.2021.106086. https://www.sciencedirect.com/science/article/pii/S0001457521001172.

Brad's Notes: Not ML

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Khattak, Zulqarnain H., Michael D. Fontaine, Brian L. Smith, and Jiaqi Ma. \Crash severity e ects of adaptive signal control technology: An empirical assessment with insights from Pennsylvania and Virginia." *Accident Analysis & Prevention* 124 (2019): 151{162. doi:https://doi.org/10.1016/j.aap.2019.01.008. https://www.sciencedirect.com/science/article/pii/S0001457519300399.

Kidando, Emmanuel, Angela E. Kitali, Boniphace Kutela, Mahyar Ghorbanzadeh, Alican Karaer, Mohammadreza Koloushani, Ren Moses, Eren E. Ozguven, and Thobias Sando. \Prediction of vehicle occupants injury at signalized intersections using real-time tra c and signal data." *Accident Analysis & Prevention* 149 (2021): 105869. doi:https://doi.org/10.1016/j.aap.2020.105869. https://www.sciencedirect.com/science/article/pii/S0001457520316894.

Kita, Erez, and Gil Luria. \Di erences between males and females in the prediction of smartphone use while driving: Mindfulness and income." *Accident Analysis & Prevention* 140 (2020): 105514. doi:https://doi.org/10.1016/j.aap.2020.105514. https://www.sciencedirect.com/science/article/pii/S0001457519312746.

Kitali, Angela E., Priyanka Alluri, Thobias Sando, Henrick Haule, Emmanuel Kidando, and Richard Lentz. \Likelihood estimation of secondary crashes using Bayesian complementary log-log model." *Accident Analysis & Prevention* 119 (2018): 58{67. doi:https://doi.org/10.1016/j.aap.2018.07.003. https://www.sciencedirect.com/science/article/pii/S0001457518302999.

Brad's Notes: Too Old

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Kjellen, Urban. \The deviation concept in occupational accident control | I: De nition and classi cation." *Accident Analysis & Prevention* 16, no. 4 (1984): 289{306. doi:https://doi.org/10.1016/0001-4575(84)90023-X. https://www.sciencedirect.com/science/article/pii/000145758490023X.

Brad's Notes: Too Old

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Kong, Xiaoqiang, Subasish Das, Kartikeya Jha, and Yunlong Zhang. \Understanding speeding behavior from naturalistic driving data: Applying classi cation based association rule mining." *Accident Analysis & Prevention* 144 (2020): 105620. doi:https://doi.org/10.1016/j.aap.2020.105620. https://www.sciencedirect.com/science/article/pii/S0001457519315593.

Kontaratos, Anthony N. \A systems analysis of the problem of road casualties in the United States." *Accident Analysis & Prevention* 6, no. 3 (1974): 223{241. doi:https://doi.org/10.1016/0001-4575(74)90002-5. https://www.sciencedirect.com/science/article/pii/0001457574900025.

Brad's Notes: Too Old

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Krueger, Rico, Prateek Bansal, and Prasad Buddhavarapu. \A new spatial count data model with Bayesian additive regression trees for accident hot spot identi cation." *Accident Analysis & Prevention* 144 (2020): 105623.

Suggestions for Future Research: None ML-related

, doi:https://doi.org/10.1016/j.aap.2020.105623. https://www.sciencedirect.com/science/article/pii/S0001457520306680.

Brad's Notes: Not ML

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Kuo, Jonny, Sjaan Koppel, Judith L. Charlton, and Christina M. Rudin-Brown. \Computer vision and driver distraction: Developing a behaviour-agging protocol for naturalistic driving data." *Accident Analysis & Prevention* 72 (2014): 177{183. doi:https://doi.org/10.1016/j.aap.2014.06.007. https://www.sciencedirect.com/science/article/pii/S0001457514001808.

Brad's Notes: Too Old

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Kuskapan, Emre, M. Yasin Codur, and Ahmet Atalay. \Speed violation analysis of heavy vehicles on highways using spatial analysis and machine learning algorithms." *Accident Analysis & Prevention* 155 (2021): 106098. doi:https://doi.org/10.1016/j.aap.2021.106098. https://www.sciencedirect.com/science/article/pii/S0001457521001299.

Kwak, Ho-Chan, and Seungyoung Kho. \Predicting crash risk and identifying crash precursors on Korean expressways using loop detector data." *Accident Analysis & Prevention* 88 (2016): 9{19. doi:https://doi.org/10.1016/j.aap.2015.12.004. https://www.sciencedirect.com/science/article/pii/S0001457515301561.

Brad's Notes: Too Old

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Kwayu, Keneth Morgan, Valerian Kwigizile, Kevin Lee, and Jun-Seok Oh. \Discovering latent themes in tra c fatal crash narratives using text mining analytics and network topology." *Accident Analysis & Prevention* 150 (2021): 105899. doi:https://doi.org/10.1016/j.aap.2020.105899. https://www.sciencedirect.com/science/article/pii/S000145752031719X.

Kwon, Jae-Hong, and Gi-Hyoug Cho. \An examination of the intersection environment associated with perceived crash risk among school-aged children: using street-level imagery and computer vision." *Accident Analysis & Prevention* 146 (2020): 105716. doi:https://doi.org/10.1016/j.aap.2020.105716. https://www.sciencedirect.com/science/article/pii/S0001457519315398.

Brad's Notes: Children's perception of crash risk. Odd.

Lajunen, Timo, and Dianne Parker. \Are aggressive people aggressive drivers? A study of the relationship between self-reported general aggressiveness, driver anger and aggressive driving." *Accident Analysis & Prevention* 33, no. 2 (2001): 243{255. doi:https://doi.org/10.1016/S0001-4575(00)00039-7. https://www.sciencedirect.com/science/article/pii/S0001457500000397.

Brad's Notes: Too Old

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Lam, Lawrence T. \Factors associated with parental safe road behaviour as a pedestrian with young children in metropolitan New South Wales, Australia." *Accident Analysis & Prevention* 33, no. 2 (2001): 203{210. doi:https://doi.org/10.1016/S0001-4575(00)00033-6. https://www.sciencedirect.com/science/article/pii/S0001457500000336.

Brad's Notes: Too Old

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Lavrenz, Steven M., Eleni I. Vlahogianni, Konstantina Gkritza, and Yue Ke. \Time series modeling in tra c safety research." *Accident Analysis & Prevention* 117 (2018): 368{380. doi:https://doi.org/10.1016/j.aap.2017.11.030. https://www.sciencedirect.com/science/article/pii/S0001457517304268.

Brad's Notes: Too Old

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Leu, Sou-Sen, and Ching-Miao Chang. \Bayesian-network-based safety risk assessment for steel construction projects." *Accident Analysis & Prevention* 54 (2013): 122{133. doi:https://doi.org/10.1016/j.aap.2013.02.019. https://www.sciencedirect.com/science/article/pii/S0001457513000602.

Brad's Notes: Too Old

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Li, Feng, Li Jiang, Xiang Yao, and YongJuan Li. \Job demands, job resources and safety outcomes: The roles of emotional exhaustion and safety compliance." *Accident Analysis & Prevention* 51 (2013): 243{251. doi:https://doi.org/10.1016/j.aap.2012.11.029. https://www.sciencedirect.com/science/article/pii/S0001457512004216.

Brad's Notes: Too Old

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Li, Li, Boxuan Zhong, Clayton Hutmacher, Yulan Liang, William J. Horrey, and Xu Xu. \Detection of driver manual distraction via image-based hand and ear recognition." *Accident Analysis & Prevention* 137 (2020): 105432. doi:https://doi.org/10.1016/j.aap.2020.105432. https://www.sciencedirect.com/science/article/pii/S0001457519309029.

Li, Linchao, Carlo G. Prato, and Yonggang Wang. \Ranking contributors to tra c crashes on mountainous freeways from an incomplete dataset: A sequential approach of multivariate imputation by chained equations and random forest classi er." *Accident Analysis & Prevention* 146 (2020): 105744. doi:https://doi.org/10.1016/j.aap.2020.105744. https://www.sciencedirect.com/science/article/pii/S0001457520315645.

Li, Meng, Zhibin Li, Chengcheng Xu, and Tong Liu. \Short-term prediction of safety and operation impacts of lane changes in oscillations with empirical vehicle trajectories." *Accident Analysis & Prevention* 135 (2020): 105345. doi:https://doi.org/10.1016/j.aap.2019.105345. https://www.sciencedirect.com/science/article/pii/S0001457519305019.

Li, Pei, Mohamed Abdel-Aty, Qing Cai, and Cheng Yuan. \This paper has been handled by associate editor Tony Sze.The application of novel connected vehicles emulated data on real-time crash potential prediction for arterials." *Accident Analysis & Prevention* 144 (2020): 105658.

Suggestions for Future Research: There are still several improvements that can be done in the future. First, buses are one type of vehicles. It is very promising to explore the fusion with other types vehicles, such as taxis, private vehicles, trucks, etc. Second, the impact of the di erent variables on crash potential prediction also needs further investigation, a proper variables generation and selection process could possibly improve the performance of the model. Forth, di erent deep learning architectures can be explored in the future to improve the results of the current model. Finally, it would be promising to combine the results from this paper with other similar studies. For example, Wiseman and Grinberg (2016) proposed a real-time crash potential damages assessment approach for autonomous vehicles. If an autonomous vehicle can receive the crash potential prediction results through CV as suggested in our paper, the information may help it to avoid certain crashes. For the case of inevitable crash, the crash potential damages assessment can help the vehicle achieve the least damages.
doi:https://doi.org/10.1016/j.aap.2020.105658. https://www.sciencedirect.com/science/article/pii/S0001457520305339.

Brad's Notes: Predict crash potential in the next 5-10 minutes using GPS data.

Li, Pei, Mohamed Abdel-Aty, and Jinghui Yuan. \Real-time crash risk prediction on arterials based on LSTM-CNN." *Accident Analysis & Prevention* 135 (2020): 105371. doi:https://doi.org/10.1016/j.aap.2019.105371. https://www.sciencedirect.com/science/article/pii/S0001457519311108.

Li, Xiaomeng, Atiyeh Vaezipour, Andry Rakotonirainy, and Sebastien Demmel. \E ects of an in-vehicle eco-safe driving system on drivers' glance behaviour." *Accident Analysis & Prevention* 122 (2019): 143{152. doi:https://doi.org/10.1016/j.aap.2018.10.007. https://www.sciencedirect.com/science/article/pii/S0001457518308169.

Li, Xiaomeng, Atiyeh Vaezipour, Andry Rakotonirainy, Sebastien Demmel, and Oscar Oviedo-Trespalacios. \Exploring drivers' mental workload and visual demand while using an in-vehicle HMI for eco-safe driving." *Accident Analysis & Prevention* 146 (2020): 105756. doi:https://doi.org/10.1016/j.aap.2020.105756. https://www.sciencedirect.com/science/article/pii/S0001457520315761.

Li, Xiugang, Dominique Lord, Yunlong Zhang, and Yuanchang Xie. \Predicting motor vehicle crashes using Support Vector Machine models." *Accident Analysis & Prevention* 40, no. 4 (2008): 1611{1618. doi:https://doi.org/10.1016/j.aap.2008.04.010. https://www.sciencedirect.com/science/article/pii/S0001457508000808.

Brad's Notes: Too Old

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Li, Yunjie, Dongfang Ma, Mengtao Zhu, Ziqiang Zeng, and Yinhai Wang. \Identi cation of signi cant factors in fatal-injury highway crashes using genetic algorithm and neural network." *Accident Analysis & Prevention* 111 (2018): 354{363. doi:https://doi.org/10.1016/j.aap.2017.11.028. https://www.sciencedirect.com/science/article/pii/S0001457517304244.

Li, Zhibin, Pan Liu, Wei Wang, and Chengcheng Xu. \Using support vector machine models for crash injury severity analysis." *Accident Analysis & Prevention* 45 (2012): 478{486. doi:https://doi.org/10.1016/j.aap.2011.08.016. https://www.sciencedirect.com/science/article/pii/S0001457511002363.

Brad's Notes: Too Old

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Lian, Yanqi, Guoqing Zhang, Jaeyoung Lee, and Helai Huang. \Review on big data applications in safety research of intelligent transportation systems and connected/automated vehicles." *Accident Analysis & Prevention* 146 (2020): 105711. doi:https://doi.org/10.1016/j.aap.2020.105711. https://www.sciencedirect.com/science/article/pii/S0001457520307442.

Liang, Yulan, William J. Horrey, Mark E. Howard, Michael L. Lee, Clare Anderson, Michael S. Shreeve, Conor S. O'Brien, and Charles A. Czeisler. \Prediction of drowsiness events in night shift workers during morning driving." 10th International Conference on Managing Fatigue: Managing Fatigue to Improve Safety, Wellness, and E ectiveness". *Accident Analysis & Prevention* 126 (2019): 105{114. doi:https://doi.org/10.1016/j.aap.2017.11.004. https://www.sciencedirect.com/science/article/pii/S0001457517303913.

Al-libawy, Hilal, Ali Al-Ataby, Waleed Al-Nuaimy, and Majid A. Al-Taee. \Modular design of fatigue detection in naturalistic driving environments." *Accident Analysis & Prevention* 120 (2018): 188{194. doi:https://doi.org/10.1016/j.aap.2018.08.012. https://www.sciencedirect.com/science/article/pii/S0001457518304639.

Brad's Notes: Too Old

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Lin, Lei, Qian Wang, and Adel W. Sadek. \A combined M5P tree and hazard-based duration model for predicting urban freeway tra c accident durations." *Accident Analysis & Prevention* 91 (2016): 114{126.

Suggestions for Future Research: For future research, one possible idea to investigate, involvescombining the M5P tree algorithm with a random parameter HBDM.This may further improve accident duration prediction, by allowingthe coe cients of the variables in the model to vary across eachindividual observation in the dataset. Another possible idea is totest the transferability of M5P-HBDM by building a unique modelfor two or more datasets.
doi:https://doi.org/10.1016/j.aap.2016.03.001. https://www.sciencedirect.com/science/article/pii/S0001457516300665.

Brad's Notes: Too Old. Not ML

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Lin, Yi, Linchao Li, Hailong Jing, Bin Ran, and Dongye Sun. \Automated tra c incident detection with a smaller dataset based on generative adversarial networks." *Accident Analysis & Prevention* 144 (2020): 105628.

Suggestions for Future Research: Notably, only the SVM was applied as the incident detection model to evaluate the proposed method in this paper. In the future, more incident detection models should be implemented to test the proposed method. Moreover, the tra c ow of urban roads is more complex. The application of our proposed method in this area needs to be discussed in the future.
doi:https://doi.org/10.1016/j.aap.2020.105628. https://www.sciencedirect.com/science/article/pii/S0001457519314150.

Brad's Notes: Very Interesting. Small dataset, imbalanced data, Real-time incident detection

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Lin, Yunduan, and Ruimin Li. \Real-time tra c accidents post-impact prediction: Based on crowdsourcing data." *Accident Analysis & Prevention* 145 (2020): 105696. doi:https://doi.org/10.1016/j.aap.2020.105696. https://www.sciencedirect.com/science/article/pii/S0001457520305807.

Liu, Jun, Xiaobing Li, and Asad J. Khattak. \An integrated spatio-temporal approach to examine the consequences of driving under the in uence (DUI) in crashes." *Accident Analysis & Prevention* 146 (2020): 105742. doi:https://doi.org/10.1016/j.aap.2020.105742. https://www.sciencedirect.com/science/article/pii/S0001457520315621.

Brad's Notes: Not ML

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Liu, Jundi, Linda N. Boyle, and Ashis G. Banerjee. \Predicting interstate motor carrier crash rate level using classi cation models." *Accident Analysis & Prevention* 120 (2018): 211{218. doi:https://doi.org/10.1016/j.aap.2018.06.005. https://www.sciencedirect.com/science/article/pii/S0001457518302227.

Brad's Notes: Too Old

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Lourens, Peter F. \Error analysis and applications in transportation systems." *Accident Analysis & Prevention* 21, no. 5 (1989): 419{426. doi:https://doi.org/10.1016/0001-4575(89)90002-X. https://www.sciencedirect.com/science/article/pii/000145758990002X.

Brad's Notes: Too Old

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Luan, Sen, Meng Li, Xin Li, and Xiaolei Ma. \E ects of built environment on bicycle wrong Way riding behavior: A data-driven approach." *Accident Analysis & Prevention* 144 (2020): 105613. doi:https://doi.org/10.1016/j.aap.2020.105613. https://www.sciencedirect.com/science/article/pii/S0001457519314241.

Luo, Ruikun, Yifan Weng, Yifan Wang, Paramsothy Jayakumar, Mark J. Brudnak, Victor Paul, Vishnu R. Desaraju, Je rey L. Stein, Tulga Ersal, and X. Jessie Yang. \A workload adaptive haptic shared control scheme for semi-autonomous driving." *Accident Analysis & Prevention* 152 (2021): 105968.

Suggestions for Future Research: this study focuses on only a single-vehicle scenario with xed speed. Further research should extend to a mixed-tra c scenario with varying speeds. When other vehicles are present in the environment, the impact from interactions with them will be important and can be captured with various control schemes (Kerner, 2021, 2018b,a). In addition, the impact of various surveillance tasks can also a ect the performance when mixed-tra c is considered. Studying these combined e ects is subject to future research.
doi:https://doi.org/10.1016/j.aap.2020.105968. https://www.sciencedirect.com/science/article/pii/S0001457520317887.

Brad's Notes: Not ML

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Luria, Gil. \The social aspects of safety management: Trust and safety climate." *Accident Analysis & Prevention* 42, no. 4 (2010): 1288{1295. doi:https://doi.org/10.1016/j.aap.2010.02.006. https://www.sciencedirect.com/science/article/pii/S0001457510000515.

Brad's Notes: Too Old

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Lym, Youngbin, and Zhenhua Chen. \In uence of built environment on the severity of vehicle crashes caused by distracted driving: A multistate comparison." *Accident Analysis & Prevention* 150 (2021): 105920. doi:https://doi.org/10.1016/j.aap.2020.105920. https://www.sciencedirect.com/science/article/pii/S0001457520317401.

Ma, Yongfeng, Wenlu Li, Kun Tang, Ziyu Zhang, and Shuyan Chen. \Driving style recognition and comparisons among driving tasks based on driver behavior in the online car-hailing industry." *Accident Analysis & Prevention* 154 (2021): 106096. doi:https://doi.org/10.1016/j.aap.2021.106096. https://www.sciencedirect.com/science/article/pii/S0001457521001275.

Mannering, Fred L. \Male/female driver characteristics and accident risk: Some new evidence." *Accident Analysis & Prevention* 25, no. 1 (1993): 77{84. doi:https://doi.org/10.1016/0001-4575(93)90098-H. https://www.sciencedirect.com/science/article/pii/000145759390098H.

Brad's Notes: Too Old

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Marucci-Wellman, Helen R., Helen L. Corns, and Mark R. Lehto. \Classifying injury narratives of large administrative databases for surveillance | A practical approach combining machine learning ensembles and human review." *Accident Analysis & Prevention* 98 (2017): 359{371. doi:https://doi.org/10.1016/j.aap.2016.10.014. https://www.sciencedirect.com/science/article/pii/S000145751630375X.

Brad's Notes: Too Old

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Mbaye, Sa etou, and Dongo Remi Kouabenan. \E ects of the feeling of invulnerability and the feeling of control on motivation to participate in experience-based analysis, by type of risk." *Accident Analysis & Prevention* 51 (2013): 310{317. doi:https://doi.org/10.1016/j.aap.2012.11.026. https://www.sciencedirect.com/science/article/pii/S0001457512004174.

Brad's Notes: Too Old

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McDonald, Anthony D., John D. Lee, Chris Schwarz, and Timothy L. Brown. \A contextual and temporal algorithm for driver drowsiness detection." *Accident Analysis & Prevention* 113 (2018): 25{37.

Suggestions for Future Research: None

, doi:https://doi.org/10.1016/j.aap.2018.01.005. https://www.sciencedirect.com/science/article/pii/S0001457518300058.

Brad's Notes: Too Old. Random Forest for feature generation. Only 72 data points. Interesting for extensive description of other algorithms and lit review.

McKenzie, Kirsten, Deborah Anne Scott, Margaret Ann Campbell, and Roderick John McClure. \The use of narrative text for injury surveillance research: A systematic review." *Accident Analysis & Prevention* 42, no. 2 (2010): 354{363. doi:https://doi.org/10.1016/j.aap.2009.09.020. https://www.sciencedirect.com/science/article/pii/S0001457509002589.

Brad's Notes: Too Old

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Mekky, Ali. \Road tra c accidents in rich developing countries: The case of Libya." *Accident Analysis & Prevention* 16, no. 4 (1984): 263{277. doi:https://doi.org/10.1016/0001-4575(84)90021-6. https://www.sciencedirect.com/science/article/pii/0001457584900216.

Brad's Notes: Too Old

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Melman, T., J.C.F. de Winter, and D.A. Abbink. \Does haptic steering guidance instigate speeding? A driving simulator study into causes and remedies." *Accident Analysis & Prevention* 98 (2017): 372{387. doi:https://doi.org/10.1016/j.aap.2016.10.016. https://www.sciencedirect.com/science/article/pii/S0001457516303773.

Brad's Notes: Too Old

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Meng, Qiang, Jinxian Weng, and Xiaobo Qu. \A probabilistic quantitative risk assessment model for the long-term work zone crashes." *Accident Analysis & Prevention* 42, no. 6 (2010): 1866{1877.

Suggestions for Future Research: None

, doi:https://doi.org/10.1016/j.aap.2010.05.007. https://www.sciencedirect.com/science/article/pii/S0001457510001430.

Brad's Notes: Too Old. Not ML; data set too small.

Mercader, Pedro, and Jack Haddad. \Automatic incident detection on freeways based on Bluetooth tra c monitoring." *Accident Analysis & Prevention* 146 (2020): 105703.

Suggestions for Future Research: It is also expected that other advanced methods like unsupervised deep learning, see Chalapathy and Chawla (2019), Kwon et al. (2019), may achieve the same or higher detection performance than the proposed method. However, this is at the expense of using a more complex model (large number of parameters) than the proposed in this work. Finally, a caveat of the proposed AID method is that it is able to identify anomalous traffic conditions, but it is not able to distinguish the mechanism that generated these conditions, e.g., traffic accidents, maintenance works, or anomalous traffic patterns. Future works could explore the process of identification of anomalies and posterior classification on data streams by applying novel techniques based on semisupervised learning (Mu et al., 2017; Zhu et al., 2018b).
doi:https://doi.org/10.1016/j.aap.2020.105703. https://www.sciencedirect.com/science/article/pii/S0001457520306837.

Brad's Notes: Primarily about sensors. Not our data set.

Mercurio, D., L. Podofillini, E. Zio, and V.N. Dang. “Identification and classification of dynamic event tree scenarios via possibilistic clustering: Application to a steam generator tube rupture event.” Accident Modelling and Prevention at ESREL 2006, *Accident Analysis & Prevention* 41, no. 6 (2009): 1180–1191. doi:https://doi.org/10.1016/j.aap.2008.08.013. https://www.sciencedirect.com/science/article/pii/S0001457508001607.

Brad's Notes: Too Old

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Mohan, Dinesh. “Accidental death and disability in India: A stocktaking.” *Accident Analysis & Prevention* 16, no. 4 (1984): 279–288. doi:https://doi.org/10.1016/0001-4575(84)90022-8. https://www.sciencedirect.com/science/article/pii/0001457584900228.

Brad's Notes: Too Old

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Montella, Alfonso, Massimo Aria, Antonio D'Ambrosio, and Filomena Mauriello. \Analysis of powered two-wheeler crashes in Italy by classi cation trees and rules discovery." PTW + Cognitive impairment and Driving Safety, *Accident Analysis & Prevention* 49 (2012): 58{72. doi:https://doi.org/10.1016/j.aap.2011.04.025. https://www.sciencedirect.com/science/article/pii/S000145751100114X.

Brad's Notes: Too Old

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Montella, Alfonso, Filomena Mauriello, Mariano Pernetti, and Maria Rella Riccardi. \Rule discovery to identify patterns contributing to overrepresentation and severity of run-o -the-road crashes." *Accident Analysis & Prevention* 155 (2021): 106119. doi:https://doi.org/10.1016/j.aap.2021.106119. https://www.sciencedirect.com/science/article/pii/S0001457521001500.

Morris, Drew M., June J. Pilcher, and Fred S. Switzer III. \Lane heading di erence: An innovative model for drowsy driving detection using retrospective analysis around curves." *Accident Analysis & Prevention* 80 (2015): 117{124. doi:https://doi.org/10.1016/j.aap.2015.04.007. https://www.sciencedirect.com/science/article/pii/S0001457515001360.

Brad's Notes: Too Old

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Moskowitz, Herbert. \Marihuana and driving." *Accident Analysis & Prevention* 17, no. 4 (1985): 323{345. doi:https://doi.org/10.1016/0001-4575(85)90034-X. https://www.sciencedirect.com/science/article/pii/000145758590034X.

Brad's Notes: Too Old

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Mujalli, Randa Oqab, Griselda Lopez, and Laura Garach. \Bayes classi ers for imbalanced tra c accidents datasets." *Accident Analysis & Prevention* 88 (2016): 37{51. doi:https://doi.org/10.1016/j.aap.2015.12.003. https://www.sciencedirect.com/science/article/pii/S0001457515301548.

Brad's Notes: Too Old

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Murphy, Lauren A., Michelle M. Robertson, and Pascale Carayon. \The next generation of macroergonomics: Integrating safety climate." Systems thinking in workplace safety and health, *Accident Analysis & Prevention* 68 (2014): 16{24. doi:https://doi.org/10.1016/j.aap.2013.11.011. https://www.sciencedirect.com/science/article/pii/S0001457513004673.

Brad's Notes: Too Old

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Musselwhite, Charles B.A., Erel Avineri, Yusak O. Susilo, and Darren Bhattachary. \Public attitudes towards motorcyclists' safety: A qualitative study from the United Kingdom." PTW + Cognitive impairment and Driving Safety, *Accident Analysis & Prevention* 49 (2012): 105{113. doi:https://doi.org/10.1016/j.aap.2011.06.005. https://www.sciencedirect.com/science/article/pii/S0001457511001710.

Brad's Notes: Too Old

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Mussone, L., M. Bassani, and P. Masci. \Analysis of factors a ecting the severity of crashes in urban road intersections." *Accident Analysis & Prevention* 103 (2017): 112{122. doi:https://doi.org/10.1016/j.aap.2017.04.007. https://www.sciencedirect.com/science/article/pii/S0001457517301355.

Brad's Notes: Too Old

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Naderpour, Mohsen, Jie Lu, and Guangquan Zhang. \The explosion at institute: Modeling and analyzing the situation awareness factor." *Accident Analysis & Prevention* 73 (2014): 209{224. doi:https://doi.org/10.1016/j.aap.2014.09.008. https://www.sciencedirect.com/science/article/pii/S0001457514002644.

Brad's Notes: Too Old

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Nanda, Gaurav, Kirsten Vallmuur, and Mark Lehto. \Improving autocoding performance of rare categories in injury classi cation: Is more training data or ltering the solution?" *Accident Analysis & Prevention* 110 (2018): 115{127. doi:https://doi.org/10.1016/j.aap.2017.10.020. https://www.sciencedirect.com/science/article/pii/S0001457517303767.

Brad's Notes: Too Old

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Naujoks, Frederik, Simon H• ing, Christian Purucker, and Kathrin Zeeb. \From partial and high automation to manual driving: Relationship between non-driving related tasks, drowsiness and take-over performance." *Accident Analysis & Prevention* 121 (2018): 28{42. doi:https://doi.org/10.1016/j.aap.2018.08.018. https://www.sciencedirect.com/science/article/pii/S0001457518303944.

Brad's Notes: Too Old

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Naujoks, Frederik, Andrea Kiesel, and Alexandra Neukum. \Cooperative warning systems: The impact of false and unnecessary alarms on drivers' compliance." *Accident Analysis & Prevention* 97 (2016): 162{175. doi:https://doi.org/10.1016/j.aap.2016.09.009. https://www.sciencedirect.com/science/article/pii/S0001457516303396.

Brad's Notes: Too Old

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Naujoks, Frederik, Christian Purucker, Katharina Wiedemann, Alexandra Neukum, Stefan Wolter, and Reid Steiger. \Driving performance at lateral system limits during partially automated driving." *Accident Analysis & Prevention* 108 (2017): 147{162. doi:https://doi.org/10.1016/j.aap.2017.08.027. https://www.sciencedirect.com/science/article/pii/S000145751730307X.

Brad's Notes: Too Old

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Niskanen, Toivo. \Assessing the safety environment in work organization of road maintenance jobs." *Accident Analysis & Prevention* 26, no. 1 (1994): 27{39. doi:https://doi.org/10.1016/0001-4575(94)90066-3. https://www.sciencedirect.com/science/article/pii/0001457594900663.

Brad's Notes: Too Old

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Onken, R., and J.P. Feraric. \Adaptation to the driver as part of a driver monitoring and warning system." Fatigue and Transport, *Accident Analysis & Prevention* 29, no. 4 (1997): 507{513. doi:https://doi.org/10.1016/S0001-4575(97)00030-4. https://www.sciencedirect.com/science/article/pii/S0001457597000304.

Brad's Notes: Too Old

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Osman, Osama A., Mustafa Hajij, Sogand Karbalaieali, and Sherif Ishak. \A hierarchical machine learning classi cation approach for secondary task identi cation from observed driving behavior data." *Accident Analysis & Prevention* 123 (2019): 274{281.

Suggestions for Future Research: It is worth pointing out that this study did not account for the e ect of roadway type and geometric features and vehicle characteristics on the driving behavior variables. However, the driving behavior variables are analyzed as a pattern recognition problem in this study. In other words, identi cation of secondary tasks is performed through studying the pattern of changes in the driving behavior variables, rather than targeting speci c values of each variable as indicators of the type of secondary task drivers are engaged in. Nonetheless, future research will study the impact of roadway type and geometric features and vehicle characteristics on driving behavior variables, hence on the predictability power of the developed models.
doi:https://doi.org/10.1016/j.aap.2018.12.005. https://www.sciencedirect.com/science/article/pii/S000145751831114X.

Brad's Notes: Interesting in that it looked much more deeply at the data than other studies, looking for correlations between sets of variables. I would like to know about this SHRP-2

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Oviedo-Trespalacios, Oscar, Md Mazharul Haque, Mark King, and Sebastien Demmel. \Driving behaviour while self-regulating mobile phone interactions: A human-machine system approach." *Accident Analysis & Prevention* 118 (2018): 253{262. doi:https://doi.org/10.1016/j.aap.2018.03.020. https://www.sciencedirect.com/science/article/pii/S0001457518301246.

Brad's Notes: Too Old

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Oviedo-Trespalacios, Oscar, Md. Mazharul Haque, Mark King, and Simon Washington. \E ects of road infrastructure and tra c complexity in speed adaptation behaviour of distracted drivers." *Accident Analysis & Prevention* 101 (2017): 67{77. doi:https://doi.org/10.1016/j.aap.2017.01.018. https://www.sciencedirect.com/science/article/pii/S0001457517300453.

Brad's Notes: Too Old

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Oviedo-Trespalacios, Oscar, Verity Truelove, and Mark King. \\It is frustrating to not have control even though I know it's not legal!": A mixed-methods investigation on applications to prevent mobile phone use while driving." *Accident Analysis & Prevention* 137 (2020): 105412. doi:https://doi.org/10.1016/j.aap.2019.105412. https://www.sciencedirect.com/science/article/pii/S0001457519316525.

Brad's Notes: Not ML

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Paez, Antonio, Hany Hassan, Mark Ferguson, and Saiedeh Razavi. \A systematic assessment of the use of opponent variables, data subsetting and hierarchical speci cation in two-party crash severity analysis." *Accident Analysis & Prevention* 144 (2020): 105666.

Suggestions for Future Research: The analysis also opens up a few avenues for future research. First, for reasons discussed in Section 6, we did not consider more sophisticated modelling approaches, such as models with random components, partial proportional odds, ranked ordered models, or multinomial models, to mention just a few possibilities. Secondly, we only considered the performance of the models when making predictions for the full sample. That is, the submodels in the ensembles were not compared in detail, just their aggregate results when predicting the full sample. However, the goodness-of- t was not uniformly better for any one modelling strategy when the data were subset, and it is possible that individual models perform better for a certain subset than competitors that are part of a better ensemble, overall. For this reason, we suggest that additional work with ensemble approaches is warranted. Finally, it is clear that the models do not generally do well when predicting the least frequent class of outcome, namely Fatality. It would be worthwhile to further investigate approaches for so-called imbalanced learning, a task that has received attention in the machine learning community (e.g., Haixiang et al., 2017; He and Garcia, 2009), and where Torrao et al. (2014) have already made some headway in crash severity analysis.
doi:https://doi.org/10.1016/j.aap.2020.105666. https://www.sciencedirect.com/science/article/pii/S0001457520303298.

Brad's Notes: Interesting for solid paper.

Pariota, Luigi, Gennaro Nicola Bifulco, Francesco Galante, Alfonso Montella, and Mark Brackstone. \Longitudinal control behaviour: Analysis and modelling based on experimental surveys in Italy and the UK." *Accident Analysis & Prevention* 89 (2016): 74{87. doi:https://doi.org/10.1016/j.aap.2016.01.007. https://www.sciencedirect.com/science/article/pii/S0001457516300070.

Brad's Notes: Too Old

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Park, Hyoshin, Ali Haghani, Siby Samuel, and Michael A. Knodler. \Real-time prediction and avoidance of secondary crashes under unexpected tra c congestion." *Accident Analysis & Prevention* 112 (2018): 39{49.

doi:https://doi.org/10.1016/j.aap.2017.11.025. https://www.sciencedirect.com/science/article/pii/S0001457517304219.

Brad's Notes: Too Old

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Park, Hyunjin, and Cheol Oh. \A vehicle speed harmonization strategy for minimizing inter-vehicle crash risks." *Accident Analysis & Prevention* 128 (2019): 230{239.

Suggestions for Future Research: Although useful insights were derived from this study, further research needs to be conducted to achieve results with greater reliability. First, there is an opportunity to improve the risk estimation method. Various contributing factors affecting inter-vehicle risks need to be considered when estimating the risk, including adverse weather and road geometric conditions in addition to the vehicle performance. Second, more e ective and intelligent techniques for obtaining the target speed should be studied. For example, machine learning techniques that have received much attention recently should be applied and investigated to improve the performance. One feasible alternative is the design of an arti cial intelligence controller based on reinforcement learning, which the authors have been working on as a further study. Third, there should be an attempt to obtain the target speed to address multiple other objectives, including the operational e ciency and the environmental impacts, rather than just focusing on the safety. This is because these three objectives are fundamentally determined by individual vehicle maneuverings. Finally, more systematic simulation calibration and validation need to be conducted with a larger vehicle trajectory dataset. Various tra c conditions and vehicle types should also be taken into consideration in comparing the actual data and the simulated data.
doi:https://doi.org/10.1016/j.aap.2019.04.014. https://www.sciencedirect.com/science/article/pii/S0001457519300314.

Brad's Notes: Controlling the speed of vehicles in tra c to keep spacing.

Park, Juneyoung, and Mohamed Abdel-Aty. \Assessing the safety e ects of multiple roadside treatments using parametric and nonparametric approaches." *Accident Analysis & Prevention* 83 (2015): 203{213. doi:https://doi.org/10.1016/j.aap.2015.07.008. https://www.sciencedirect.com/science/article/pii/S0001457515300178.

Brad's Notes: Too Old

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Parnell, Katie J., Neville A. Stanton, and Katherine L. Plant. \What's the law got to do with it? Legislation regarding in-vehicle technology use and its impact on driver distraction." *Accident Analysis & Prevention* 100 (2017): 1{14. doi:https://doi.org/10.1016/j.aap.2016.12.015. https://www.sciencedirect.com/science/article/pii/S0001457516304535.

Brad's Notes: Too Old

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Parsa, Amir Bahador, Ali Movahedi, Homa Taghipour, Sybil Derrible, and Abolfazl (Kouros) Mohammadian. \Toward safer highways, application of XGBoost and SHAP for real-time accident detection and feature analysis." *Accident Analysis & Prevention* 136 (2020): 105405. doi:https://doi.org/10.1016/j.aap.2019.105405. https://www.sciencedirect.com/science/article/pii/S0001457519311790.

Parsa, Amir Bahador, Homa Taghipour, Sybil Derrible, and Abolfazl (Kouros) Mohammadian. \Real-time accident detection: Coping with imbalanced data." *Accident Analysis & Prevention* 129 (2019): 202{210. doi:https://doi.org/10.1016/j.aap.2019.05.014. https://www.sciencedirect.com/science/article/pii/S0001457519301642.

Patten, Christopher J.D., Albert Kircher, Joakim Östlund, Lena Nilsson, and Ola Svenson. \Driver experience and cognitive workload in di erent tra c environments." *Accident Analysis & Prevention* 38, no. 5 (2006): 887{894. doi:https://doi.org/10.1016/j.aap.2006.02.014. https://www.sciencedirect.com/science/article/pii/S0001457506000303.

Brad's Notes: Too Old

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Patterson, Jessica M., and Scott A. Shappell. \Operator error and system deciencies: Analysis of 508 mining incidents and accidents from Queensland, Australia using HFACS." *Accident Analysis & Prevention* 42, no. 4 (2010): 1379{1385. doi:https://doi.org/10.1016/j.aap.2010.02.018. https://www.sciencedirect.com/science/article/pii/S0001457510000643.

Brad's Notes: Too Old

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Peng, Yichuan, Chongyi Li, Ke Wang, Zhen Gao, and Rongjie Yu. \Examining imbalanced classi cation algorithms in predicting real-time traf- c crash risk." *Accident Analysis & Prevention* 144 (2020): 105610. doi:https://doi.org/10.1016/j.aap.2020.105610. https://www.sciencedirect.com/science/article/pii/S0001457519306906.

Pestonjee, D.M. \Improving performance for safety and health: Kinglsey. Garland STPM Press, New York, 1982. 242 pp. $35.00." *Accident Analysis & Prevention* 16, no. 2 (1984): 151{152. doi:https://doi.org/10.1016/0001-4575(84)90040-X. https://www.sciencedirect.com/science/article/pii/000145758490040X.

Brad's Notes: Too Old

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Petraki, Virginia, Apostolos Ziakopoulos, and George Yannis. \Combined impact of road and tra c characteristic on driver behavior using smartphone sensor data." *Accident Analysis & Prevention* 144 (2020): 105657.

Suggestions for Future Research: The results of this study may be transferred to similar areas outside the research area. However, prior to any generalization, necessary adjustments should be made for possible variations in the road environment and tra c. For instance, an analogous study should be conducted for motorways or rural roads that have fundamentally di erent characteristics than urban expressways in order to obtain more accurate results for these road environments. Alternative count models such as GLMs with known merits for similar research or machine learning methods should also be investigated. Initial Poisson loglinear model applications have shown that the discovered relationships are retained in signi cance and sign (positive or negative in uences). Intuitively, several crash frequency methods found in the

rich road safety literature have the potential to be applied in harsh event investigation, and the respective ndings will augment and expand the knowledge obtained from strictly analyzing crashes. Furthermore, a very promising direction for future research would be the investigation of crash numbers and locations in the same research areas. It would be fruitful to test correlations of crash frequencies with some of the variables that have been identi ed in the present study, and to explore any correlations between harsh event frequencies and crash frequencies as well. However, it is worth noting that this endeavor requires signi -cant updates in crash data collection procedures in Greece, as crash locations tend to be very imprecise compared to high-resolution smartphone data. A similar conundrum rises when weather data are brought into consideration. The inclusion of weather data in the present context would be quite interesting, as there can be considered to be related to crashes from research (Theo latos and Yannis, 2014), and to harsh events from observation and experience. However, the high resolution smartphone data utilized in the study would be best paired with comparably high resolution weather data, which are at present not readily available. Therefore, further research is needed to create a proper smartphone naturalistic driving data and weather data merging scheme, which will yield usable results towards this direction.
doi:`https://doi.org/10.1016/j.aap.2020.105657`. `https://www.sciencedirect.com/science/article/pii/S0001457519315933`.

Brad's Notes: Not ML, Smartphone Data

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Pramanik, Anima, Sobhan Sarkar, and J. Maiti. \A real-time video surveillance system for tra c pre-events detection." *Accident Analysis & Prevention* 154 (2021): 106019. doi:`https://doi.org/10.1016/j.aap.2021.106019`. `https://www.sciencedirect.com/science/article/pii/S0001457521000506`.

Putnam, Jacob B., Je rey T. Somers, Jessica A. Wells, Chris E. Perry, and Costin D. Untaroiu. \Development and evaluation of a nite element model of the THOR for occupant protection of space ight crewmembers." *Accident Analysis & Prevention* 82 (2015): 244{256. doi:`https://doi.org/10.1016/j.aap.2015.05.002`. `https://www.sciencedirect.com/science/article/pii/S0001457515001797`.

Brad's Notes: Too Old

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Qiao, Si, Anthony Gar-On Yeh, Mengzhu Zhang, and Xiang Yan. \E ects of state-led suburbanization on tra c crash density in China: Evidence from the Chengdu City Proper." *Accident Analysis & Prevention* 148 (2020): 105775. doi:https://doi.org/10.1016/j.aap.2020.105775. https://www.sciencedirect.com/science/article/pii/S0001457520315955.

Quddus, Azhar, Ali Shahidi Zandi, Laura Prest, and Felix J.E. Comeau. \Using long short term memory and convolutional neural networks for driver drowsiness detection." *Accident Analysis & Prevention* 156 (2021): 106107. doi:https://doi.org/10.1016/j.aap.2021.106107. https://www.sciencedirect.com/science/article/pii/S000145752100138X.

Rahim, Md Adilur, and Hany M. Hassan. \A deep learning based tra c crash severity prediction framework." *Accident Analysis & Prevention* 154 (2021): 106090.

Suggestions for Future Research: Future studies may further tune the weight parameter ( ) of the loss function and the threshold value for classi ers to get more optimized precision and recall values suitable for real-life applications.
doi:https://doi.org/10.1016/j.aap.2021.106090. https://www.sciencedirect.com/science/article/pii/S0001457521001214.

Brad's Notes: Interesting

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Read, Gemma J.M., Michael G. Lenne, and Simon A. Moss. \Associations between task, training and social environmental factors and error types involved in rail incidents and accidents." Intelligent Speed Adaptation + Construction Projects, *Accident Analysis & Prevention* 48 (2012): 416{422. doi:https://doi.org/10.1016/j.aap.2012.02.014. https://www.sciencedirect.com/science/article/pii/S0001457512000802.

Brad's Notes: Too Old

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Reiman, Teemu, and Carl Rollenhagen. \Does the concept of safety culture help or hinder systems thinking in safety?" Systems thinking in workplace safety and health, *Accident Analysis & Prevention* 68 (2014): 5{ 15. doi:https://doi.org/10.1016/j.aap.2013.10.033. https://www.sciencedirect.com/science/article/pii/S0001457513004430.

Brad's Notes: Too Old

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Rezapour, Mahdi, Khaled Ksaibati, and Milhan Moomen. \Application of Quantile Mixed Model for modeling Tra c Barrier Crash Cost." *Accident Analysis & Prevention* 148 (2020): 105795.

Suggestions for Future Research: For this study we just considered barriers with crashes as barriers with no crashes did not have drivers' characteristic such as alcohol involvement, or citation record as a crash has not been occurred. Inclusion of barriers with no crashes is important in the state as much of the barriers are not based on recommended designs, and much of them have not experienced any crash. To achieve the aforementioned criteria the following analysis could be considered in the future studies to incorporate barriers with no crashes as follows: 1 It is possible to only consider variables that are similar across barriers with crashes and with no crashes. Those included predictors such as barriers' types, geometric characteristics, tra c, and barrier length. That model could be implemented on both barriers with and without crashes. 2 Instead of using cost as response, EPDO could be used. For this type of response various model such as negative binomial could be conducted on both barriers with and without crashes. 3 As negative binomial might not perform optimally for excess number of zeroes, two component models, hurdle or zero-in ated models, are expected to perform better. Those two-component models would have two layers: one model for barriers with zero count crashes and one model for barriers with crashes. In order to account for grouping factor that we considered in this study; hierarchical model could be a closest model to the implemented model in those studies. As discussed, after identi cation of factors to barriers `crashes, the nal objective is to conduct cost-bene t analysis. This would be implemented through quantile machine learning technique. The algorithm would be trained over the original dataset. Then, variables especially barriers geometric characteristics, such as barriers' height would be optimized to their op-

timal values. The trained model would be implemented again over a new dataset and cost-benefit output would be estimated. For instance, barriers' optimum height is 27 inches for box-beam. In many places, the barriers' height is less than that value. Thus, first the cost would be predicted based on the barrier current height. Then, the barrier's height would be changed to 27 inches. The trained algorithm would be conducted again, and cost would be predicted. The difference would be the cost/benefit output.
doi:https://doi.org/10.1016/j.aap.2020.105795. https://www.sciencedirect.com/science/article/pii/S0001457520316158.

Brad's Notes: Not ML

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Robinson, Gordan H. “Accidents and sociotechnical systems: principles for design.” *Accident Analysis & Prevention* 14, no. 2 (1982): 121–130. doi:https://doi.org/10.1016/0001-4575(82)90078-1. https://www.sciencedirect.com/science/article/pii/0001457582900781.

Brad's Notes: Too Old

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Rocha, Miriam, Michel Anzanello, Felipe Caleffi, Helena Cybis, and Gabrielli Yamashita. “A multivariate-based variable selection framework for clustering traffic conflicts in a brazilian freeway.” *Accident Analysis & Prevention* 132 (2019): 105269.

Suggestions for Future Research: Future research includes the application of supervised multivariate techniques (e.g., k-Nearest Neighbor or Support Vector Machine) to insert events into categories of conflict severity. The use of the parameters derived from Partial Least Squares regression to build a new variable importance index is also promising.
doi:https://doi.org/10.1016/j.aap.2019.105269. https://www.sciencedirect.com/science/article/pii/S0001457519305330.

Brad's Notes: Not ML

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Roland, Jeremiah, Peter D. Way, Connor Firat, Thanh-Nam Doan, and Mina Sartipi. \Modeling and predicting vehicle accident occurrence in Chattanooga, Tennessee." *Accident Analysis & Prevention* 149 (2021): 105860. doi:https://doi.org/10.1016/j.aap.2020.105860. https://www.sciencedirect.com/science/article/pii/S0001457520316808.

Roque, Carlos, and Mohammad Jalayer. \Improving roadside design policies for safety enhancement using hazard-based duration modeling." *Accident Analysis & Prevention* 120 (2018): 165{173. doi:https://doi.org/10.1016/j.aap.2018.08.008. https://www.sciencedirect.com/science/article/pii/S0001457518304305.

Brad's Notes: Too Old

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Rosenbloom, Tova, and Yuval Wolf. \Signal detection in conditions of everyday life tra c dilemmas." *Accident Analysis & Prevention* 34, no. 6 (2002): 763{772. doi:https://doi.org/10.1016/S0001-4575(01)00076-8. https://www.sciencedirect.com/science/article/pii/S0001457501000768.

Brad's Notes: Too Old

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Ross, Lesley A., Erica L. Schmidt, and Karlene Ball. \Interventions to maintain mobility: What works?" Emerging Research Methods and Their Application to Road Safety Emerging Issues in Safe and Sustainable Mobility for Older Persons The Candrive/Ozcandrive Prospective Older Driver Study: Methodology and Early Study Findings, *Accident Analysis & Prevention* 61 (2013): 167{196. doi:https://doi.org/10.1016/j.aap.2012.09.027. https://www.sciencedirect.com/science/article/pii/S0001457512003442.

Brad's Notes: Too Old

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Rouzikhah, Hossein, Mark King, and Andry Rakotonirainy. \Examining the e ects of an eco-driving message on driver distraction." *Accident Analysis & Prevention* 50 (2013): 975{983. doi:https://doi.org/10.1016/j.aap.2012.07.024. https://www.sciencedirect.com/science/article/pii/S0001457512002862.

Brad's Notes: Too Old

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Rupp, Michael A., Marc D. Gentzler, and Janan A. Smither. \Driving under the in uence of distraction: Examining dissociations between risk perception and engagement in distracted driving." *Accident Analysis & Prevention* 97 (2016): 220{230. doi:https://doi.org/10.1016/j.aap.2016.09.003. https://www.sciencedirect.com/science/article/pii/S0001457516303335.

Brad's Notes: Too Old

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Saari, J.T., and J. Lahtela. \Characteristics of jobs in high and low accident frequency companies in the light metal working industry." *Accident Analysis & Prevention* 11, no. 1 (1979): 51{60. doi:https://doi.org/10.1016/0001-4575(79)90039-3. https://www.sciencedirect.com/science/article/pii/0001457579900393.

Brad's Notes: Too Old

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Brad's Notes: Not ML

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Brad's Notes: Too Old

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Brad's Notes: Too Old

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Suggestions for Future Research: Having described the modeling approach with a methodological focus, further work should be targeted at a more detailed assessment of the results from a tra c-safety point of view. Therefore, next steps should focus on investigating whose sections' outcome is captured well, and shed some light on the why. In addition, further analysis featuring variants of bootstrap aggregating could be useful for improving the robustness of the results. We propose several concrete analysis steps for this empirical assessment: Further temporal aggregation: Given the assumption that results obtained from any learners applied to the dataset featuring hourly values are subject to uncertainty, the temporal binning size could be adjusted in order to create coarser, yet more robust aggregates. These aggregated data could be used to test the hypothesis that the signi cance of results would increase with increasing binning level. While some information is lost, since variables related to some sort of timestamp (i.e. hour and weekday classi cation, respectively) have to be dropped, a more robust assessment might prove to be conclusive. Assessing model performance using a meta variable: In order to further investigate contributing factors to model quality, several approaches featuring a new binary meta target variable, which is derived from the confusion matrices of the existing model results, could be tested. Multiple de nitions of how to derive such a metavariable are possible. Machine learning models for binary classi cation could again be trained to assess variable importance for this new meta model. Balanced bagging: Following the line of Wallace et al. (2011), bagging an ensemble of classi ers induced over balanced bootstrap training samples and predicting the outcome state by using a majority vote could be a valuable approach to obtain more robust results. Correlation issues: Further insights might be gained by considering collinearity in variables and (spatio-temporal) autocorrelation e ects. Unobserved heterogeneity: Since it is impossible to include all the data that could potentially determine the likelihood of a tra c accident into a statistical model, future work might focus on model formulations accounting for unobserved heterogeneity (Mannering, 2018). Knowledge-extraction and expert assessment: Tools for further assessment of black-box models, including { among others { Local Interpretable Model-Agnostic Explanations [LIME, Ribeiro et al. (2016)] and Descriptive mAchine Learning EXplanations [DALEX, Biecek (2018)] could be used for an in-depth assessment of model quality. In addition, the case-speci c random forests (Xu et al., 2016), which are tailored to speci c points of interest in the regressor space, could be employed to speci cally assess certain road sections of interest. In addition, a comparison with similar analysis conducted in other countries might provide substantial further insights into the applicability of the proposed methodology. Overall, we hope that our ndings will contribute to opening up new methodological applications of statistical learning methods in the eld of road safety research. doi:https://doi.org/10.1016/j.aap.2019.02.008. https://www.sciencedirect.com/science/article/pii/S0001457518307760.

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Suggestions for Future Research: However, this study still has some limitations. The driving risk prediction method adopted in this paper only focuses on the car-following process, and it is not enough to explore the driving risk during lanechanging or overtaking process. For future work, high-risk lane-changing events and overtaking events will be collected through NDS or actual vehicle test to further improve and validate the accuracy of the proposed driving risk prediction model. In addition, some deep learning algorithms, such as recurrent neural

network, can be applied and compared with the prediction models proposed in this research. Meanwhile, other driving risk in uencing factors including vehicle characteristics and road geometry characteristics can be obtained and added to the input variables to further improve the performance of the prediction model. For practical applications, the model will be further applied in the smart vehicle industry fed with real-time naturalistic driving data collected by, for example, ADAS. doi:https://doi.org/10.1016/j.aap.2021.106122. https://www.sciencedirect.com/science/article/pii/S0001457521001536.

Brad's Notes: Real-time driving risk analysis

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Brad's Notes: Interesting for focus on ML, not dataset

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