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| Scientific Research + Literature –Assessment 2  TU060 : Individual Annotated Bibliography on Credit Card Fraud Topic | |
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| Ciaran Finnegan – Part Time – First Year 2021/2022  MSc in Computer Science (Data Science)  Student No : D21124026  27/3/2022 |  |
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# Technical Topic – Data Analytics Specialism

## Assignment Submission Topic

The chosen topic for this research bibliography assignment is;

*Techniques to improve the Machine Learning workflow processes when attempting to detect credit card fraud with highly imbalanced datasets.*

## High Level Description of Journal / Articles in this Report

Section 2 of this assignment report provides the more detailed overview of the articles/journals selected and reviewed for this particular topic of Machine Learning techniques in Credit Card Fraud detection.

Below is a high-level list of the subjects covered in the selected articles/journals;

* ML algorithm selection for unbalanced credit card fraud datasets. (Section 2.1)
* Feature Engineering of credit card fraud datasets. (Section 2.2)
* The next smart idea in cc fraud detection. (Section 2.3)
* A really clever idea in cc fraud detection. (Section 2.4).
* Super smart ideas in cc fraud detection. (Section 2.5)

# Bibliography of Sources

## Anomaly Detection Algorithms for Credit Card Fraud Detection

***Reference***

Ceronmani Sharmila, V., R., K., R., S., D., S., & R., H. (2019). Credit Card Fraud Detection Using Anomaly Techniques. *2019 1St International Conference On Innovations In Information And Communication Technology (ICIICT)*, *1*(1), 1-4. doi: 10.1109/iciict1.2019.8741421

***Aim***

To determine the key techniques and criteria to focus on ML anomaly detection process to identify credit card fraud. ***<Define what anomaly detections means here…>***

***Methods***

Iterative ML workflow supervised learning experiments and results analysis of Random Forest algorithms with lowest FN scores.

***Conclusions***

….

***Gaps in the Research:***

…

***Critique***

...

## Feature Engineering for Credit Card Fraud Datasets

***Reference***

Lima, R. and Pereira, A., 2017. Feature Selection Approaches to Fraud Detection in e-Payment Systems. *Lecture Notes in Business Information Processing*, [online] pp.111-126. Available at: <https://www.researchgate.net/publication/313731885\_Feature\_Selection\_Approaches\_to\_Fraud\_Detection\_in\_e-Payment\_Systems> [Accessed 11 September 2020].

***Aim***

To determine ..

***Methods***

Stuff..

***Conclusions***

….

***Gaps in the Research:***

…

***Critique***

...

## Just Being Really Clever with Credit Card Fraud Detection

***Reference***

Bhattacharyya, S., Jha, S., Tharakunnel, K. and Westland, J., 2011. Data mining for credit card fraud: A comparative study. *Decision Support Systems*, 50(3), pp.602-613.

***Aim***

To determine ..

***Methods***

Iterative ML workflow ..

***Conclusions***

….

***Gaps in the Research:***

…

***Critique***

...

## Just Being Clever with Credit Card Fraud Detection

***Reference***

Lucas, Y., Portier, P., Laporte, L., He, L., Caelen, O., Granitzer, M. and Calabretto, S., 2019. *Towards Automated Feature Engineering For Credit Card Fraud Detection Using Multi-Perspective Hmms*. 1st ed. [ebook] Lyon: Research Gate, pp.4-6. Available at: <https://www.researchgate.net/publication/335600419\_Towards\_automated\_feature\_engineering\_for\_credit\_card\_fraud\_detection\_using\_multi-perspective\_HMMs> [Accessed 1 September 2020].

***Aim***

To determine..

***Methods***

Iterative ML ..

***Conclusions***

….

***Gaps in the Research:***

…

***Critique***

...

## I Mean Really Clever with Credit Card Fraud Detection

***Reference***

Mahmoudi, N. and Duman, E., 2015. Detecting credit card fraud by Modified Fisher Discriminant Analysis. *Expert Systems with Applications*, [online] 42(5), pp.2510-2516. Available at: <https://www.semanticscholar.org/paper/Detecting-credit-card-fraud-by-Modified-Fisher-Mahmoudi-Duman/1cfb2a0a0f11dab8da5dc38d51a6e816f04ac8e3#paper-header> [Accessed 11 September 2020].

***Aim***

To determine ..

***Methods***

Iterative ML workflow ..

***Conclusions***

….

***Gaps in the Research:***

…

***Critique***

...

# CA Guidance (remove before submission)

1. Use **paraphrased** sentences. Do not copy and paste directly from the articles. See a partial example below, with the paper from the first lecture:

**Topic: Examining cyclist behaviour in urban centres**

Reference: **Richardson, M. & Caulfield, B. (2015). Investigating traffic light violations by cyclists in Dublin City Centre. *Accident Analysis and Prevention, 84,* 65-73. doi:10.1016/j.aap.2015.08.011**

Aim: **To examine red light running of cyclists in Dublin City.**

Methods: **An observational survey and an online questionnaire.**

Conclusions: **61.9% of cyclists break the lights: 97.8% of cycle track users (pedestrian green phase); 18.6% of bicycle lane users (motorist phase). The most significant predictors were infrastructure type (cycle track) and cyclist gender (male).**

Gaps in the Research: **Need to account for difficulties people have in reporting incidents while cycling**

Critique: **The Dublin cycle network primarily consists of on-road cycle lanes. The surveys focussed on an even number of junctions with cycle lanes and cycle tracks. The overall rate of infringement is not fairly represented: in reality, it would be lower… (…)**

9 Please observe an overall **maximum of 1500 words** in the assignment.