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Submitted by

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B. Eng. (ABC Uni)

A dissertation submitted in partial fulfilment of the requirements for the degree of

Master of Science in Engineering

(Electrical and Electronic Engineering)

At the
Department of Electrical and Computer Engineering

The University of Hong Kong

In

May 2026

ABSTRACT

The abstract should be suitable for direct inclusion in abstracting services as a self-contained article. The length of the abstract should not exceed 1 page. Do not include figure numbers, table numbers, references or displayed mathematical expressions. Provide the abstract word count.

Abstract Word Count: XXX

DECLARATION

I declare that this dissertation represents my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University or to any other institution for a degree, diploma or other qualifications

Signed_____

YOUR NAME

ACKNOWLEDGEMENT

I would like to express my sincere gratitude to all those who contributed to the completion of this thesis.

First and foremost, I would like to thank xxxxxxxxxxxxx

Finally, I am deeply grateful to my family for their constant love, patience, and belief in me. This thesis would not have been possible without their unwavering support.

Thank you to everyone who contributed directly or indirectly to this work.

[Your Name]
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Chapter 1 Introduction

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1.1 This is Section 1.1

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Sub-section

This is an example of equation

$$\boldsymbol{\beta} = (\boldsymbol{X}^T \boldsymbol{X})^{-1} \boldsymbol{X}^T \boldsymbol{y} \tag{1.1}$$

Provide equation numbers. Equation numbers should be named according to the chapters.

$$\widetilde{\boldsymbol{\beta}} = (\mathbf{X}^T\mathbf{X} + \lambda\mathbf{R})^{-1}\mathbf{X}^T\mathbf{y} \qquad (1.2)$$

where λ is a constant called the regularization parameter and the matrix ***R*** depends on the application at hand and methods used. Typical methods includes ridge

1.2 Motivation and Contribution

This section is dedicated for motivation and contribution. You should elaborate about your contribution in this dissertation.

1.3 Outline

The thesis is organized as follows.

Chapter 2 Literature Review

A classifier $f : \boldsymbol{x} \in R^p \rightarrow y \in S$ is a function or mapping which returns for a feature vector $\boldsymbol{x}$ the membership function y that belongs to a given set S. The membership function can either be a soft decision where $y \in R$ or a hard decision that S consists of discrete labels of different classes. For binary classifier with discrete output, $y \in \{0,1\}$.

Consider an input $\boldsymbol{x}=[x_1\ x_2\ \ldots x_j \ldots x_p]^T$, where x_j is referred as a feature. The collection of n samples of $\boldsymbol{x}$, $\boldsymbol{x}_i=[x_{i,1}\ x_{i,2}\ \ldots x_{i,j} \ldots x_{i,p}]^T$ $i=1,\ldots,n$, forms an input or design matrix $\boldsymbol{X} \in [\boldsymbol{x}_1, \ldots, \boldsymbol{x}_n]^T$. The corresponding labels/classes or responses y_i are stacked in the response vector $\boldsymbol{Y}=[y_1\ y_2 \ldots y_j \ldots y_n]^T$ or classes of items. In this thesis, we focus mainly on two-class classification, where $y \in \{0,1\}$. In classification, all inputs $\boldsymbol{X}$ are labelled and are used to determined the classifier. Usually, the data set is divided in a training set $\{(\boldsymbol{x}_1,y_1), (\boldsymbol{x}_2,y_2), \ldots (\boldsymbol{x}_m,y_m)\}$, and a testing set, one for training the classifer and the other for evaluating its ability of generalization. It should be distinguished from unsupervised (semi-) clustering, where all (part of the) samples are unlabelled and the separation is carried out without previous knowledge on the relationship between the $\boldsymbol{Y}$ and $\boldsymbol{X}$.

Table 2.1 shows an example of a table. Fig. 2.1 shows an example of a figure.

Chapter 7: Results and Discussion

Table 2.1 Example of a Table

Initialization $\boldsymbol{\gamma}^{(0)} \in \Re^{p}$; $t = 0$; (loop = 0);
Recursion: $\boldsymbol{\eta}^{(t)} = \boldsymbol{Z}\boldsymbol{\gamma}^{(t)}$ $p_i^{(t)} = \dfrac{1}{1+e^{-\eta_i^{(t)}}}$ $\widetilde{w}_i^{(t)} = \widetilde{p}_i^{(t)}(1-\widetilde{p}_i^{(t)})$, $\widetilde{\boldsymbol{W}}^{(t)} = diag\{\widetilde{w}_1^{(t)}, \widetilde{w}_2^{(t)} .... \widetilde{w}_p^{(t)}\}$

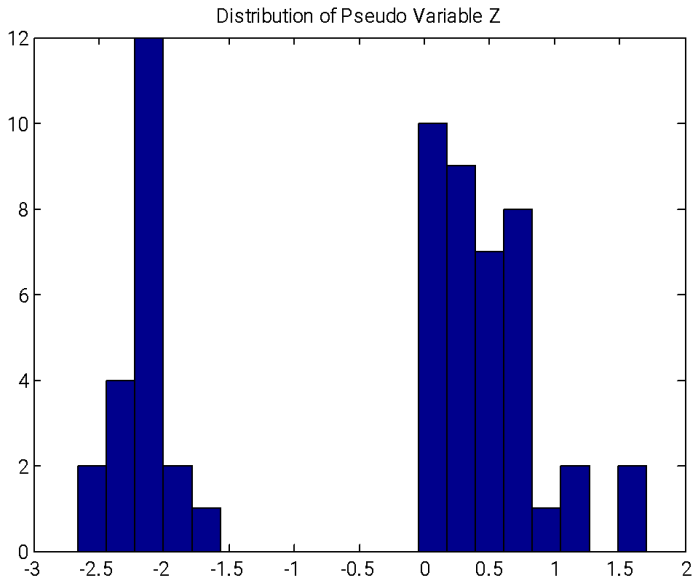

Fig 2.1. This is a figure.

References

Conclusion

This is my conclusion.

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