UNIVERSITY OF MORATUWA

Predictive Model for Gap Reduction Between Web Analytics and Business Strategy

by

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A thesis submitted in partial fulfillment of the requirements for the
Degree of MSc in Computer Science specializing in Cloud Computing

in the
Faculty of Engineering
Department of Computer Science and Engineering

28th February 2019

Declaration

I declare that this is my own work and contains no material that has been published previously in whole or in part for the fulfillment of any degree program. All the referenced materials have been acknowledged in text.

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Abstract

Digital marketing and web analytics are two distinct areas that have captured the attention of many industrial firms. There are a lot of tools developed and a lot of studies carried out in each area separately. But still, a firms ability to harness web analytics to optimize digital marketing elements is limited. This work focuses on evaluating previous work in each of these areas and combine them to build a model that would define the relationship between digital marketing and web analytics. Data captured through each area is expected to be analyzed in the form of a time series forecasting problem. Time series forecasting is a very popular area that captured a lot of firms attention in recent years. This is due to the fact that most real-world problems are linked to a temporal component, and thus can be considered as a time series. Furthermore, this work utilizes cloud services for building and running the learning models.

Acknowledgements

I would like to express my sincere thank to my parents and my beloved wife for the continuous support given to manage my studies. And I would like to thank Dr. Shantha Fernando for the guidance and support given throughout the research to make it a success. Furthermore, I would like to thank Mr.Ashan Fernando for the encouragement and knowledge shared to continue this research until the end. Finally, my sincere appreciation goes to my colleagues at ShoutOUT Labs for the support given to manage my research work with office work.

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Abbreviations

ANN	**A**rtificial **N**eural **N**etwork
ARMA	**A**uto **R**egressive **M**oving **A**verage
ARIMA	**A**uto **R**egressive **I**ntegrated **M**oving **A**verage
AWS	**A**mazon **W**eb **S**ervices
DeepAR	**Deep A**uto **R**egressive
GCP	**G**oogle **C**loud **P**latform
GUI	**G**raphical **U**ser **I**nterface
IaaS	**I**nfrastructure **as a S**ervice
K-NN	**K**-**N**earest **N**eighbour
LSTM	**L**ong **S**hort-**T**erm **M**emory
MAD	**M**ean **A**bsolute **D**eviation
MLMVN	**M**ulti **L**ayer **M**ulti **V**alued **N**eurons
MSE	**M**ean **S**quared **E**rror
PaaS	**P**latform **as a S**ervice
QRF	**Q**uantile **R**andom **F**orest
RNN	**R**ecurrent **N**eural **N**etwork
S3	**S**imple **S**torage **S**ervice
SDK	**S**oftware **D**evelopment **K**it
TS	**T**ime **S**eries