

Thesis title goes here

By HERE goes Author name

Supervisor **Prof. Someone**

Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Computer Science

Princess Sumaya University for Technology
King Abdullah I School of Graduate Studies and Scientific
Research

Princess Sumaya University for Technology King Abdullah I School of Graduate Studies and Scientific Research Authorization Form

I, HERE GOES AUTHOR NAME, authorize Princess Sumaya University for Technology
to supply copies of my Thesis/Dissertation to libraries or establishments or individual on
request, according to the Regulations of Princess Sumaya University for Technology.

Signature:		
Date:		

Examination Committee Decision

This Thesis (TITLE GOES HERE) was Successfully Defended and Approved on 2018-06-25.

Examination Committee	Signature
Prof. Name goes here, Supervisor, Chairman Professor of XYZ	
Prof. Name goes here, Member Professor of XYZ	
Dr. Name goes here, Member Associate Professor of XYZ	
Dr. Name goes here, External Member Associate Professor of XYZ Other University Name	

Here goes the thesis title

By

John Random Hacker

Supervisor

Prof. John Random Hacker

Abstract

Paragraph on the topic of "Something", Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Dedication

To my mother and father.

To my wife and my family.

I dedicate this work.

HERE GOES AUTHOR NAME

Acknowledgments

I wish to express my deep sense of gratitude to my supervisor Prof. XYZ, for his outstanding guidance and support which helped me in completing my thesis work. I would also like to thank Dr. XYZ, for her valuable assistance and help to fulfill my work.

HERE Goes Author Name

Contents

Αι	uthori	ization	ii
Ex	amin	nation Committee Decision	iii
Al	ostrac	et	iv
De	edicat	zion	v
A	cknow	vledgments	vi
Li	st of T	Γables	ix
Li	st of l	Figures	X
Li	st of A	Abbreviations	xi
1	Intr	oduction	1
	1.1	Problem Statement	1
	1.2	Application	1
	1.3	Scope	1
	1.4	Methodology	1
	1.5	Contribution	2
	1.6	Thesis Organization	2
2	Bac	kground	3
	2.1	My Section	3

	2.2	My other section	3
3	Lite	rature Review	6
	3.1	Something	6
	3.2	Something	6
4	Imp	lementation	7
	4.1	Preparing datasets	7
		4.1.1 Stock Datasets	7
		4.1.2 Vehicle Viewing Angles Dataset	7
	4.2	Other section	7
		4.2.1 Subsection	7
		4.2.2 other subsection	7
5	Disc	eussion and Recommendations	9
	5.1	Results	9
	5.2	Recommendations	9
Re	eferen	ces	10
Ał	ostrac	et in Arabic	11

List of Tables

List of Figures

2.1	Two curves that have same loss of zero. Green one have smaller weights,		
	blue one have higher weights.	4	
2.2	ResNet building block blah blah blah blah blah blah	5	
2.3	A bird picture from birds-200 database.	5	

List of Abbreviations

Abbreviation	Meaning
ConvNet	Convolutional Neural Network
ML	Machine Learning

Chapter 1. Introduction

1.1 Problem Statement

This template can be found on github.com/muayyad-alsadi/psut-latex-thesis

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1.2 Application

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1.3 Scope

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

1.4 Methodology

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur

sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est

laborum.

1.5 **Contribution**

This research study Machine Learning (ML) and Convolutional Neural Networks (Con-

vNets) (show how to use singular and plural of some acronym) and then they are referenced

again ML and ConvNets. Lorem ipsum dolor sit amet, consectetur adipiscing elit.

• Lorem ipsum dolor sit amet.

• Lorem ipsum dolor sit amet.

This research introduces the following terms:

MyTerm: Lorem ipsum dolor sit amet.

MyTerm2: Lorem ipsum dolor sit amet.

1.6 Thesis Organization

This thesis is divided into five chapters. After this introduction chapter, comes the

"Chapter 2". Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod

tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nos-

trud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure

dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excep-

teur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id

est laborum.

2

Chapter 2. Background

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

2.1 My Section

A paragraph refer to another section, see section 2.2 for details.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

2.2 My other section

See formual 2.1 and 2.2

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

$$D = \{\chi, P(X); X \in \chi\} \tag{2.1}$$

and given a labeled training dataset $T = \{(X_1, y_1), (X_2, y_2), ...\}$, for $X_i \in \chi$, $y_i \in Y$.

The classification task is defined(Pan & Yang, 2010) to find a function g(X) that predicts the label having maximum conditional probability P(y|x) or predict the joint probability of each label f(X,y) = P(X,y) in the domain

$$softmax(o_j) = \frac{e^{o_j}}{\sum_{i=1}^{n} e^{o_i}}$$
(2.2)

See figure 2.1 and 2.2 to see how we insert graphs. Also one can refer sub-figure as in figure 2.2a. All those were EPS, PDF and SVG using "save as" feature in Inkscape.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

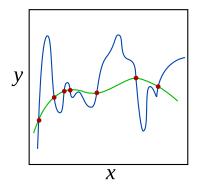
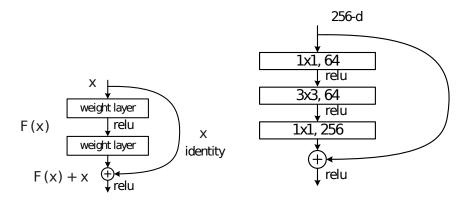


Figure 2.1: Two curves that have same loss of zero. Green one have smaller weights, blue one have higher weights.

Source: Wikipedia

One can also refer to raster images as in figure 2.3



(a) ResNet Building Block

(b) ResNet Bottleneck

Figure 2.2: ResNet building block blah blah blah blah blah blah blah. Source: He, Zhang, Ren, and Sun, 2016



Figure 2.3: A bird picture from birds-200 database. Source: Wah, Branson, Welinder, Perona, and Belongie, 2011

Chapter 3. Literature Review

3.1 Something

One can cite books like this(Russell & Norvig, 2003) and (Negnevitsky, 2005) or a collection of books as in (Turing, 2009). A paper in journal like (Russakovsky et al., 2015), this (Duchi, Hazan, & Singer, 2011) and (He & Sun, 2015) and this (Bello, Zoph, Vasudevan, & Le, 2017) and a preprint (Iandola et al., 2016).

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

3.2 Something

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Chapter 4. Implementation

4.1 Preparing datasets

4.1.1 Stock Datasets

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

4.1.2 Vehicle Viewing Angles Dataset

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

4.2 Other section

4.2.1 Subsection

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

4.2.2 other subsection

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud ex-

ercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Chapter 5. Discussion and Recommendations

5.1 Results

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

5.2 Recommendations

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

References

- Bello, I., Zoph, B., Vasudevan, V., & Le, Q. V. (2017). Neural optimizer search with reinforcement learning. *Proceedings of the 34th international conference on machine learning*, International Convention Centre, Sydney, Australia: PMLR, *70*, 459–468. arXiv: 1709.07417. Retrieved from http://proceedings.mlr.press/v70/bello17a.html
- Duchi, J., Hazan, E., & Singer, Y. (2011). Adaptive subgradient methods for online learning and stochastic optimization. *Journal of Machine Learning Research*, 12(Jul), 2121–2159. Retrieved from http://dl.acm.org/citation.cfm?id=1953048.2021068
- He, K. & Sun, J. (2015). Convolutional neural networks at constrained time cost. *Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR)*, 5353–5360. IEEE. doi:10.1109/CVPR.2015.7299173
- He, K., Zhang, X., Ren, S., & Sun, J. (2016). Deep residual learning for image recognition. *Proceedings of the IEEE conference on computer vision and pattern recognition (CVPR)*, 770–778. IEEE. doi:10.1109/CVPR.2016.90
- Iandola, F. N., Han, S., Moskewicz, M. W., Ashraf, K., Dally, W. J., & Keutzer, K. (2016). SqueezeNet: AlexNet-level accuracy with 50x fewer parameters and< 0.5 mb model size. *arXiv preprint*. arXiv: 1602.07360. Retrieved from http://arxiv.org/abs/1602.07360
- Negnevitsky, M. (2005). *Artificial intelligence: a guide to intelligent systems* (2nd ed.). Addison-Wesle.
- Pan, S. J. & Yang, Q. (2010). A survey on transfer learning. *IEEE Transactions on knowledge and data engineering*, 22(10), 1345–1359. doi:10.1109/TKDE.2009.191
- Russakovsky, O., Deng, J., Su, H., Krause, J., Satheesh, S., Ma, S., ..., Bernstein, M., et al. (2015). ImageNet large scale visual recognition challenge. *International Journal of Computer Vision (IJCV)*, 115(3), 211–252. doi:10.1007/s11263-015-0816-y
- Russell, S. J. & Norvig, P. (2003). *Artificial intelligence: a modern approach* (2nd ed.). Prentice Hall.
- Turing, A. M. (2009). Computing machinery and intelligence. In *Parsing the turing test* (pp. 23–65). Springer.
- Wah, C., Branson, S., Welinder, P., Perona, P., & Belongie, S. (2011). *The caltech-ucsd birds-200-2011 dataset* (tech. rep. No. CNS-TR-2011-001). California Institute of Technology.

هنا نضع عنوان الرسالة إعداد: فلان الفلاني إشراف: أ.د. عرفلان الفلاني الملخص

أبجد هوز حطي كلمن، أبجد هوز حطي كلمن. أبجد هوز حطي كلمن، أبجد هوز حطي كلمن. أبجد هوز حطى كلمن، أبجد هوز حطى كلمن.

أبجد هوز حطي كلمن، أبجد هوز حطي كلمن. أبجد هوز حطي كلمن، أبجد هوز حطي كلمن.