A

Seminar Report

Entitled

Seminar Title

Submitted to the Department of Electronics Engineering

in Partial Fulfillment of the Requirements for the Degree of

MASTER OF TECHNOLOGY

(COMMUNICATION SYSTEMS/VLSI & EMBEDDED SYSTEMS)

submitted by

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(Roll Number)

Guided by

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CERTIFICATE

This is to certify that **Student Name**, **(Adm. No. Roll Number)**, Full-time M.Tech student has presented and submitted his/her seminar report on **'Seminar Title'**, in partial fulfillment of the requirement for the award of the degree **MASTER OF TECHNOLOGY** in **COMMUNICATION SYSTEMS/VLSI & EMBEDDED SYSTEMS** during the year **202X-2X**.

Examination Committee Members:

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Examiner:	Dr. XXX	
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DECEMBER 202X

Acknowledgments

The acknowledgment will be written in this space.

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Date: dd/ mm/ 20xx

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Abstract

This study introduces the basic structure and academic writing applications of LaTeX documents.

This is a simple one-page abstract template. Please keep your abstract length at one page. The abstract should be in English. You may include figures and pictures in your abstract, as long as they fit in the single page limit.

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Declaration

I declare that this written submission represents my ideas in my own words, and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented, fabricated, or falsified any idea, data, fact, or source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and may also result in penal action from the sources that have not been properly cited or from whom proper permission has not been obtained when necessary.

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Name of Student
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Date: dd/mm/yyyy
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List of Symbols

x	position
v	velocity
a	acceleration
t	time
F	force

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List of abbreviations

CPU	Central Processing Unit
DMP	Digital Motion Processor
DoF	Degrees of Freedom
DSP	Digital Signal Processor
FBX	Filmbox (file format)
GPIO	General Purpose Input/Output
HAL	Hardware Abstraction Layer
HID	Human Interface Device
IDE	Integrated Development Environment
IMU	Inertial Measurement Unit
IoT	Internet of Things
LED	Light-Emitting Diode
MEMS	Microelectromechanical system
OS	Operating System
QFN	Quad Flat No-leads
SDK	Software Development Kit
SoC	System on Chip
sps	Samples Per Second
TI	Texas Instruments
UUID	Universally Unique Identifier

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Chapter 1

Name of chapter 1

1.1 Name of section

Currently wireless [1] technology finds its widest expression in fixed and mobile roles. In the fixed role, wireless is used extensively for data transfer, especially from desktop computers and lap-tops. In the mobile role, wireless networks provide mobility for use from fast vehicles for both voice and data. A base station (BS) with 100s or even 1000s of antennas we will provide in a centralized or distributed manner, such a integrated system can potentially reduce multiuser interference along with provide a multi fold increase in cell data throughput [**?**].

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Chapter 2

Name of chapter 2

2.1 Name of section

Table 2.1: Summary of Literature reviews.

Year	**Authors**	**Remarks**
1988	Edfors et.al [**?**]	used low channel estimators for ofdm channel estimation using frequency correlation of channnel. Used 16-QAM evaluated performance of system in symbol error rate(SER)
2007	Musolino et.al [**?**]	a new adaptive identification method for blind power-line channel estimation and equalization for OFDM communication systems.whenever channel has more nonlinearities proposed method works well
2012	C Chen, MD Zoltowski et.al [**?**]	Given analysis of sparse channel estimation for OFDM based on basian learning and larger time delay estimation of the doubly selective channel in a multiple consecutive OFDM symbols will be avoided

2.2 Positioning Figures and Tables

Title: OFDM channel estimation by singular value decomposition [?][1998]

Place figures and tables at the top and bottom of columns. Avoid placing them in the middle of columns. Large figures and tables may span across both columns. Figure captions should be below the figures; table heads should appear above the tables. Insert figures and tables after they are cited in the text. Use the abbreviation “Fig. **??**”, even at the beginning of a sentence.

Table 2.2: Comparison of Performance Metrics

Method	**Accuracy (%)**	**Latency (ms)**	**Parameters**
Baseline Model	85.42	45.2	1.2M
Proposed Model	**93.18**	**28.1**	0.8M
Variant A	90.15	33.6	1.0M

Chapter 3

Name of chapter 3

3.1 Overview

Orthogonal frequency Division Multiplexing (OFDM) employs Multi-Carrier Modulation (MCM) technique highly attractive for implementation and received considerable attention due to the need for high speed data transmission. Orthogonal sub carriers allow their spectrums to overlap which achieves the high spectral efficiency.

3.2 Hyperparameter Tunning-Improving neural networks

Building a Deep neural network architecture for a specific application it is not a big issue. To reduce the time needed for training deep neural network model and for improving its accuracy we have to use hyperparameter tuning. These techniques are very useful for reducing training period. This section divided into three parts i.e first part will explain how to divide the data into training set, development set, test set and it covers some regularization techniques, dropout methods, batch normalisation process etc. Part 2 will give brief idea about optimizers that is RMSprop and Adam optimizer. Finally we can see how hyperparameter tuning can improve the model efficiency. Choosing hyperparameters and observing their effect on efficiency it is very crucial part in training neural networks. There is no standardized way for choosing hyperparameters. We can select hyperparameters according to the results given by tuning this is completely observation process.

Some of the hyper parameters are listed below

- Different types of active functions used at input, hidden and output layers.
- Learning rate

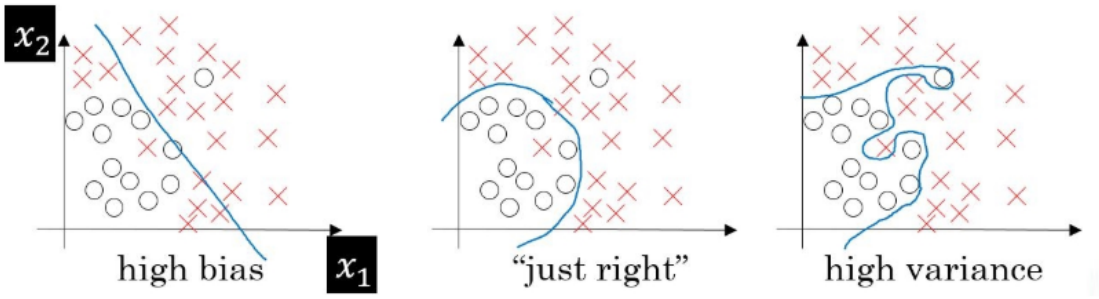

Figure 3.1: Curves for showing under fit and over fit data [2]

- How many hidden layers and how many units present in each hidden layer.

3.2.1 Bias and Variance

If we are classifying objects using a straight line then and it is called under-fit and it is highly biased. If we will classify the objects perfectly using curves then it is called over-fit and that are high variance.

For best model always bias and variance values should be less. Choosing the best model includes checking the training set and testing set error. some points to keep in mind for choosing the model

- If test set error is greater than train set error then model representing over fitting and it has high variance.
- If test set and train set error both are having high value then model represented as under-fitting and it has high bias.
- If Training set error is more than test set error then model has high variance and high bias.
- Train set and test set error both are small then data is fitted reasonably, Hence model as low variance and low bias.

***

Appendix A

Appendix 1

A.1 Name of section

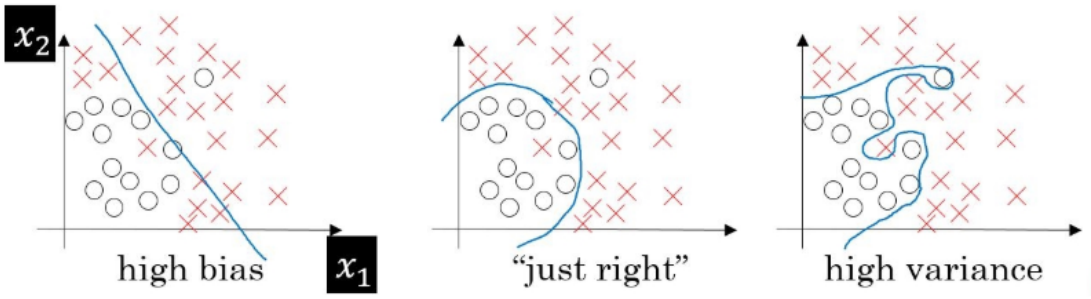

Figure A.1: Curves for showing under fit and over fit data [2]

Currently wireless [1] technology finds its widest expression in fixed and mobile roles. In the fixed role, wireless is used extensively for data transfer, especially from desktop computers and lap-tops. In the mobile role, wireless networks provide mobility for use from fast vehicles for both voice and data. A base station (BS) with 100s or even 1000s of antennas we will provide in a centralized or distributed manner, such a integrated system can potentially reduce multiuser interference along with provide a multi fold increase in cell data throughput [**?**].

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Appendix B

Appendix 2

B.1 Overview

Orthogonal frequency Division Multiplexing (OFDM) employs Multi-Carrier Modulation (MCM) technique highly attractive for implementation and received considerable attention due to the need for high speed data transmission. Orthogonal sub carriers allow their spectrums to overlap which achieves the high spectral efficiency.

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Some of the hyper parameters are listed below

- Different types of active functions used at input, hidden and output layers.
- Learning rate

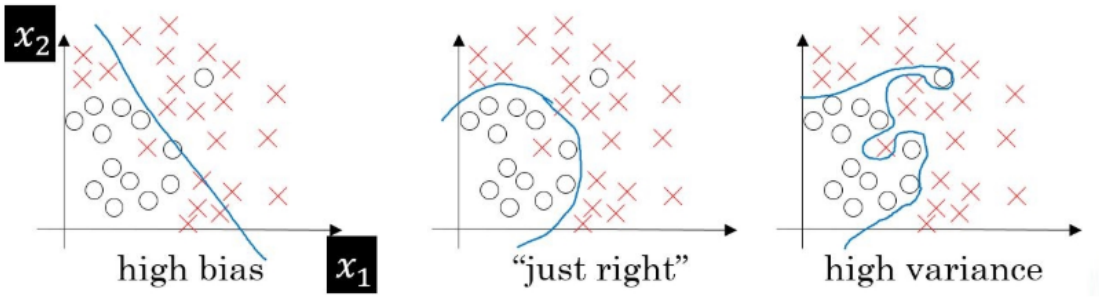

Figure B.1: Curves for showing under fit and over fit data [2]

- How many hidden layers and how many units present in each hidden layer.

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If we are classifying objects using a straight line then and it is called under-fit and it is highly biased. If we will classify the objects perfectly using curves then it is called over-fit and that are high variance.

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References

[1] F. Li, Z. Xu, and S. Zhu, "Variational-inference-based data detection for ofdm systems with imperfect channel estimation," *IEEE transactions on vehicular technology*, vol. 62, no. 3, pp. 1394–1399, 2012.

[2] A. Ghassemi and T. A. Gulliver, "Papr reduction of ofdm using pts and error-correcting code subblocking-transactions papers," *IEEE Transactions on wireless communications*, vol. 9, no. 3, pp. 980–989, 2010.