Disseration Title

BY

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BTech, ABC University, 2015
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DISSERTATION

Submitted in partial fulfillment of the requirements for
the degree of Doctor of Philosophy in Electrical and Computer Engineering
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Abstract

Add your abstract here.

Dedication

To

Name here

Few words for your dedication.

Yours,

Author Name

Acknowledgements

Acknowledge everyone who helped you reach this milestone. Your contributions are enabled by many people supporting your hardwork.

Contents

List of Figures

List of Tables

1. Introduction

1.1 Sample Section

Add your text here. To make any citations, you need to import the bibtex of your reference to the 'Ref.bib' file. Then use the citekey [2] to add your citations [1].

You can refer to your figure usig 1.1. The the following commands to import the figures from 'figs' folder. Try to follow a naming convention for each figure based on their chapter appearance. If the figure is too big, then you can adjust its size by changing the 'width' parameter.

1.2 Challenges and Motivation

1.3 Major Contributions

A summary of the contributions made in this dissertation is as follows,

- A comprehensive study of existing techniques
- Item 2

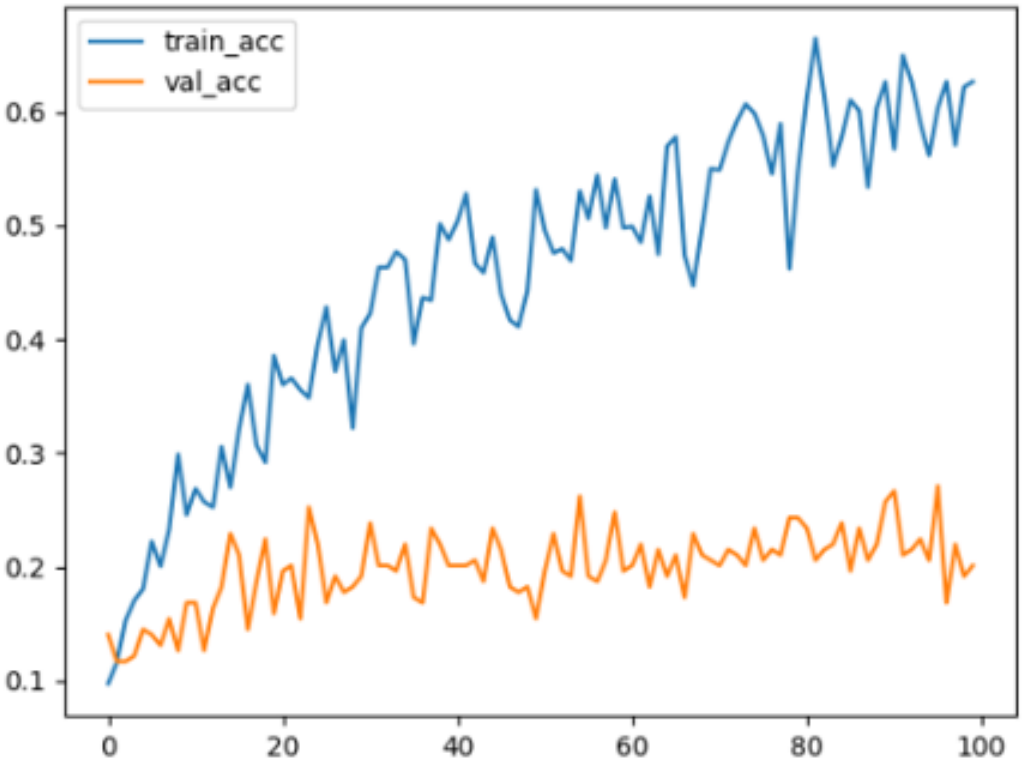

Figure 1.1: A sample for figure.

- Item 3

2. Background and Related Works

2.1 Current State Security

3. Chapter three with Tables and Equations

3.1 Section in Chapter three

Sample Equation here,

$$f_a = |f_l - k \cdot f_{FPS}| < \frac{f_{FPS}}{2}$$

where f_a is the aliasing frequency, f_l is the illumination frequency, f_{FPS} is the sampling rate of video recorders, i.e. video FPS, and k varies until the condition is satisfied. Table 3.1 presents different f_a for their respective nominal frequency. It

Nominal Frequency (Hz)	Frame Rate	Aliasing Frequency (Hz)	2nd Harmonic
60	29.97	0.12	0.24
60	23.97	0.12	0.24
60	30	0	0
60	25	5	10
50	29.97	10.09	9.79
50	23.97	4.12	8.24
50	25	0	0
50	30	10	10

Table 3.1: Aliased Frequency for a given Video Frame rate with different nominal frequency.

is evident that with a CCD-based imaging sensor, the ENF component appears at different frequencies as long as it doesn't disappear as the DC component with 30 FPS.

A sample for equation with Equation number

$$Y(\omega) = \sum_{m=0}^{M-1} X\left(\frac{\omega L - 2\pi m}{M}\right) F_m(\omega) \tag{3.1.1}$$

where

$$F_m(\omega) = \frac{1}{M} \sum_{l=0}^{L-1} e^{-j\frac{\omega(M-L)+2\pi m}{M} l}$$

4. Chapter Four

4.1 Testbed Implementation

5. Detection

5.1 Testbed Implementation

6. Consensus Mechanism

Table 6.1 represents the devices used for the experimental study.

6.1 Discussion

Add your discussions here

Table 6.1: Configuration of Experimental Nodes.

Device	Dell Optiplex-7010	Raspberry Pi 4 Model B
CPU	Intel Core TM i5-3470 (4 cores), 3.2GHz	Broadcom ARM Cortex A72 (ARMv8) , 1.5GHz
Memory	8GB DDR3	4GB SDRAM
Storage	350G HHD	62GB (microSD card)
OS	Ubuntu 16.04	Raspbian (Jessie)

7. Chapter 7

8. Conclusion and Future Work

8.1 Major Contributions

Summarize your dissertations major contributions here.

8.2 Future Work

If required for further discussions.

Appendices

A. Appendix: Acronyms

A&V - Audio and Video

AED - Audio Event Detectors

AI - Artificial Intelligence

XMP - Extensible Metadata Platform

B. Appendix: Publications

Journal Publications

1. Ronghua Xu, Seyed Yahya Nikouei, **Deeraj Nagothu**, Alem Fitwi, and Yu Chen. Blendsps: A blockchain-enabled decentralized smart public safety system. *Smart Cities*, 3(3):928–951, September 2020.

Conference/Workshop Publications

1. **Deeraj Nagothu**, Ronghua Xu, Yu Chen, Erik Blasch, and Alexander Aved. Defake: Decentralized enf-consensus based deepfake detection in video conferencing. In *IEEE 23rd International Workshop on Multimedia Signal Processing*, Tampere, Finland, October 2021.

Book/Chapter Publications

1. **Deeraj Nagothu**, Ronghua Xu, Seyed Yahya Nikouei, Xuan Zhao, and Yu Chen. *Smart Surveillance for Public Safety Enabled by Edge Computing*, pages 409–433. 2020.

Bibliography

[1] D. Nagothu, Y. Chen, A. Aved, and E. Blasch. Authenticating video feeds using electric network frequency estimation at the edge. *EAI Endorsed Transactions on Security and Safety*, 7(24):e4–e4, 2021.

[2] D. Nagothu, R. Xu, S. Y. Nikouei, and Y. Chen. A microservice-enabled architecture for smart surveillance using blockchain technology. In *2018 IEEE international smart cities conference (ISC2)*, pages 1–4. IEEE, 2018.