



TAMPEREEN TEKNILLINEN YLIOPISTO

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**VIDEOTESTAUS MOBIILAITTEISSA**

Diplomityö

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## ABSTRACT

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## ALKUSANAT

Tämä (*d-tyo.tex*) on L<sup>A</sup>T<sub>E</sub>X-pohja Tampereen teknillisen yliopiston opinnäytetöitä varten. Samaan pakettiin kuuluu myös tiedosto *tutthesis.cls*, joka sisältää taittoteknisiä lisäyksiä L<sup>A</sup>T<sub>E</sub>X:n alkuperäiseen *report.cls*-luokkatiedostoon.

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## TERMIT JA NIIDEN MÄÄRITELMÄT

MSE	Mean Square Error
SNR	Signal to Noise Ratio
HSV	Human Visual System
VQEG	Video Quality Experts Group
DVq	Digital Video Quality

# 1. INTRODUCTION

Every second there are xx minutes of video uploaded just to Youtube.com. Most of there videos are taken with mobile devices.

Analysis, subjective or objective, for video is just starting. In year xx there where xx articles in IEEE explorer but after two year the amount of arcticles has skyrockete and there is no end.

The goal for this thesis is to make state of art analysis of current methods of video testing. I will not study transmission erros over networks. I focus on erros coming from coding, device, optics, ois(optical image stabilization), etc. I try to focus more on non-reference methods but reference video methods are also studied and introduced.

Video quality can be determined with psychophysical experiments, but they are expensive and time consuming to arrange. There are no physical measure like meter to predict the quality of video.

On first chapter I will introduce what is mobile device and the restrcitions of it. Dirrerent error types and their causes are introduced.

Second chapter digs in to the differnet testing methods: subjective, objective, reference, non-reference, black box and etc.

Third chapter shows comparision of different methods or practical example done with matlab. This is under evalution.

Fourth chapter is for conclusions.

## 2. THEORY OF VIDEO TESTING

Testing citing [5]

addign cites to get them visible in the end [8] [21] [9] [1] [11] [20] [17] [19]  
[12] [15] [16] [6] [10] [2] [18] [13] [3] [7] [4] [14]

### 2.1 Blink

### 2.2 Noise

### 2.3 Jerkiness

### 2.4 Jellyness

### 2.5 Frame drop

### 2.6 Blockiness

### 2.7 Blurr

### 2.8 Noise

#### 2.8.1 Temporal Noise

### 2.9 Motion smoothness

### 2.10 Jaggy edge



### 3. DIFFERENT TESTING METHODS

3.1 Reference testing

3.2 Non-Reference testing

3.3 Objective testing

3.4 Subjective testing

## 4. PRACTICAL EXAMPLE OR COMPARISON OF METHODS

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On first chapter I will introduce what is mobile device and the restrcitions of it. Also different theories behind video are introduced.

Second chapter digs in to the differnet testing methods: subjective, objective, reference, non-reference, black box and etc.

Third chapter shows comparision of different methods or practical example done with matlab. This is under evaluation.

Fourth chapter is for conclusions.

## 5. CONCLUSIONS

Every second there are xx minutes of video uploaded just to Youtube.com. Most of there videos are taken with mobile devices.

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Fourth chapter is for conclusions.

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## A. LIITTEITÄ