

# COMPARISON STUDY BETWEEN LOCAL AND GLOBAL OPTIMIZATION FOR H.264 ENCODER

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## Abstract

H.264 uses a high efficient and complex technique in order to decide the best mode should be chosen to encode the macroblock. This complex technique based mainly on rate distortion optimization which is called Lagrangian. Repeating these equations for each macroblock consumes a lot of time, and this makes the encoder slow and unsuitable for some real-time and video-telephony applications.

Many researches suggested improvements on the original codec. This study will give an overview for the most published ideas. This study is divided into two parts; the local optimization where the most researches focused on, and the global optimization where is it having just few recent ideas in this area.

**Keywords** H.264, Local optimization, Global optimization, Encoder, Mode.

## 1. Introduction

H.264 is a video coding standard that is used in many applications such as Blu-ray Disc technology. H.264 can compress video down to half of the size compared to MPEG2 at the same

quality and it achieves size reduction by more than 80% compared to MJPEG. Unfortunately, H.264 is very computationally expensive.

Many techniques were proposed to speed up the encoding of the H.264 encoder. The main approach is to simplify the computation of the Lagrange rate-distortion optimization function. The second one is to reduce the number of checked modes of a macroblock by trying to predict the best mode.