Project Proposal : Modified Patchwork Algorithm : A Novel Audio Watermarking Scheme.

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## I.Introduction

This ”project proposal“ is a description of the paper I m working on, and how I could work on it and get some benefits of it.

This project is a personnal project and should be the implementation, of an algorithm or method described in a reference article closely related to digital speech signal processing. There are two goal to this project: 1) understanding, and discovering a paper and a new field by ourself 2) Applicate some algorithm and method discovered during the lecture.

I have chosen a topic, the watermarking, related to the digital speech processing, but that does not contain directly the major tools we have studied this semester, exepting Fourier Transform, and other frequency transform. Nevertheless I will try to use the tools studied during the lecture, and focus on the speech signal in order to extend the field of the studied work in this paper.

I will first introduce what the Watermarking is, and more specifically, the Audio watermarking and go on with the specificity of the above algorithm. Then I will talk about the methods used in this paper to do the watermarking. Next I will describe what I intend to implement and test during the project with a tentative of Schedule and I will try to anticipate what results I would be able to provide by the end of the project.

## II. Description of the Paper objectives

### What is the Watermarking

The watermarking is a method that enable to add some information into a Video, Image, or Audio signal. The watermarking could be hidden or visible depending on the usage you want to do of the information. It is mostly use to track copyrighted materials.

For example if a radio owner, want to broadcast copyrighted material, that he receives but only for listening and not broadcasting purpose, the owner of the rights should be able to prove that he has not the right to broadcast that materials just by recording, and the studying the watermarks included in the broadcast signal, even if the signal has been strongly altered.

A good watermarking should have two characteristics: 1) be inaudible, we should not detect that something has been added to the speech signal 2) Robust, it should resists to all kind of modifications (pitch modification, time-scale) and encoding (lpc encoding for example).

### Specificity of the Audio Watermarking.

The audio watermarking tends to be harder than the other watermarking used in video, and image watermarking. Mostly because the human ear is more sensible to some added signal, especially when the signal is really weak. Nonetheless the Audio Watermarking studied there, is build upon the MPA Watermarking widely used in Image watermarking.

### Target of the Novel Audio Watermarking Scheme

Our specific audio watermarking algorithm is based on the Patchwork algorithm developed by Arnorld, but is a huge improvement and refinement of it. The Arnold al

## III.Methods

IV. Project Objectives

## IV. Tentatives of Schedule

## V.Results to presented

## VI.Conclusion