

SOUND ANALYSIS HOMEWORK USING FFT

1. Research and Understanding:

- Review the Fast Fourier Transform (FFT) algorithm and its application in signal processing.
- Understand how to capture sound input from a PC microphone and process it in Python or MATLAB.

2. Setup:

- Ensure that I have access to a PC with a microphone and speaker, along with the necessary software environment (Python or MATLAB).

3. Program Development:

- Write a Python or MATLAB script to capture sound input from the microphone.
- Implement the FFT algorithm to convert the sound signal from the time domain to the frequency domain.
- Visualize the frequency spectrum using plotting libraries available in Python (such as matplotlib) or MATLAB's built-in plotting functions.
- Develop a comparison mechanism to analyze and distinguish between two different sound inputs based on their frequency spectra.

4. Testing and Validation:

- Test the program with various sound inputs to ensure that it accurately captures and processes the sound signals.
- Verify that the program can effectively distinguish between different sounds based on their frequency characteristics.

5. Documentation and Reporting:

- Document the development process, including any challenges encountered and solutions implemented.
- Provide clear and concise code snippets along with explanations.
- Include screenshots or plots demonstrating the program's functionality.
- Analyze the program's performance and discuss any potential improvements or further enhancements.

6. Submission:

- Compile all code files and documentation into a cohesive submission package.
- Submit the assignment within the specified deadline 5 th april 2024

send your work as an attachment to email to ktudsplab@gmail.com