












PranavSanghavi Update README.md

352a06e · 6 years ago



Name	Name	Last commit date
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 01	update install instructions	6 years ago
 02	add some t's into fm. Simpl...	6 years ago
 03	Update README.md	6 years ago
 04	Update README.md	7 years ago
 05	Update README.md	6 years ago
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## README.md

# Lab Modules

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This lab is a guided tutorial on GNU Radio including an installation guide. The guided exercises involve development of waveform generation and manipulating graphic user interfaces. A short exploration of random Signals and Sampling

## 2. First steps with SDR Hardware

This lab involves working with hardware i.e. the SDR dongle. We shall build a simple FM radio

### 3. Introduction to Fourier Analysis

This is an introductory exercise in Fourier Analysis by way of Harmonic Analysis using Fourier Series.

### 4. Filters

To implement filters. We shall make a an "*equalizer*" for the demodulated FM audio using the filters. Extract fundamental frequencies from a piano chord. Build a guitar tuner.

### 5. Fourier Analysis -- Expert Mode!

Revisit Fourier Transform, FT properties, IQ sampling, Optionally, Implement a simple N-point *Fast Fourier Transform*. Use the gnuradio FFT block and filters from the previous exercise to build a spectrometer. Intruduction to Polyphase filterbanks as an added upgrade to the spectrometer.

### 6. A Radio Telescope

1. Build an Antenna
2. Assemble Low Noise Amplifier
3. Inegration of Antenna to SDR dongle to GNU Radio companion.

### 7. Observations

1. Making measurements
2. Caliberating
3. Mapping the neutral hydrogen
4. Rotation Curve of the Milky Way