Thesis Chapter Plan

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1 Introduction

- Message of the Thesis
- Need for Dynamic spectrum management
- Chapter introduction

2 Spectrum Sensing

2.1 Nyquist Approaches

- Nyquist Theorem as convolution with fence post function

2.2 Compressive Sensing

- Comparison with Source coding: why are we collecting all this extra data?
- Can we colect less?
- This requires undersampling (relative to the number of Nyquist samples)
- Leads to tree questions 1 - How to obtain samples, 2 - how to reconstruct the signal, 3 - How to perform inference on samples
- Signals which we can compress are sparse - some examples
- Instead of measuring sparse coefficients measure correlations between signal and some other basis
- Incoherence
- Restricted Isometry Property
- Reconstruction: solve a linear program/do Bayesian inference.
- Example: single pixel camera