Chapter 6

Scope for Future Work

This thesis work has explored the performance analysis of channel estimation in MIMO OFDM systems. The proposed algorithms and combination of approaches have given the solutions that can play a vital role in the estimation methods. However to increase the accuracy in estimation, variations of the proposed methods can be investigated.

In the first fold work, training- based and blind channel estimation is implemented without precoding. Enhancement can be using precoding based blind- channel estimation with alternate channel fading scenario and also the performance can be compared taking spectral efficiency parameter in addition to the BER.

In the work of compression sensing in MMSE channel estimation, the compression level achieved in demodulation reference signal is nominal, by using least square method and minimum mean square. Enhancement can be done by using matching pursuit algorithm of compression which will increase the level of compression. Also the estimation accuracy can be improved by making use of the common sparsity in MIMO system.

In performance comparison using NOMA in fading channels, the implementation can be extended to the design using advanced encoding technique that offers robustness and effective security for fading channels. The implemented work is in par with the current generations due to the widespread use of NOMA and OMA in many sectors and in the internet technologies.

Methods to reduce further MIMO system complexity and developing corresponding coding and decoding schemes, without significantly impact the system performance can be one of the future aspects. To support, channel estimation methods can be enhanced by including coherent detection, equalization or pilot-symbol-aided estimation.