Chapter 6

Conclusions

In this thesis, we propose new error resilience and error concealment techniques based on field coding structure on scalable H.264 video standard. We conclude our accomplishments as below:

1. We proved that, compared with the FMO (Flexible Macroblock Ordering) in H.264, field coding is indeed a good error resilience tools.
2. Four types of field coding structures, parallel prediction field coding (PPFC), top-field oriented prediction field coding (TOPFC), crossing prediction field coding (CPFC), and full search prediction field coding (FSPFC) are proposed. Discussions of their advantages and disadvantages are given respectively. Considering coding efficiency, we select FSPFC as our field coding structure for base layer coding.
3. For the FSPFC structure, we specifically proposed an adaptive concealment method. In this method, either temporal concealment or spatial interpolation would be selected according to the contents of video sequence.
4. We further applied the field coding scheme to the enhancement layer of scalable H.264 and developed the corresponding adaptive concealment method.
5. Using H.264 with Robust Fine Granularity Scalability (RFGS) as the test bed, we demonstrated that the proposed field coding scheme indeed improve the performance of error resilience.