

Conclusion

The road goes ever on and on.
— *Bilbo Baggins* —

In this thesis a new complementarity method for the numerical solution of optimal control problems has been formulated directly in the frame of infinite-dimensional function spaces. In an affine invariant setting, adaptive inexact Newton continuation theory and algorithms have been worked out. As has been shown, the resulting method is robust and capable of solving even difficult optimal control problems to high accuracy. An intriguing feature of the new method is that it requires virtually no user interaction or a-priori knowledge about the solution structure. This seems to be a significant improvement compared to existing approaches.

Although the algorithm has been shown to work in practical examples, the theory lags behind and still provides several opportunities for future research on qualitative and quantitative aspects of convergence. On the algorithmic side, the numerical efficiency of the method needs to be verified by applying an optimized implementation to a larger set of problems.

