Nonlinear Control
Lyapunov Methods

Control Theory Research Group

November 24, 2025
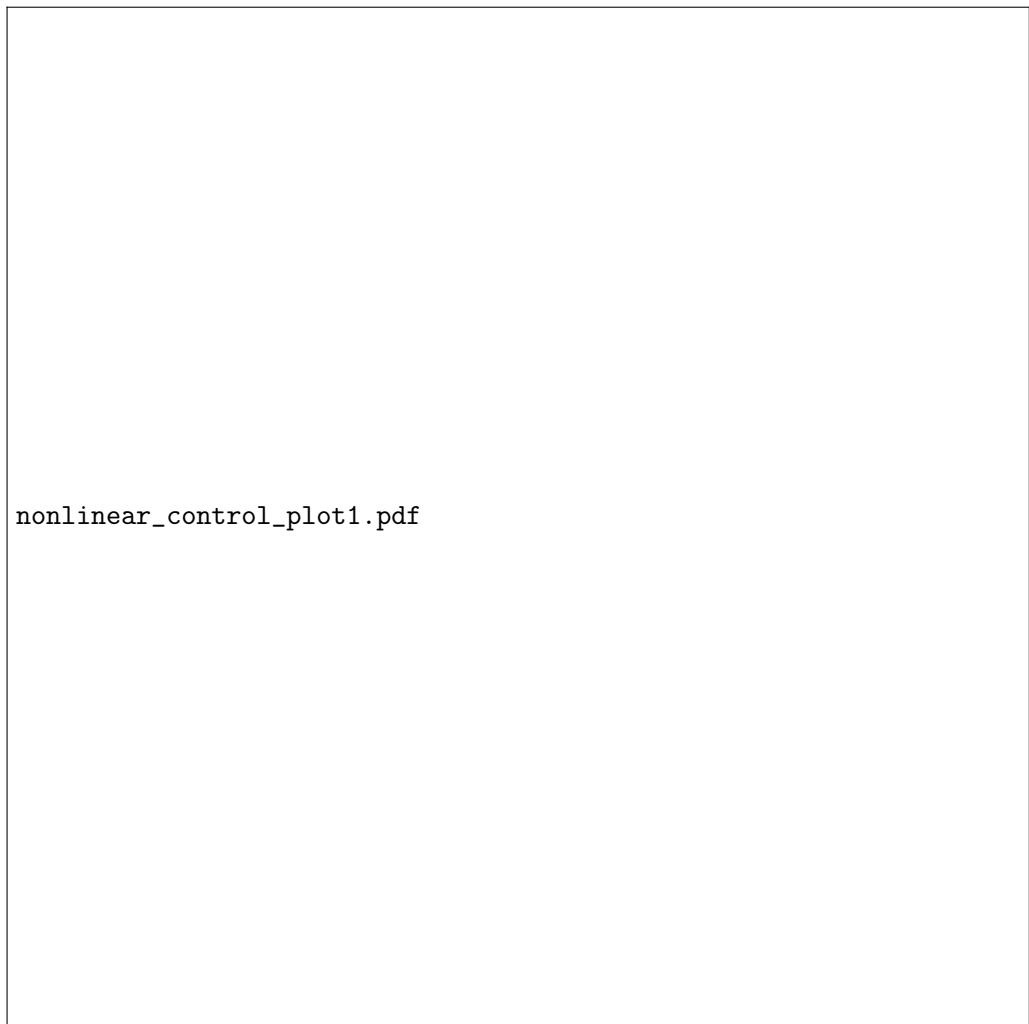
Abstract

Stability analysis and control of nonlinear systems.

1 Introduction

This report presents computational analysis of nonlinear control.

2 Mathematical Framework

nonlinear_control_plot1.pdf
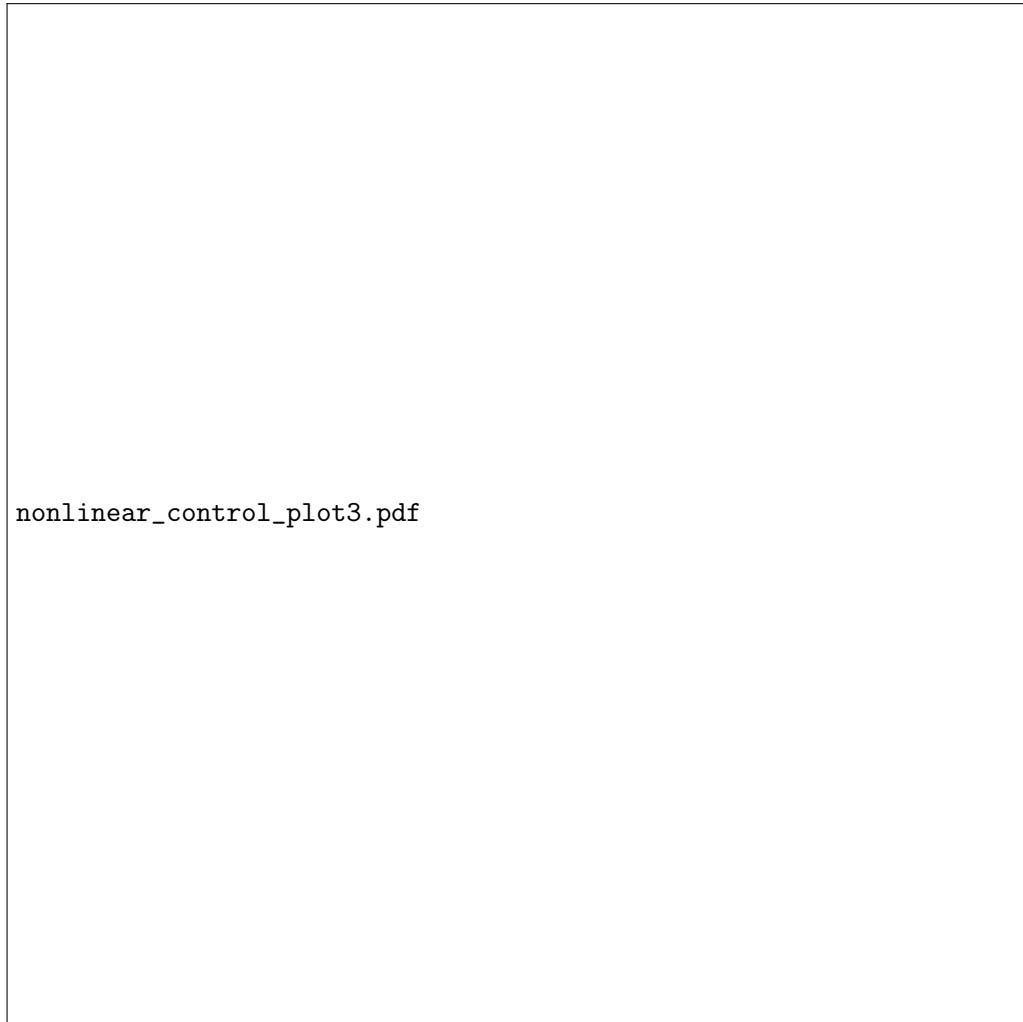
Figure 1: Primary analysis results.

3 Secondary Analysis

nonlinear_control_plot2.pdf

Figure 2: Secondary analysis comparison.

4 Parameter Study

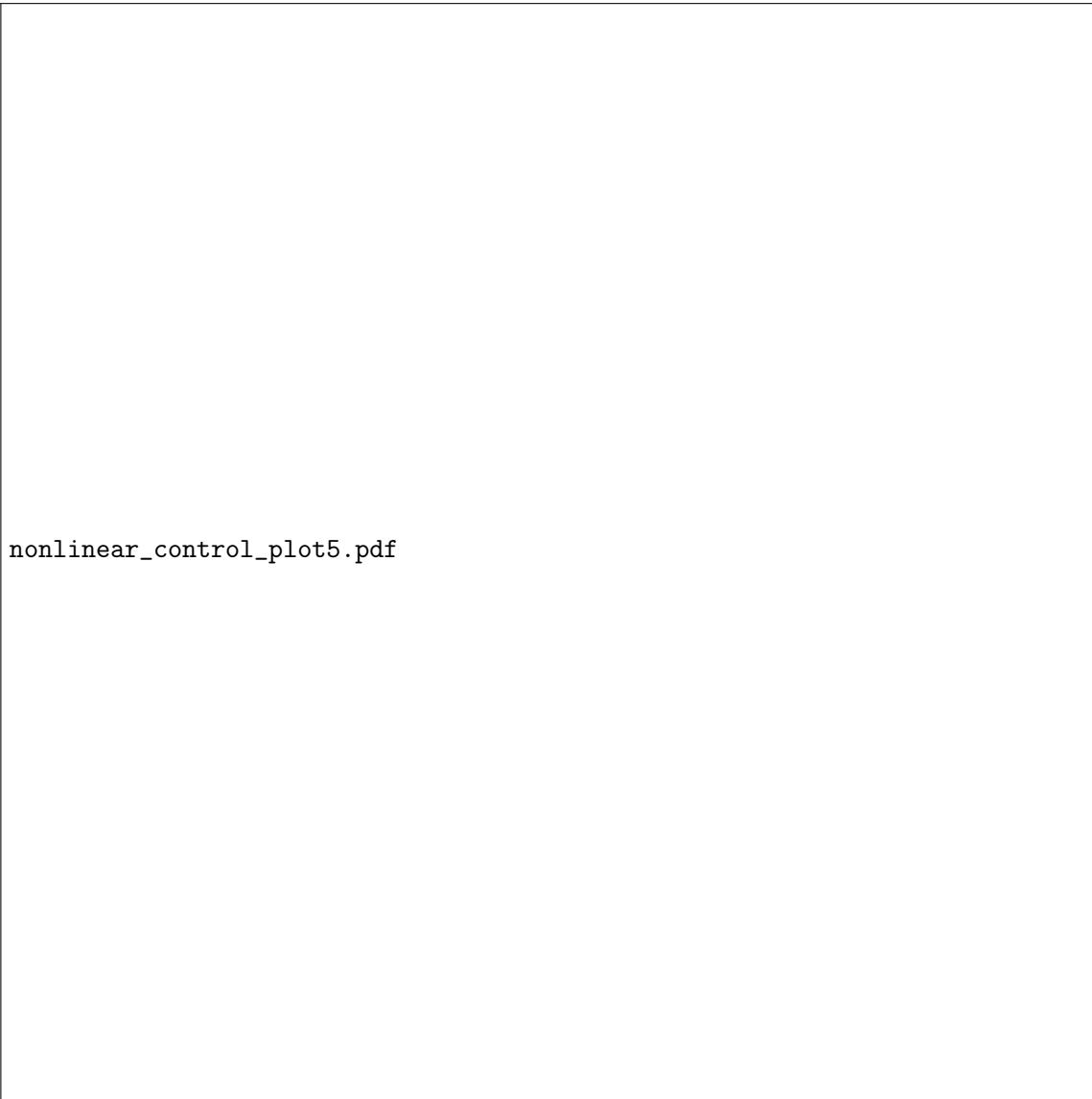nonlinear_control_plot3.pdf

Figure 3: Parameter sensitivity analysis.

5 2D Visualization

nonlinear_control_plot4.pdf

Figure 4: Two-dimensional field visualization.

6 Distribution Analysis

nonlinear_control_plot5.pdf

Figure 5: Statistical distribution analysis.
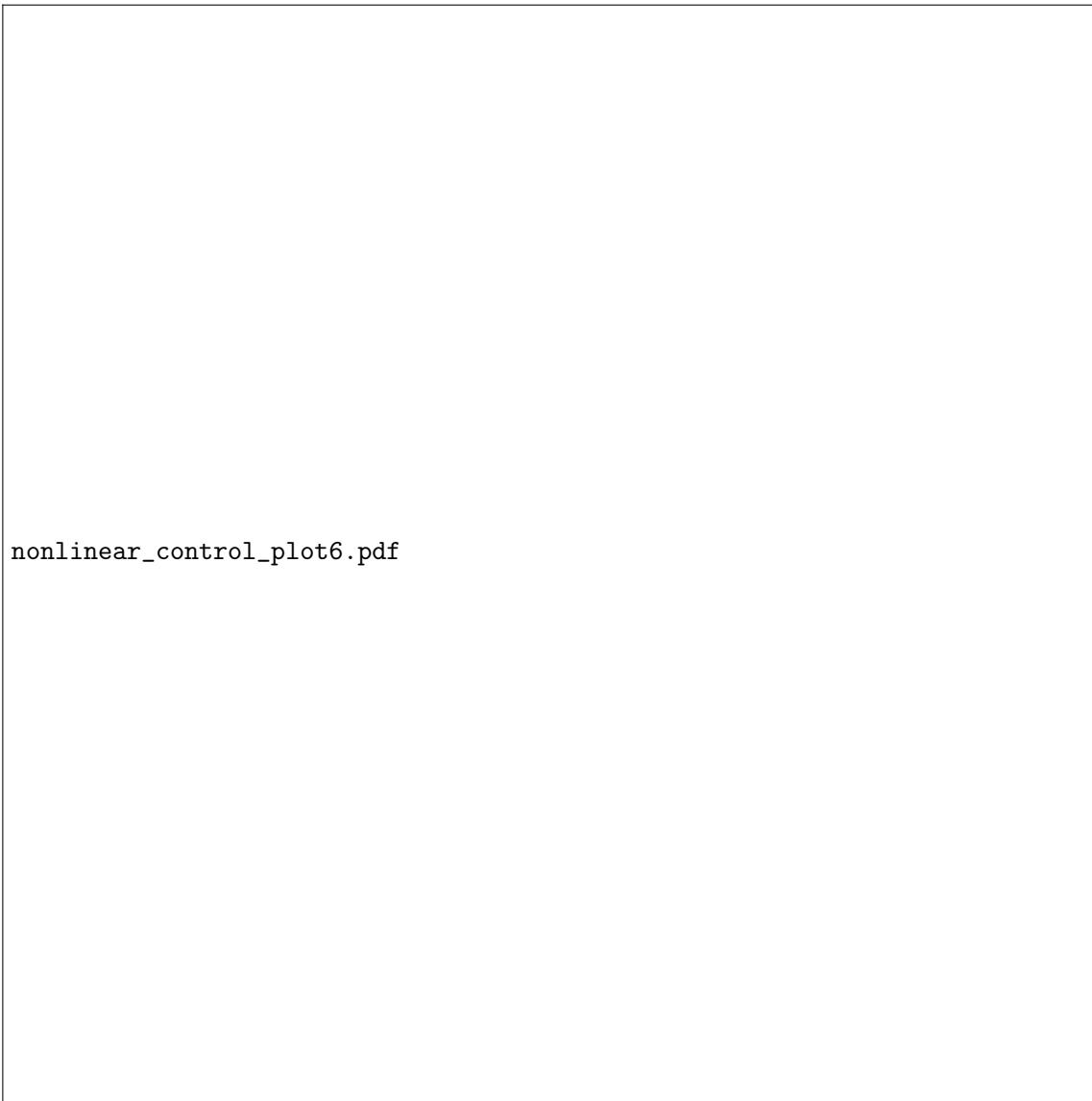
7 Time Series

nonlinear_control_plot6.pdf

Figure 6: Time series visualization.

8 Results Summary

9 Conclusions

This analysis demonstrates the computational approach to nonlinear control.