

Using MATLAB for stability analysis in Controls engineering

By Hagigat, Cyrus

Analyses of control systems require solution of differential equations. Such solutions demonstrate performance in time domain and are used for determining stability boundaries. However, solving the differential equations for moderately complex control systems without use of numerical techniques is at times impossible. MATLAB can be used to solve differential equations and MATLAB can be used to quickly construct a Root-Locus plot for a control system that determines the stability boundaries for the control system without the need to solve the differential equations. This article demonstrates use of MATLAB for both solving system differential equations and constructing Root-locus plots.

Biography

Dr. Hagigat is an associate professor in the college of engineering of University of Toledo, and he is teaching engineering technology courses. He has an extensive industrial background, and he is continuously emphasizing the practical applications of engineering material covered in typical engineering technology courses.