ROOTLOCS

Program Description

RootLocs is a free, easy-to-use program for plotting root locus diagrams of single-input-single-output feedback control loops (both continuous and sampled-data types). Given a system's open loop transfer function, RootLocs plots the loci of the system's closed loop poles as the loop gain parameter is increased indefinitely, starting from 0.

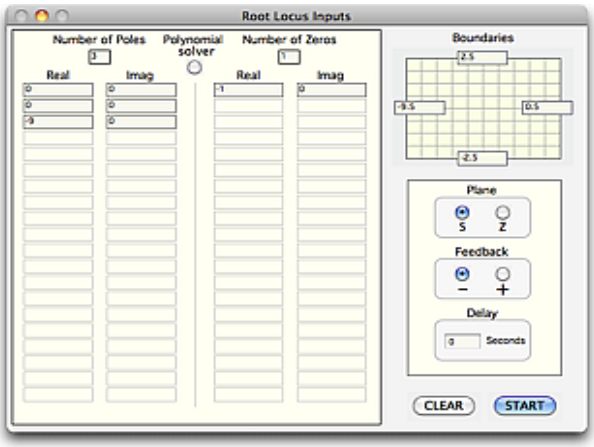
The program can accommodate systems with up to 40 singularities (up to 20 poles and up to 20 zeros) and is able to handle loops with either positive or negative feedback sign, as also loops with time delay.

When it has plotted the root locus diagram, RootLocs allows the user to add, delete and reposition singularities in a graphical way, whereupon the plot is automatically updated. Furthermore, tools built into the program enable the user to obtain the time response and the frequency response of the closed loop system for any value of gain by simply clicking on the locus at a point corresponding to that gain.

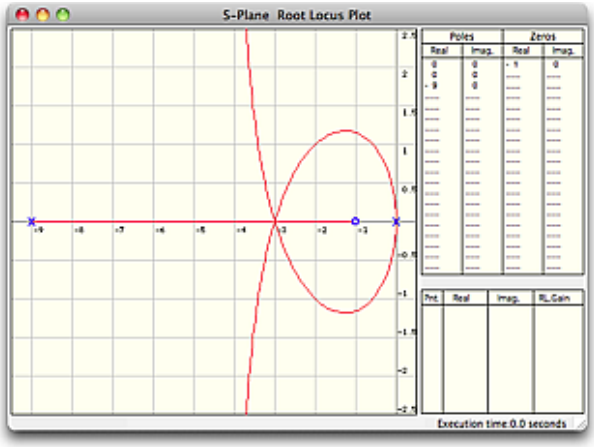
RootLocs is a fast and powerful tool that should prove of value to students of control engineering and practising engineers alike. Step-by-step guidance on how to use the program is provided in the form of a built-in 'Help Book', however, in order to use the program effectively, newcomers to the root locus method are advised to acquire at least a rudimentary knowledge of the ideas that underly it by consulting any good text book on classical control.

More in-depth documentation of the program is available as a separately downloadable document at http://www.coppice.myzen.co.uk/

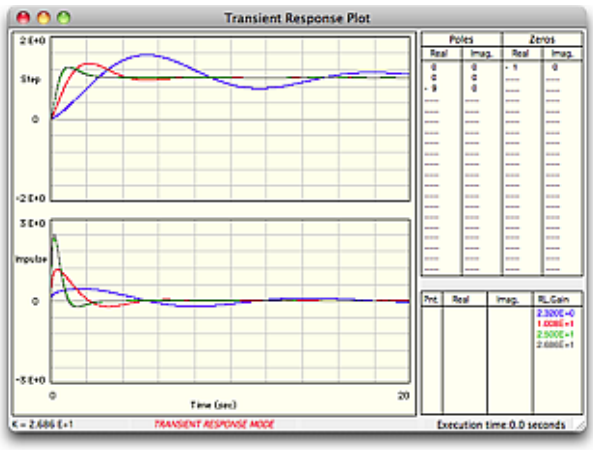
Screenshots



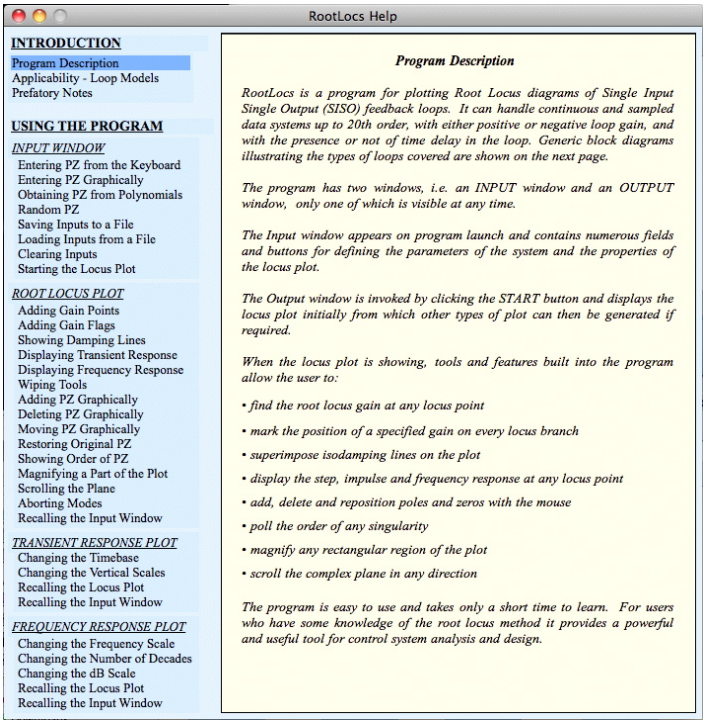
Input Window



Root Locus Plot



Transient Response Plot



Help Book

Program Versions and System Requirements

Both a Macintosh and a PC version of the program are available. The Mac version should work on any computer running Mac OS X 10.0 or higher. The PC version should work on any machine running Windows 2000 or later.